Community-Centered Design

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In the last few years, social networking has become more widespread than ever. It spans all age, geographic and interest groups and penetrates the business and political realms. Social interaction is the top activity for most Internet users with 91% of the adult Internet users in the United States using the Internet to keep in touch with people they know and, in some cases, people they don't know but have something in common with (Iriberri & Leroy, 2009). As a result, online communities and the application of tools that encourage and support them continue to grow and evolve rapidly. But, how usable are these online communities and can their design and development be guided by traditional user-centered design methods?

This paper investigates usability and user-centered design (UCD) with respect to online communities. It opens with an explanation of what an online community is and continues on to discuss the special needs of online communities compared to other web applications, whether those special needs are addressed by current UCD methods, what user-centered techniques have been developed so far to support their design, the benefits and challenges of those methods, what conclusions can be drawn and what additional work might still be needed.

Defining an Online Community

Similar to people in physical communities, people in online communities have a common interest or purpose and there are various rules, rituals, protocols and laws that govern their activities. But in the online world, the social interaction of the community is supported and mediated by computer systems – in other words, the computer system facilitates the sense of togetherness (Maloney-Krichmar & Preece, 2005). Other key differences with online communities are the absence of physical cues, the ability for people to change their identities (Andrews & Preece, 2001), the ease with which people from all cultures and geographic locations can socialize and the rapid pace at which the supporting technology is changing. Those key differences introduce challenges unique to online communities.

Special Needs of Online Communities

Unlike typical software and web applications, online communities rely on sociability, or human-to-human interaction, and participation to succeed. So a profound understanding of social interaction is needed when building an online community and a major challenge that designers face is facilitating that interaction (Alem & Kravis, 2005). Furthermore, there are additional challenges related to keeping the community going after initial launch. Online communities have grown in popularity, but many of them fail after launch because of low participation. While success does not require 100% member participation, certain types of communities can't effectively deliver needed services – whether it be movie ratings, bug fixes or medical advice – when a large proportion of the members are non-contributors (Beenen, Ling, Wang, Chang, Frankowski, Resnick & Kraut, 2004). Privacy is also of special importance and the privacy needs of an online community differ from the traditional online privacy needs (such as the security of personal financial data) surrounding e-business applications.

Limitations of Traditional UCD Methods

As social networking becomes more pervasive, it is obvious that the limits of traditional user-centered design are being challenged. Current user-centered design (UCD) methods, particularly contextual design, may touch on social interaction by looking at cultural environment and influences but they do so with respect to how it impacts the user's work. They do not fully address situations where social interaction *is* the actual work. Traditional UCD methods have focused on usability, where the concentration is on the interaction between humans and technology. They have not focused on sociability where the concentration is on the interaction between humans via supporting technology and developing policies that govern that interaction (Preece, 2001). To effectively deal with this new angle requires the socialization of human-computer interaction where "the focus on human-computer interaction is complemented by a focus on human-human interaction mediated by computer and network technologies" (DePaula, 2003). Developers of online communities need new ways to incorporate and measure usability that take these intensely social concepts into account.

Participatory, Community-Centered Design

Since the first emergence of online communities in the early 1990's, researchers from different disciplines have sought to understand how they work and how they can be improved. Sociology was the first discipline to study them and did so by viewing them as a social phenomenon that could change the way people interact. Next, management researchers studied how businesses could benefit from the content coming out of the online communities. Following that, psychology researchers studied the relationships and attachments within the communities. Still later, information researchers shifted the focus to the needs and requirements of community members, new tools to support them and new uses for the communities, such as teaching (Iriberri & Leroy, 2009).

Eventually, a new UCD method called participatory, community-centered design (PCCD) was developed. Typically, when new UCD methods are developed, they borrow techniques from existing methods and PCCD is no different. Those familiar with user-centered design, contextual inquiry and participatory design will find concepts from all of those methods mixed into PCCD. Input from multiple disciplines and extensive involvement from potential community members are key to making the iterative PCCD method work (Preece & Maloney-Krichmar, 2003).

Software design and supporting sociability are the two key components of the community-centered design framework. The software design component focuses on usability issues such as the amount of time needed to learn the dialog of the community, send or read messages, navigate and find information and how accessible the community is. The sociability component focuses on the community's purpose, people and policies (Preece & Maloney-Krichmar, 2003). To tell if a community has a good level of sociability, one can look at how many members actually participate versus how many are just lurkers, the total number of messages generated by the entire community and by each participant, whether the discussions stay on-topic, and how trusting, satisfied and well-behaved the participants are. The four key guidelines in the PCCD process are: 1) assess community needs before deciding on technology; 2) design usability into the community; 3) plan the sociability of the community; and 4) reassess the needs of the community (Alem & Kravis, 2005).

Benefits and Challenges of PCCD

Community-centered design is particularly beneficial for areas where a poorly functioning online community will negatively impact society, such as with health and patient support, education, e-business and communities in developing countries. It's also beneficial to those online communities where having a large proportion of contributing members is crucial to delivering needed services and meeting the expectations of community members.

Online communities develop through several stages: start-up, attracting members, sustaining, and self-sufficiency (where the community can rely more on role models for governance and rely less on rules and policies). As a result, the needs of an online community are not static – they change according to which development stage the community is in. One of the challenges of community-centered design is deciding which design components are most relevant in each stage (Iriberri & Leroy, 2009). Signs that indicate good sociability at one stage may indicate something different in another stage. Certain indicators that may lead one to believe that a community is deteriorating may simply be signs that the community is transitioning to another stage of development.

Another challenge arises when an online community appears to be thriving with its members very satisfied but the human-computer interaction specialist thinks there are ways to greatly improve the community's interaction. Does one move forward with the changes? If so, what's the best way to make enhancements without disrupting the activity of the community? How does one weigh the consequences of possibly damaging the fragile dynamics of the community, especially one that is successful, with the benefits of introducing new technology that may enhance interaction (Maloney-Krichmar & Preece, 2005)?

Conclusion

When designing for online communities, it has become clear that there needs to be a set of techniques that complement, not replace, traditional UCD methods and that go further than "a single mind interacting with an isolated technology in a social, cultural, and historical vacuum (DePaula, 2003)". PCCD's sociability component and emphasis on participatory input are key to

integrating the much-needed social aspects into HCI. The emphasis on input from multiple disciplines like psychology, sociology, anthropology, etc. brings a deeper understanding to the relationship between how technology is designed and used and how it affects and is affected by society. Community-centered design gives designers and developers the framework needed to focus on the interaction between humans and how it is facilitated by technology while also bringing into play the social norms and values that affect how the technology is used (DePaula, 2003). Like the community itself, PCCD is appropriately both participatory and evolutionary.

However, there is still more work to be done in the area of community-centered design. We can learn more about how membership in an online community affects the offline life of that member (Maloney-Krichmar & Preece, 2005). It seems this would be especially relevant for online communities that target teens who are still in the process of building their real-world, offline identities. Are there design measures we can take that help keep young people from bringing online community drama into their real lives, and vice-versa (cyber-bullying)? Furthermore, more demographic and accessibility research needs to be done to ensure online communities are usable for all groups of people. Existing guidelines for Internet accessibility focus on a person's ability to easily access information; they do not take into account the fact an increasing amount of Internet activity is not about accessing information but about socializing. For instance, more could be learned about the communication styles and relationship-building patterns of older people (Pfeil, 2007) and, in turn, that information can be used to build guidelines that ensure that communities targeting seniors are designed appropriately. Lastly, it seems there could be more stage-specific guidelines in the PCCD method that take the online community life-cycle into account.

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