A Framework for Analysing Types of User Information on Social Networking Sites

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Abstract

Social Networking Sites (SNS) are web-based applications used by a very large number of users for networking and communication by posting different types of information on their SNS. While some of the information posted on SNS can prove to be useful for users, making the users as well as their achievements known to a wider set of people, some information can be a cost to users such as expressing anger, being critical or abusive, voicing political opinions or racist connotations. To date, there is no information classification scheme that can help users determine useful and detrimental SNS information. This paper classifies types of information users post on SNS by grouping them into categories guided by literature, to establish information types that can have useful outcomes and types of information that can have a detrimental impact on users. It adds to the theory of SNS on types of user information, as well as guide practitioners for SNS design so that it is a useful networking tool with little negative ramifications.

Keywords

SNS Information Classification Framework, Types of SNS Information – Personal; Professional; Social; Knowledge; Request; Media, and SNS User Issues

INTRODUCTION

This paper proposes a framework for classifying user information on Social Networking Sites (SNS) for determining types of information that can be beneficial to users or have detrimental outcomes. SNS is a social and networking platform where individuals and communities post user-generated content (Shim et al. 2013) comprised of many different types of information. SNS is a useful tool for creating, distributing and sharing general information, broadcasting announcements, sharing advice and motivating network members (Oh et al. 2013). However, some information posted on SNS by users can be problematic such as criticism, expressing anger, gossip and unintentional disclosure of personal information (Boyd and Ellison 2007).

Users of SNS are so wide that this media is fast replacing email, chat and phone calls as a communication tool (Kane et al. 2014). Types of information posted on social networking sites is the focus since SNS is information based, accessible on different technologies and requires little or no skills to create user generated content (Shim et al. 2013). It supports plain text, media rich information, YouTubes, art, graphics and other types of information supporting communication (Kaplan and Haenlein 2010), networking (Thelwall 2008), informing (White et al. 2009), motivation (Ritcher and Riemer 2009), support (Kobler et al. 2011), encouragement (Honeycutt and Herring 2009) and personal care (DiMicco 2008), besides others. However, some SNS information create problems for users making them potential targets for spamming, malware attacks (Singh et al. 2012), cyber bullying, cyber stalking, and spreading false information (Boyd and Ellison 2007), which can lead to user costs of intimidation, emotional damage, and even suicide (Kim et al. 2010; Patchin and Hinduja 2010). Other problems that arise as a result of information disclosed on social networking sites are personally identifiable information posing privacy risks (Brooks and Anene 2012), identity theft (Fogel and Nehmad 2009), verbal assault (Patchin and Hinduja 2010), risk of burglary (Peterson and Siek 2009), and the habit of using SNS language (a technological slang) that is detrimental to professional language (Singh et al. 2012).
Although types of information shared on SNS is significant, to date there are few frameworks and theories that can classify the types of user information for determining useful and problematic outcomes. The few studies (Stutzman et al. 2006; Nosko et al. 2010) which examined profile information (e.g. name, birthday, or contact address) were conducted without any formal classification schemes nor addressing implications. Research on the wide-spread impact of SNS on individuals and organisation, although growing, is still in its infancy (Ahmed et al. 2014), and research on types of information shared on SNS and their implications on users is sparse (Wilson et al. 2012; Capua 2012; Caers et al. 2013).

Due to a lack of theories available for classifying different types of information, this paper attempts to classify types of user information shared on SNS by developing a frame (Figure 1) based on a critical analysis of relevant literature on user information on SNS. Different types of user information on SNS can have different implications for users, some beneficial and some adverse. To establish beneficial and adverse impact of user information on SNS, the frame classifies SNS information based on the SNS categories, then reclassifies these categories into broader categories of interest, entertainment, and so on, followed by reclassifying them into core categories of personal, social, professional, knowledge, request, media and other. The information classification according to the proposed frame is to be used to establish beneficial and harmful outcomes of information for SNS users.

The rest of the manuscript is organized as follows: First, basic types of information in the SNS domain are discussed. Next, analysis of literature for the establishment of core and sub information categories is presented. The frame is included and described for three sets of SNS information classifications to be used for determining user benefits and costs of posting different types of information on SNS.

**TYPES OF USER INFORMATION ON SNS**

Types of information shared by SNS users vary from personal to professional (Krasnova et al. 2010; Chen et al. 2009) and informational to derogatory (Acquisti and Gross 2006; Binder et al. 2009). The information classification framework (Figure 1) presented later in this paper is developed in the following phases. In the first phase, extant literature review is presented to examine the basic types of information shared by users on SNS. In the second phase, similar types of information are coalesced into information sub categories, which are then grouped into seven broader categories of information such as personal, professional, social, knowledge, request, media and other, all of which are to be assessed for user benefits and costs.

**Personal Information**

Personal information shared by users on SNS entails information about users, their experiences, interests, daily or regular activities and sometimes hobbies (Krasnova et al. 2010; Nardi et al. 2002; Krishnamurthy and Wills 2008; Heer and Boyd 2005; Zelelava and Getoor 2009). Information such as user’s name, birthday, gender, and photo has been classified by Singh et al. (2012) and Stutzman (2006) as personal. This type of information is almost imperative for all SNS users due to the design of SNS (Strater and Lipford 2008), the aim of which is individual recognition for networking (Kane et al. 2014). This category also includes email address, physical address, and phone numbers (Stutzman 2006). Dwyer et al. (2007) explain that user information can be real names of users or pseudonyms, real or fake birth dates, photographs of the user or some other person or object, and real or fake addresses. Thelwall (2008) extends personal information category to include marital status, which is also supported by Skeels and Gurdin (2009), who included religious status and political party membership information as well. Thus name, birthday, gender, profile picture, contact information, marital status, religious and political view and other similar information are classified as “user information”.

Information such as self-experience or reflections has been classified by Honeycutt and Herring (2009) and Naaman et al. (2010) as “experience”. This type of information is shared by users to establish SNS connections through social interaction amongst users with similar experience and interest. With the advent of user friendly privacy settings on SNS, seamless sharing of user experience or reflections is accomplished (Strater and Lipford 2008). Information such as proficiency in languages (Herring et al. 2007) is yet another type of information classified as experience. Though English was the most popular language in this category, some users even communicate in the native language of the region where they reside. Users’ self-experience and language proficiency is related with the experience of a user and thus classified as “experience”.

SNS users also share information on music, books, movies, and television shows that they are interested in (Liu 2007) which has been classified as “interests”. User interests also tend to include shopping, arts, animals they like (Zhao et al. 2008) and favourite cars (Kim et al. 2010). Information on favourite books, movies, TV shows, arts, shopping, animals, and cars are grouped as “interest”.

**Types of User Information on Social Networking Sites**

Kurian & Singh
Other types of user information on social networking sites include different types of activities such as sports, travel, socializing, partying, and music, cooking, dancing, reading, swimming and other hobbies (Zhao et al. 2008). Information about socialising with friends, participating in sports, partying and listening to music, cooking, dancing, and reading have thus been classified as “hobby”.

Information on the school that users attended, courses they completed, and education background or qualifications (Zywica and Danowski 2008) are commonly posted on SNS to establish network connections (Ellison et al. 2007). This type of information is labelled “education”. Hence graduation year, school attended, class schedules, course taken, and qualifications are grouped together as “education”.

Information on honours, awards, and other extracurricular accomplishments (Zywica and Danowski 2008) related to accomplishments have been classified as “accomplishments”.

**Professional Information**

Professional information shared by users on SNS entails information about professional networks, employment history, and professional skills and expertise (Chen et al. 2009; Skeels and Grudin 2009; Wu et al. 2010; Bilge et al. 2009). Users on SNS join several online discussion groups and communities of interest (Spertus et al. 2005). Users are recommended with interested groups and communities based on their past online activities and the popularity of such networks are indicated by the number of users in a network (Spertus et al. 2005). Number of contacts in user networks indicates connections with colleagues (DiMicco and Millen 2007). Thus information on communities, connections, and discussion groups, all of which reflect the basic characteristics of a network are classified as “networks”.

Other types of information shared by users on professional SNS such as LinkedIn include users’ career history, job title and employment information (Case et al. 2013; Nosko et al. 2010). Information regarding ones employment history (DiMicco and Millen 2007), position title, position description and other employment related information are labelled “employment history”.

Other work related information users share on SNS includes resume, projects worked on and skill expertise (DiMicco et al. 2008), together with professional affiliations (Lampinen et al. 2009), which are identified as ‘skills and expertise’.

**Social Communication**

Information such as invitation, user availability, request for help or participation, greetings, service and comments (Morris et al. 2010; Kim et al. 2010; Christofides et al. 2009; Golder et al. 2007; Kaplan and Haenlein 2010; Chun et al. 2008; Miller 2008; Ellison et al. 2007) are generally referred to as social communication (Kane et al. 2014; Kwai Fun and Wagner 2008). Invitation has been described as a type of user communication where other users are welcomed to attend an event (Morris et al. 2010). User availability is a type of information that users share on SNS to inform others in the network about user’s availability for communication, whereas some other users share photos to indicate their availability on SNS (Christofides et al. 2009). Some SNS users accepted request from acquaintances or even strangers for communication (Golder et al. 2007). Greetings, posting notes or communicative gestures (emoticons) are classified as greetings and expressing sociability (Chun et al. 2008). Miller (2008) on the other hand explains ‘offer’ to be a type of user communication where SNS users are asked if they are interested in receiving a service or an object. Comments are public notes left by users on their SNS profiles on different issues (Ellison et al. 2007). All such information has been classified as “communication”.

Some information shared by users on SNS includes criticism, complaints, rumors, gossips, angry and inflammatory content (Binder et al. 2009; Naaman et al. 2010; Kaplan and Haenlein 2010). Naaman et al. (2010) suggest that complaint is a type of information that has been observed in terms of user activities on SNS. Hence complaints, criticism and gossips are classified as “negative information”.

Information such as praise, recommendations and referral (Greenhow and Robelia 2009; Ritcher and Riemer 2009; Chen et al. 2009; Baum et al. 2013) have been grouped together as “encouragement”.

**Information and Knowledge Sharing**

Information and knowledge shared by users on SNS entails information about maintaining a journal, points of view, position and event advertisement, and creative writing (Acquisti and Gross 2006; Kwak et al. 2010; Lange 2007; Gangadharbatla 2008). Each of this type of information is generally referred to as “Information and Knowledge sharing” (Acquisti and Gross 2006; Kwak et al. 2010).
Some users share information about their day to day activities (diaries) on SNS as well (Chun et al. 2008). Kaplan and Haenlein (2010) suggest that personal diaries or author’s life details is a type of information shared by users to record and maintain day to day activities and therefore classified as “maintaining journal”.

Quotations, opinion, advice, anecdote, and random thoughts (Skeels and Grudin 2009; Chu and Kim 2011; Pempek et al. 2009; Harper et al. 2009; Hewitt and Forte 2006; Hinduja and Patchin 2008) are common on SNS, including opinion seeking, opinion giving (influencing others) and opinion passing (Chu and Kim 2011). Advice is a type of information shared by users in the context of providing advice to others (Pempek et al. 2009). Random thoughts are responses that come into users’ mind spontaneously and shared on SNS (Hinduja and Patchin 2008; Naaman et al. 2010). The types of information discussed in this section describe the outlook of users on issues. Hence quotations, opinion, advice, anecdote, and random thoughts are classified as users “points of view”.

Information on employment opportunities and announcements (Bohnert and Ross 2010; Brandtzaeg and Heim 2011) enhance employability of candidates. Announcements of all types are a type of information shared on SNS and sometimes important in the context of emergency management (Brandtzaeg and Heim 2011; White et al. 2009). These types of information are classified as “advertisement and announcement”.

Some users tend to share poems and stories on SNS (Kapalan and Haenlein 2010; Pempek et al. 2009), which is classified as “creative writing”.

**Information Request**

Information request shared by users on SNS entails information about supporting events or charities (Ellison et al. 2011; Ellison et al. 2006; Evans et al. 2010; Morris et al. 2010; Zhang et al. 2010). Thus information about events, charities and volunteer opportunities on SNS (Waters et al. 2009), together with information in the context of politics, education, and other similar events (Waters et al. 2009; Golbeck et al. 2010) are classified as “supporting events”.

**Media**

Media information shared by users on SNS entails all information that is entertaining with photos (Livingstone 2008; Kaplan and Haenlein 2010; Vie 2008; Lange 2007; Boyd and Ellison 2007). Some users share information on the games that they play on SNS which attracts other online users to participate in these online games (Lai and Turban 2008). In-addition to sharing information on playing online games, some users share information on watching online movies (Valenzuela et al. 2009). All such information with entertainment value is classified as “entertainment”.

Information shared by users on SNS includes several types of photos (Nosko et al. 2010). Photos can be personal, vacation pictures, work-related, project related or variety of photos (DiMicco et al. 2008). Some users even share photos of socialising events such as partying (Peluchette and Karl 2008). Hence different types of media rich information are classified as “photos”.

**Other**

The types of information that cannot be classified into the above mentioned categories are categorised as “other”. Some examples are URL with no text or messages via a single character which is not meaningful (Golbeck et al. 2010; Honeycutt and Herring 2009).

**A FRAMEWORK FOR CLASSIFYING SNS INFORMATION**

From the literature review discussed above user information such as name, birthday, gender, profile picture, contact information, marital status, religious and political views are classified as “user information”; self-experience and language proficiency that are related with the experience of a user are classified as “experience”; information on favourite books, movies, TV shows, arts, shopping, animals, and cars are classified as “interests”; information about socialising with friends, participating in sports, partying and listening to music, cooking, dancing, reading and swimming are classified as “hobby”; graduation year, school attended, class schedules, courses completed, and qualifications are classified as “education”; and information on honours achieved and awards are classified as “accomplishments” in the information classification framework. Information on communities, number of friends and discussion groups are classified as “networks”; career history, position title, employment information, job description and job duration are classified as “employment history”. Resume, project experience, project description, position held, professional affiliations, skills at work place, and individual
skills are classified as “skills and expertise”. Invitations, user availability, request help/participation, greetings, offer service, and comments are grouped together as “communication”; while complaints, criticism and gossip are classified as “negative information”. On the other hand, praise, recommendation, and referral are classified as “encouragement”. Since diary is used to record and maintain day to day activities, it is classified as “maintaining journal”; while quotations, opinion, advice, anecdote, and random thoughts are classified as “points of view”. Employment opportunities and announcements are classified as “advertisement and announcement”; and poems and stories are classified as “creative writing”. Fundraising and volunteering request, if present is classified as “supporting events”; and information on online games or movies are classified as “entertainment”. Other media rich information including photos is classified as “media” in the information classification framework. The types of information that cannot be classified into the above mentioned categories are classified as “other”.

For the third column of the frame, further grouping of similar information has been classified into seven broad categories. All information with personal characteristics is classified into “personal information”. Information on professional issues is classified as “professional information”. All types of communication on social matters are grouped “social communication”. Users disseminate a variety of information and knowledge on SNS which have been classified as “knowledge sharing”. Users also request for information on SNS which have been classified as “request for information”. All entertainment related information is classified as “media”. Information which is not classified under any of the above categories is classified as “other”. Thus, information sub categories (2nd column in Figure 1) mentioned above are subsumed into core information categories of personal, professional, social communication, knowledge sharing, information request, media and other in the third column of the frame.

The types of information described above can have implications for users in terms of benefits and costs (4th column in Figure 1). Though the main crux of this paper is on types of information and its classification, the purpose for classifying the information into different categories is to use it for determining user implications of different types of information. The information classification framework is illustrated below in Figure 1.

![Figure 1: Framework for Information Classification on SNS](image-url)
Besides general user benefits and costs of SNS discussed earlier in this paper, other user benefits entail finding new friends (Lampe et al. 2007) and convenience in communication (Lo 2010). Knowledge sharing lead to the benefits of enhanced knowledge (Adams 2011; Xu et al. 2012) and educating others, however, a cost can be information overload, and reduced productivity (Felix and Rajesh 2011). Sharing professional information leads to benefits of new employment opportunities (Xu et al. 2012; Daniel et al. 2009) and peer support (Kobler et al. 2011; Lin and Lu 2011). Request for information leads to benefits of conveniently sourcing knowledge (Saundage and Lee 2011), although a cost factor could be disseminating misleading information which may result in wrong decision making (Livingstone 2008). Information shared through media can lead to a better impression management (DiMicco and Millen 2007; Xu et al. 2010) and also a cost of emotional distress due to sensitive information exposed through media (Kim et al. 2010; Patchin and Hinduja 2010). Costs arising from sharing personal information are identify theft and breach of privacy and security issues (Brooks and Anene 2012; Fogel and Nehmad 2009). Costs arising from sharing professional information can also be rejection of employment opportunities (Bohnert and Ross 2010) and making known failed project details (Preece and Shneiderman 2009). User communication leads to benefit of improved social interaction (Krasnova et al. 2010; Cheung et al. 2010) or damaged reputation if inflammatory content (Patchin and Hinduja 2010) is posted.

Figure 1 classifies different types of information users post on SNS. Information shared via SNS can have different implications to users, some beneficial and some harmful. The scope of this paper did not allow a detailed discussion of the implications of different types of SNS information, which will be addressed in a following paper.

CONCLUSION

Types of information shared on SNS vary from self promotion, impression management, communication, to media and religious or cultural. Some of this information is useful, creates new knowledge, and is informative, leading to new opportunities for users. Such information can result in numerous user benefits. On the other hand, some SNS information can be problematic both in the present and in the future. As discussed above, some of these could be too much personal information for someone to take negative advantages of stalking, learning about one’s personal life and daily activities. Some information may be used as legal evidence, while some information can have racist connotations, bullying or simply derogatory. In order to establish user benefits and costs of the types of information users post on SNS, the information classification frame (Figure 1) is a first step. This frame is expected to help classify types of user information on SNS for both positive and negative user outcomes.

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