Leveraging Web 2.0 technologies to foster collective civic environmental initiatives among low-income urban communities

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Abstract

There are a number of challenges facing the low-income urban communities living in slums in most of the developing countries such as the Mathare slum. Provision of essential public basic services in the Nairobi slums is lower compared to what is offered to the rest of the City. But, services such as the garbage removal also requires participation of the residents for successful service delivery. The objective of this study was to investigate whether use of Facebook, as a Web 2.0 technology, can support the residents of Mathare slum to actively participate in civic environmental initiatives and to foster community activeness towards civic environmental protection. The study employed a mixed methods approach to investigate the problem. This was achieved through a preliminary survey (700 respondents) to collect data on use of Web 2.0 among the residents of Mathare slum, an experiment with 175 residents, who participated in a community civic environmental initiative using Facebook and a survey to measure continuance intentions on use of Web 2.0 technologies for collective community Web 2.0-mediated activities towards protecting the environment among low-income urban communities. The study constructed and successfully tested a model of Web 2.0 use and online environmental protection initiatives. Use of Web 2.0 technologies for environmental protection emerged as a significant predictor of online social capital, community environmental activeness and continuance intentions to participate in environmental initiatives, while perceived cost negatively moderates the relationship between Web 2.0 use and continuance intentions. Implications and recommendations for policy, practice and research are provided.

1. Introduction

There are a number of challenges facing the communities living in the urban slums such as the Mathare slum in Nairobi. Provision of essential public basic services in the Nairobi slums is lower compared to what is offered to the rest of the Nairobi City County (Gulyani & Talukdar, 2008). A report by UN-HABITAT (2003) indicates that government agencies see slums as temporary or illegal and hence they are reluctant to invest in extending public services such as water supply, electricity, drainage, sewerage, garbage removal, and street lighting. Water supply, electricity, and street lighting are infrastructure installations which require the County and the National governments’ investments. But, drainage, sewerage, and garbage removal also require participation of the residents for successful service delivery. Gakungu and Gitau (2012) indicate that only about sixty percent of the solid waste generated in Kenya’s urban areas is usually collected, while forty percent is uncollected and ordinarily illegally dumped in undesigned areas. Only 0.9% of the Nairobi’s slum population is benefiting from public garbage collection services (Gulyani & Talukdar, 2008). This study posits that, collaboration among the residents and with the garbage collectors can easily reduce the level of uncollected garbage and eliminate open dumping of garbage within the Nairobi slums. Such a concerted community environmental initiative could easily be facilitated through the use of Information and Communication Technologies (ICTs), and specifically the Web 2.0 technologies. ICTs have been attributed to better quality of life through increased efficiencies, economic growth, and transformation of societies (Walsham & Sahay, 2006). ICTs can also be credited for transforming the traditional modes of public participation by availing new and innovative participatory methods through online collaboration and participation. There are many ICT tools available

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on the internet with diverse services and features which allow users to interact and collaborate. Most of these web-based online collaborative ICTs belong to the Web 2.0 technologies. Web 2.0 technologies enable people to connect, interact and strengthen their communities by allowing individuals to develop intense relationships with each other through enhanced social communications. The widespread use of Web 2.0 technologies in electronic participation (e-participation) has helped in the emergence of new online communities and increased collective community civic engagements.

Social networks are among the first Web 2.0 technologies that communities have used for their online citizen participation and civic engagements. Social media “enables citizens to report news, expose wrongdoing, express opinions, mobilize protest, monitor elections, scrutinize government, deepen participation, and expand the horizons of freedom” (Diamond, 2010, p. 70). Major social media platforms such as Facebook, Twitter and YouTube have also become coordinating tools (Shirky, 2011). Facebook is one of the most commonly used social network tool for community engagements (Mitu & Vega, 2014; Takke, 2010). Facebook is an integrated platform that “combine many media and information and communication technologies, such as webpage, webcam, digital image, disk-and video, discussion group, guest book, connection list or search engine” (Trottier & Fuchs, 2005, p. 6). This study posits that, Web 2.0 technologies, and in particular the Facebook, can be used to support collaborative community civic responsibilities. Community responsibilities are “an individual’s duties or obligations to the community and include cooperation, respect and participation” (Nanzer, 2014, p. 1). Parisi, Taquino, Grice, and Gill (2004) suggest that “civic responsibility hinges on the ability of people to come together and act collectively toward developing initiatives aimed at complementing local regulations” (p. 98).

One such a collaborative community civic responsibility is the community environment activeness, a community’s civic responsibility in protecting the environment. Wilkinson (2000) defines community activeness as the extent to which members of a locality come together and act collectively to address locally oriented issues. Therefore, in this study, community environmental activeness is the ability of the Mathare slum residents to come together and to collectively support garbage collection services and to fight open dumps in their neighborhood. It has been established that communities in economically disadvantaged communities are less likely to engage in community environmental activeness (Parisi et al., 2004). It has also been suggested that poor economic conditions tend to diminish the capacity of a community to maintain and enhance its environmental well-being through public participation (Luloff & Swanson, 1995). This study explores the use of Web 2.0 technologies among low-income urban communities in Nairobi to foster community activeness towards civic environmental responsibility as a form of community e-participation.

Ochara and Mawela (2015) suggests that for “e-participation to contribute to sustainable development, more effort should be geared towards promoting user uptake among the vulnerable and socially excluded groups” (p. 208). People living in urban slums can use Web 2.0 technologies such as the Facebook to share user-generated content and to achieve their communal civic responsibilities such as adopting collective civic environmental responsibility. Parisi et al. (2004) indicate that “conservation, preservation and maintenance of environmental quality require more than the development and implementation of traditional command-and-control policies” (p. 98). This is also in line with the United Nations Sustainable Development Goals (UN SDGs) goal number 6 which emphasizes on ensuring availability and sustainable management of water and sanitation for all, with target 6b specifying that nations should “support and strengthen the participation of local communities in improving water and sanitation management” (United Nations, 2015). Also, the UN SDGs’ goal number 11 target 6 requires cities to pay special attention to air quality and other waste management. Furthermore, Parisi et al. (2004) suggest that implementation of any policy aimed at conservation, preservation or maintenance of the environmental quality should be accompanied by strategies that foster investment in civic responsibility.

The objective of this study was to investigate whether use of Facebook, as a Web 2.0 technology, can support the residents of Mathare slum to actively participate in a civic initiative that may possibly bring positive change through community online collaborations. Specifically, the study focused to explore whether use of Web 2.0 technologies for civic environmental initiatives is a strong predictor of social capital, collective community civic environmental activeness and civic environmental activeness continuance intentions among the residents of Nairobi’s marginalized communities. To-date, a search on ProQuest and EBSCO research databases does not retrieve any published study that has investigated Web 2.0 technologies or social media use and community environment activeness among the East African countries.

The next section is a review of the literature. Section 3 describes the study’s methods, including instrument design, data collection and analysis. Section 4 gives the study results while section 5 discusses the study findings. Section 6 reflects on the success of the study, its conclusion and directions for further studies. It also gives the implications for researchers, practitioners and policy makers.

2. Literature review

2.1. Web 2.0

Web 2.0 technologies are internet-based applications which allow the creation and exchange of user-generated content. It is a platform for information provision and creation in a virtual environment where users can collaborate and interact in real time. Web 2.0 includes applications such as podcasts, blogs, wikis, chat rooms, discussion forums, mashups, social networks and other dialogue-generating media. Web 2.0 technologies have created new possibilities for civic and political participation (Delli Carpini, 2000; Mossberger, Tolbert, & McNeal, 2008; Bennett, 2008) by allowing the users participation and collaboration on a massive scale beyond their neighborhood. Most of the content in Web 2.0 is user generated. Web 2.0 technologies are powerful tools for collective community collaboration, communication and information sharing as they facilitate social media and user-generated content (Dooley, Jones, & Iverson, 2012). Studies have shown that Web 2.0 technologies can be used to mobilize inactive populations (Barber, 2001; Weber, Loumakis, & Bergman, 2003; Beer, 2008) recommends the use of the term Web 2.0 as an umbrella term and not Social Network Sites. The argument is that Web 2.0 includes all networked tools that allow establishing connections between at least two humans. Consequently, this study chooses to use the term Web 2.0 technologies as a substitute to Social Networking Sites.

Web 2.0 is the use of web pages as a two-way form of communication between users (Lefebvre, 2007; Thackeray, Neiger, Hanson, & McKenzie, 2008). The use of Web 2.0 technologies are not just recipients of information but also authors as the technologies allows them to interact, publish, and build relationships with one another (Warshawer & Grimes, 2007). Web 2.0 allows users to maintain and build social connections through its internet applications (Dooley et al., 2012), facilitating web-based discussions between users and creation of user-generated content. This study did explore use of Web 2.0 technologies in civic responsibility in protecting the environment through reporting and tracking illegal
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