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CCT 505

December 8, 2011

The Diffusion of Technology From Up to Down and Top to Bottom

A PQMA Comparison between Professor Garcia and Professor Owen

Problem:

Both Professor Garcia and Professor Owen discussed in their lectures the need to diffuse technology among certain segments of the population. A problem that they share is, What is the best way to diffuse technology? This is a broad question, but an important one. We can study technology's potential to change the world, but unless we can figure out how to distribute the technology to people and get people to use it, studying its potential is mute. Professor Owen and Professor Garcia approached technology diffusion in different ways, providing two different models through which to look at technology diffusion, from the top down and from the bottom up.

Research Questions:

Professor Garcia Research Question: How can we effectively and sustainably diffuse technology in rural areas without disrupting their local economies?

Professor Owen Research Question: How can we increase political engagement through the diffusion of technology in civic education courses?

Methods:

The main difference between Professor Garcia's and Professor Owen's method of diffusing technology is whether the diffusion is most effective from the bottom up or from the top down. Professor Garcia focused her lecture on the diffusion of technology in rural areas of the United States. She concluded that the best approach was a bottom-up approach, through cooperative networks at the community level (as opposed to a top-down approach which would be, for example, diffusion implemented by large telecom companies). The main reasons for her recommending a bottom-up method were based on the already established social capital in rural communities and the need to protect their delicate local economies. Firstly, as Professor Garcia mentioned in her lecture "IT & Bottom Up

Development Strategies," social capital is fundamental to social economic endeavors (Garcia, 2011). The social capital in rural communities, where people may need to rely heavily on each other, tends to be high. Additionally, the relative isolation of these communities increases their skepticism of outsiders, reinforcing this local trust. Secondly, large, city-based information and communication technology (ICT) companies have little desire to invest in rural areas (Garcia, 2011), and more importantly, "[these large ICT companies] can foster a net outflow of resources from rural areas," which can damage their already fragile economies (Garcia, 2005, p. 2). So what a bottom-up method does in this situation is reinforce and protect the local environments of these rural communities (Garcia, 2005, p. 3) while leveraging the existing social capital.

Professor Owen's approach is more of a top-down method of diffusion. Professor Owen addressed in her lecture "New Media and Politics" the problem of a lack of quality civic education in schools in the United States (Owen, 2011a). She highlighted the need to improve civic education as a way to increase voter turnout and political engagement. Professor Owen wrote in her paper "The Influence of Civic Education on Electoral Engagement and Voting" that the more technologically interactive and engaging the civic education classes were in 2008, which included creating politically focused videos and websites (Owen, 2011b, p. 12), the more engaged students were in the 2008 presidential campaign (Owen, 2011b, p. 13). She found that these types of technology-focused activities in the civics classroom "may prepare people to engage with social media during campaigns," (Owen, 2011b, p. 15). Since social media has increased so dramatically as a form of political engagement, especially among young people, it has become more important to incorporate technology into the civic education curriculum. Professor Owen concluded that "Teaching young people how to use social media for political activation may be a productive next step for civic educators," (Owen, 2011b, p. 21). She recommends this top-down approach of using educational institutions to diffuse the technology to their students, (as opposed to a bottom-up

approach which, for example, would be parents diffusing the technology), because, as Professor Owen writes, "Formal civic education imparts an understanding of the government and how it works that aids people in developing a sense of agency that encourages participation" (Owen, 2011b, p. 4). Most importantly, in this circumstance, relying on the examples set and information distributed by parents or the local community may not be enough to instill in children the knowledge needed to become politically active or the sense of self-efficacy needed to feel like their political participation has power. Therefore, a top-down, institutional approach is a better fit for this situation.

Answers/Analysis:

What is clear by analyzing these two methods of technology diffusion is that each particular situation must be evaluated independently to determine the best method to use. In some instances, the environment calls for a top-down approach, whereas in others a bottom-up approach would be more useful. Studying technology diffusion from an interdisciplinary approach is important because it helps one to recognize different elements that should be considered when making a decision. Professor Singh might argue that whoever diffuses the technology sets a precedent for who controls it. Professor Nelson might argue that building people's trust of technology is key to any diffusion method. Professor LeMasters might argue that the most important part of technology diffusion is tweaking the technology to fit the desires and needs of the users. Professor Meltzer might argue that analyzing people's reactions to the technology will provide the best information about how to go about the diffusion process. Professor Irvine might argue that a thorough analysis of your users' culture will offer the best information on which to base a decision about the method of technology diffusion to use in any given community. The point is, an interdisciplinary approach shows that everything from the pre-diffusion analysis of community ethos, to the post-diffusion analysis of precedent setting, and everything in between from interface to local economies, are important elements to consider when deciding on a method of technology diffusion.

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presented at the "APSA's Teaching and Learning Conference," Albuquerque, NM, February 11-13,

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