Computers in Human Behavior 28 (2012) 951–957

Contents lists available at SciVerse ScienceDirect

Computers in Human Behavior

journal homepage: www.elsevier.com/locate/comphumbeh

An e-patient's End-user community (EUCY): The value added of social network applications

Elaine R. Winston [a,1], B. Dawn Medlin [b,*], B. Adriana Romaniello [c,2]

[a] Information Technology and Quantitative Methods Department, Frank G. Zarb School of Business, Hofstra University, USA
[b] Computer Information Systems Department, Walker College of Business, Appalachian State University, USA
[c] Department of Management, Universidad Rey Juan Carlos, Paseo de los Artilleros s/n, Madrid 28032, Spain

ARTICLE INFO

Article history:
Available online 30 January 2012

Keywords:
Social networking
Twitter
End-user community (EUCY)
E-Patient
Health information management

ABSTRACT

Decreasing revenues and increasing expenses has led many healthcare organizations to adopt newer technological applications in order to address the informational needs of their patients. One such adoption technique is to develop a more robust e-patient environment. Health care organizations may increase their effectiveness in meeting the needs of a growing e-patient population through the implementation of high-quality social networking applications such as Twitter. These applications may help to support and maintain a valuable and informed community. A literature review identifies three characteristics that have an impact on information exchange inherent to social networks: number of members, contact frequency, and type of knowledge. Data from a case study of a juvenile diabetic using Twitter helps to demonstrate these aforementioned characteristics. A framework is developed that may be used by health care organizations to better align social network objectives with expectations of an End user community (EUCY). Managerial implications of this study are discussed that can help information technology professionals as well as health administrators when implementing social networks.

Published by Elsevier Ltd.

1. Introduction

In today's economic environment of decreasing revenues and increasing expenses, many health care agencies are seeking innovative technologies to assist in the exchange of patient information. Unfortunately, most health care providers often find it difficult to develop a collaborative relationship with their patients, due in part to the patients lack of trust with their health care providers (Norris, 2007; Whetten et al., 2006) as well as the ambiguity about information quality (Risk & Dzenowagis, 2001). Over time this could result in lower quality health care, as both patient and provider become dysfunctional in isolated silos.

At this juncture, it is informative to define the difference between the terms social network and online communities as they are often used interchangeably, but there are distinct differences between the two. An online community, according to Hsu and Lu (2007) can be defined as groups of individuals that communicate ideas and goals through electronic media. In addition, it is through this effort of participation that individuals are able to share all information with all individual members without regard to geographical location or ethnic origin. Social networks differ from online communities in that not all members can see one another. Yet again, if someone registers for a new online community, they generally can see all of the information such as forums and recent comments. When an individual logs onto a social network for the first time, they are not able to see any activity, and must find and add individuals to their social network.

Tom Ferguson, one of the forefathers of the e-patient movement, described e-patients as individuals who are equipped, enabled, empowered and engaged in their own health care needs. In order to meet the growing needs and demands of their patients, health care organizations have attempted to increase their effectiveness by employing social networks and applications. Social networks assist e-patients by helping reduce the uncertainty of health care information through inherent structural mechanisms that encourage debate, allow patients to take the time to clarify issues in a controlled community environment and promote action rather than provide huge amounts of data (Daft & Lengel, 1986; Winston, 2006). Furthermore, the status of some members as topic authorities helps a group discover hidden nuggets of expertise from conversations.

In an effort to share more information, patients as well as hospitals have adopted Twitter as a social media application. According to the Hospital Social Media List, 660 hospitals in the United States reported using social network applications, which includes Twitter (Bennett, 2010). Twitter has been publicized as

* Corresponding author. Tel.: +1 828 262 2411.
E-mail addresses: Elaine.R.Winston@hofstra.edu (E.R. Winston), medlinbd@appstate.edu (B. Dawn Medlin), adriana.romaniello@urjc.es (B. Adriana Romaniello).
[1] Tel.: +1 516 463 5352.
[2] Tel.: +34 4646827921.

0747-5632/$ - see front matter Published by Elsevier Ltd.
doi:10.1016/j.chb.2011.12.016

a way to gather and exchange important real-time health data (Scanfeld, Scanfeld, & Larson, 2010). The number of Twitter users is projected at 75 million (Rjmetrics., 2010).

To explore the concepts of a social network, a review of the literature was conducted. The review and discussion centers on promoting social networks as applications that are useful for sharing high quality health information. Prior research in relation to information exchange has addressed topics such as social capital, personal traits of individual participants, as well as individual and social motivations, and these factors or research was predicated on prior research or factors that were deemed important to their current research model. After an extensive review of the literature, the factors of number of members, contact frequency, and type of knowledge were identified and organized in their order of prominence in relation to our research model. In addition, these factors further clarified a EUCY.

Social learning and coordination theories help to identify network characteristics and types of knowledge that form valuable end user communities for health care. Second, an analysis of case study data identifies how a chronically ill patient uses Twitter. The findings and literature are integrated into a framework that will enable organizations to begin to better align social network objectives with expectations of the community. Managerial implications of this study are discussed that can help IT and health care administrators determine a return on their social network investments.

2. Literature review

A social network application (i.e., Twitter, Facebook, LinkedIn) for health care organizations become valuable when it meets the expectations of members as a platform for the exchange of ideas and quality information (Shirky, 2008). In comparison to the more passive role of patients, e-patients become highly engaged in managing personal medical concerns and developing partnerships with health care professionals (Ferguson, 2007). To reach this active population, practitioners use social networks to build a community of local patients who participate in conversations with the public and promote clinical trials (Science Daily, 2009; Gunter, 2009).

Some health care organizations, for example, use Twitter's free online service and 140 byte limit to simplify communication. The use of Twitter for health care relies on a privacy feature and authentication through member description, contact information and visual image. By tweeting, an organization expands their existing web presence as well as the scope of medical work by becoming a reputable media source (Dolan, 2009).

There have been previous studies conducted which have examined uses for social networks within different industries such as commerce, personal motivation, and even romance. For example, Susan Sprencher's (2011) study examined the use of social networks and their influence on romantic relationships, while Dean Lusher's (2011) research investigated gender, academic achievement and social status. However, very few studies have been conducted where social networks served as a viable medium for the transfer of health information. Therefore, this gap in the area of social networks and health care information sharing is significant, given that health information differs dramatically from other types of information that users do and may obtain through social networks. In addition, health information that is shared may affect one's quality of life. It is through the sharing of information that patients with similar or like illnesses can discuss medication choices, as well as differing treatments and reactions.

Information shared concerning health information is substantially different than that of the topics that are addressed in relation to social networks. Furthermore, the manner in which the user will use or rely upon health information differs quite dramatically from that of social information as this is information that could dramatically change or affect a patient's longevity and quality of life.

2.1. End user community (EUCY)

The end user of a social network application is a group of members. The group forms a community of practice that expresses itself by employing a common language and similar practices (Wenger, 2000; Wenger et al., 2002). This End user community (EUCY) follows the rules of an unspoken agreement to help ensure it remains well informed and successful. A member that does not follow the policies of the community is essentially blocked from effectively using the application.

The success of social network applications in strengthening e-patient relationships requires health care professionals to pay attention to distinct End user communities (EUCYs) that develop over time. Characteristics that help to identify a EUCY include: number of members, contact frequency and type of knowledge.

2.1.1. Size

Most social network application users have a small number of actual friends with whom they communicate, compared to the number of followers and followees that they declare (Huberman, Romero, & Wu, 2009). This implies the existence of at least two distinct networks: (1) a sparse network of friends (i.e., anyone who a member has directed a post to at least twice) and (2) a dense network made up of followers and followees (Huberman et al., 2009). Research suggests that the sparse network is more important in driving application use (Huberman et al., 2009; Owyang, 2008). Using the Twitter application, for example, evaluating health information communicated through tweets remains a key responsibility of the small core group of knowledgeable entities (i.e., e-patients, friends, doctors, and health care system personnel) who share similar interests and overlapping goals.

Some users join a social network with the objective of having as many followers as possible (Siegler, 2009). An established community, with reliable and dense interconnectivity, not only keeps existing members happy, but also entices contacts of current members to participate. A EUCY will grow with new members who manage related health issues. E-patients interact with other members who they feel they know and trust. This connection builds a strong sense of belonging to a dynamic community and increases the potential success of the application.

2.1.2. Contact frequency

There is an increasing amount of available health information on web sites and government agency portals. In addition, consumers provide expertise in the form of blogs and microblogs. Studies report that patients obtain more than 50% of their information from web sites rather than from local doctors. (Undem, 2010) Patients also go online for first and second medical opinions (Gualtieri, 2009; Purcell, Rainie, Mitchel, Rosenstiel, & Olmstead, 2010). The increased delivery of information across social networks requires increased coordination (Malone, 1990; Malone & Rockart, 1991). Coordination, although associated with improved efficiency of resources, leads to increased costs (e.g., alignment and governance overhead) (Fiedler, Grover, & Teng, 1996).

A social network provides the platform for health care organizations to deliver more of the same types of health information over the Internet than if done physically. Using a social network application enables both consumers and providers of health information to enter into real time personal conversations. These conversations develop naturally because of a common thread, such as e-patients seeking knowledge for a specific medical concern. This reduces coordination costs associated with sharing information and collectively taking action.