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The New Digital [St]age: Barriers to the Adoption and Adaptation of New Technologies to Deliver Extension Programming and How to Address Them

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Abstract: With the rise of social media and the need for statewide program cohesiveness, The Ohio State University Extension has the opportunity to position itself as a catalyst for technology adoption and adaptation nationwide. Unfortunately, many barriers exist to the successful use and implementation of technology, including an organizational structure that does not cater to the short turn-around new technologies demand and ideological generational divides among all who are affected by the organization. In order to allow new technologies to positively affect Extension programming, we must first break through such barriers with a powerful combination of enlightened knowledge and hands-on training.

"Everything is in a state of flux, including the status quo."—Robert Byrne

Introduction

Imagine you are an Extension professional, torn between the comfort of a career and work you have always known and the inevitable changes that lie ahead. Many professionals are finding themselves in this exact situation as a multitude of changes force their way into their daily lives. Funding and staffing are decreasing, while workloads, time constraints, and new ways of doing things are increasing. The use of technology has always been a "fundamental part of Extension culture . . . The organization has historically been a leader in field-testing promising discoveries and adopting new practices" (Diem, Gamble, Hino, Martin, & Meisenbach, 2009).

With the rise of social media, increasing importance of EERA ([Ohio] Extension Evaluation and Research Areas)-wide colleague collaboration, and the need for statewide program cohesiveness, The Ohio State University Extension has the opportunity to position itself as a catalyst for technology adoption and adaptation nationwide. Unfortunately, many barriers exist to the successful use and implementation of technology. These include an organizational structure that does not cater to the short turn-around new technologies demand, ideological generational divides among all who are affected by the organization, and overall issues with technology in general—not just among traditional Extension clientele but Extension professionals as well. In order to allow new technologies to positively affect Extension programming, we

must first break through these barriers with a powerful combination of enlightened knowledge and hands-on training.

Background and Discussion

Barriers to Adoption and Adaptation

In a technology readiness assessment study *(Assessing County Extension Programs' Readiness to Adopt Technology)* conducted by Oregon State University Extension in 2009, time, money, and training "were identified as key barriers and constraints that keep faculty and staff from adopting technology as useful tools" (Diem et al., 2009). A loss of county funding and staff, coupled with a mass movement of organizational change is not a recipe that will foster acceptance for other changes, especially technological ones. The Oregon State study also found that Extension professionals are generally in denial about the importance of current and future technology trends. Respondents of the study stated that they believed technology would take time away from getting work completed, that it was not valued by their clientele, and that it would detract value from programming.

When considering whether these assumptions are true, there are many important statistics to consider. Wikipedia, the online wiki powerhouse, has over 5 million users who edit, add, and delete content every day. When it comes to blogging, 346 million people worldwide and 77% of active Web users read blogs. The trend also grew by an astounding 68% in 2008 (Varcoe, 2009). How do Extension professionals take advantage of new technology trends? In a study conducted by Elizabeth Wells at Michigan State University Extension, 97% of participants had *never* edited a wiki, 89% had *never* exchanged an instant message with a colleague or client and 73% had *never* posted an article to a website or blog.

Extension professionals have also stated that their dedication to traditional clientele prohibits them from adopting new technology. Many feel that their programs rely on personal contacts and relationships. "Catering to existing, high-maintenance traditional audiences is being done while sacrificing the opportunity to reach new audiences" (Diem et al., 2009). While most Extension professionals feel traditional clientele are resistant to new technology, current trends are showing otherwise.

Jerold Thomas (personal interview, November 18, 2009),

innovation and new technology leader for OSU Extension, describes agriculture Extension clients as being one of the fastest groups of technology adopters. In fact, many of them have taken to "tweeting from the tractor," surpassing some technology adopters by ditching their PCs for portable PDAs (Diem et al., 2009). Even hard-to-reach audiences, who are generally thought of by professionals to be unreachable via technology, are finding ways to afford or use PCs and Smartphones to connect themselves with the online world.

However, while some clientele may be quick to adopt technology, there are some who will inevitably be resistant. A balance must be maintained between satisfying older generations of clientele with face-to-face programming and reaching out to future clientele online.

Extension professionals and clientele are not the only barriers that exist. Extension administration as well as the bureaucratic organizational structure of the system have proven to be a hindrance as well. The Oregon State assessment study found an interesting hiring tend with new employees; new hires generally had the same "technology ethic" as existing staff, especially on the county level (Diem et al., 2009). Another hurdle that exists is the difference in definition of the word "programming" among generations of Extension professionals. To older professionals, programming is seen in the form of tangible curriculum and program

content; to the younger generations, programming can be seen through multiple lenses—not only does it involve curriculum, but online social networking and education as well.

Programming to them is seen as a way to disseminate timely, relevant information to the local and state populations in a way that is most convenient to them. According to Jerold Thomas, (personal interview, November 18, 2009), the traditional structure of the organization does not promote quick adoption of new and innovative programming. Thus, constraints exist when trying to keep the pace with technology trends. While the sharing of information within the organization has become "flatter," a hierarchy still exists in regard to position titles and duties. This can cause even more confusion for state and county employees who are trying to find the most appropriate method of using new technologies. Thomas (personal interview, November 18, 2009), states, "The most important technique Extension administration can use to encourage the adoption of technology is to model desired behavior."

OSU Extension's Relationship with Current and Future Technology

Before the organization can successfully implement various technologies into our programming, we must first understand the new definition of "knowledge" and how social media has affected how it is shared. This transformation was identified as early as the year 2000 when colleagues stated, "Extension is rapidly being drawn into a competitive knowledge marketplace" (King & Boehlje, 2000). However, 10 years later we are still struggling with Extension's role in this new distribution of knowledge. In recent years and even months, the global population was no longer waiting for experts to give them information—they were finding it themselves. Today, with the extremely quick rise in importance of social media, that information is *finding them* (Qualman, 2009). Extension's mission is to take the university to the people. To do so, we should go to where the people "are." Today we can find them online and on their PDAs, engaged in a variety of social media. What is Extension's role in this? How can we compete? The answer is that we *do not compete*—we join.

Many Extension professionals have voiced their concerns over the increasing use of Google to find information by clientele who may have previously looked to the organization for such answers. The power of Google should not be seen as an obstacle, rather it should be viewed as an opportunity for Extension to learn to use it well in order to promote the credible, research-based information we pride ourselves on. According to Thomas, (personal interview, November 18, 2009), "we need to join forces with Google in order to utilize its power to our advantage." In the near future, Extension cannot solely exist on the premise of simply providing the public with information—Google will undoubtedly take over this role and inadvertently force everyone within the organization to change the way we view traditional programming. Thus, the organization should begin focusing on *solutions,* not just *programs* (Diem et al., 2009).

Not only does Google greatly influence how today's populations are engaging; "the big three" (Facebook, Twitter, and LinkedIn) have an enormous impact as well. For example, by 2010, Generation Y will outnumber Baby Boomers—96% of them have joined some form of a social network (Qualman, 2009). Let there be no doubt that this is where the vast majority of Extension's future clientele are already located—and they should not be ignored.

By encouraging Extension professionals to create and use their own social networking accounts, a new audience can be identified and catered to virtually. Examples include the successful impact of blog-components of programs. The *Move It Miami County* blog developed by Extension staff in Miami County, Ohio has received over 7,500 hits since the beginning of the program, providing educational, reliable information to nearly 200 participants as well as an average of 70 individuals each day nationwide who also viewed its content. This statistic brings to light the incredible power of *engaging* our audiences virtually.

Our organization has traditionally been viewed as focusing on *Outreach*. However, we should be moving toward a greater focus on *Engagement*. Engagement is what our modern audience craves the most at this particular time, according to Thomas (personal interview, November 18, 2009). The need for the organization to be more interactive with clientele will only increase as the expectation of programming and the availability of information online increases (Diem et al., 2009).

The increased use of PDAs by the global population forces Extension to look at the potential of utilizing Smartphone technology. With over 2 billion devices in use, mobiles eclipse the estimated 750 million PCs (Siemens, 2009). Similar to modern clientele, professionals may need to be available 24/7 (as they expect from other sources of information), be active in various forms of social media, as well as create and edit wikis. "Our learning content must be available to the device and in the environment they desire" (Siemens, 2008). Eighty-percent of Twitter usage is outside of the Twitter website; people update anywhere, anytime (Qualman, 2009). PDAs have also increased the use of geospatial mapping technology. This technology introduces a great opportunity for Extension professionals; it could serve as an avenue to map needs assessments for any program area. Food deserts could be identified, audiences could be targeted for businesses, and land use models could easily be developed for a variety of uses.

Breaking Through the Barriers: Implementation

To an organization that has maintained a traditional model of knowledge dissemination for the past 100 years, new technologies and the complexity of how social media influences our lives can seem incredibly intimidating. George Siemens, Associate Director of Research and Development with the Learning Technologies Center at the University of Manitoba and author of *Knowing Knowledge*, states, "Static, context-less, content-centric approaches will not work [with the new definition of knowledge]." Siemens sees a shift to network-based learning. "Networks serve as an offloading tool—holding knowledge. In a sense, the networks we create become our learning, that is, our capacity to stay current, informed, and knowledgeable. A program provides for short-term knowledge needs. A well-crafted network provides for continual, life-long learning" (Siemens, 2008).

It will take a steadfast approach by Extension administration to modify the traditional view of the organization's programming. Recommended is the development and implementation of a system-wide *Technology Plan*. Part of the plan would include the development and implementation of a reward system for those who use technology well (Diem et al., 2009). If such a reward system does not exist, future generations of Extension professionals may not feel as though their tech-savvy abilities are appreciated in the organization (Ensle, 2005). Providing rewards and special opportunities for those who are willing to model adoption as well as proven effective use of technology will help foster desired behaviors. Other integral components of the technology plan would include the identification of early adopters who would be used as mentors for those struggling with technology adoption.

Training that involves practical application is of the utmost importance. Only explaining to an Extension professional what a "wiki" is can be translated to handing a toddler a checkbook. "Sure," says the toddler, "I know this has something to do with money, but how do I *use* it?" Extension professionals must be engaged in hands-on training in new technologies in order to fully understand how to use them. Training professionals on the benefits of technology, showing them ways technology can make them more productive and efficient in their work without adding to their current workload, would prove beneficial. It should also be "emphasized that technology is and has been a fundamental part of Extension culture, not an add-on (Diem et al., 2009). The use of new technology needs to be an integral and important job function of a significant number of Extension professionals.

Train-the-trainer programs would ultimately prove to be the most effective method of training. This method would empower faculty and staff to train others in their office on specific technology applications and would assist professionals in learning technology on their own. The majority of training sessions should undoubtedly be experiential and hands-on to improve the chances of effective use of post-training. It must also be kept in mind that in order for training to remain effective, administration must model the desired behaviors and adoption as well.

To promote the use of both new and traditional methods, a blend of delivery methods should be used when transferred to a program setting at the county and state levels. Offering high tech *and* high touch programming to satisfy the needs of traditional, contemporary, and future clientele is best. Such a method would entail providing training in the implementation of blended learning opportunities for programs by mixing technology with traditional on-site educational activities. Programming that would stem from such training (keep in mind this would include the *adjusted* definition of Extension programming) would include face-to-face sessions or events, online newsletters, routine informational "tweets" via Twitter, and frequent use of various social media outlets in conjunction with routine blogging.

Of course, as stated previously, time and money are constant constraints to the implementation of technological adoption and adaptation. These barriers can be addressed by providing training methods as described above (in which a training team would be responsible for committing the most amount of time to the initiative).

Funding must be viewed less as an added cost and more of a necessary investment for future viability and success. Technology does not always have to be viewed as costly to an organization. For example, Facebook *users* translated the site from English to Spanish via a Wiki in less than 4 weeks time; the cost to Facebook—$0 (Qualman, 2009). When technology is used well it leads to greater productiveness and efficiency at an extremely low cost. The Oregon State study further suggests the initiation of "technology innovation mini-grants to support efforts by faculty and staff" to promote technological adoption and ease the funding strain at the county level (Diem et al., 2009).

Conclusion

One key element that exists among all of the barriers is the understanding that there is no realistic way for Extension to stay ahead of new technology. As Jerold Thomas (personal interview, November 18, 2009) suggested, "This idea needs to be accepted and assimilated into Extension ideology—we will be ever changing and evolving to keep up with the demands of current technologies and audiences." A battle rages between Extension's desires as an organization, the world as we would have it, and the way things unfold as concerns of others are factored in. We must begin to see a rich toolset of different approaches to Extension programming, which involves both traditional and non-traditional methods of development and delivery.

There is no doubt that the convergence of Web 2.0 and social media is here to stay—and it is having a dramatic impact on the way knowledge, information, and programs are created and shared. New technologies will change the dynamics of Extension's relationship with current and future clientele it serves by forcing professionals to reevaluate their view of traditional programming. Empowering Extension administration, professionals, and staff to take the leap—to begin the trek toward the unknown West—is the next critical step in this time of momentous change. Doing so will not be without periods of resistance and stress; it will require progressive perseverance, training, and a little enlightenment.

However, if we concentrate very hard and look into the future, we just might be able to catch a glimpse of the Extension professional, who was once fearful of change and afraid of the unknown, confidently striding along a street while heading to a meeting, Tweeting about the next #agchat, updating his or her county's 4-H

fan page on Facebook, and writing a blog post on the latest health news—all from the palm of his or her hand. The meeting will influence around 20 committee members; the rest of their work en route has the potential to influence thousands.

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