

PRIVACY CONTROLS IN ONLINE SOCIAL NETWORKING SITES

Ravi S. Narayanaswamy, University of South Carolina Aiken

Leanne C. McGrath, University of South Carolina Aiken

471 University Parkway, Aiken, SC 29801

ABSTRACT

This research explored the privacy controls available on social networking sites. Data was gathered from fifty web sites chosen on the basis on their popularity and usage. The number and type of privacy controls available were recorded. From this information, the types of privacy controls indicated that three distinct areas of controls were present in addition to the traditional profile protection controls. These were privacy controls relating to personal, social, and professional information protection. Overall, sixty-nine privacy controls were identified pertaining to profile, personal information, social information and professional information. In general there was more privacy control for personal information compared to social and professional information.

INTRODUCTION

In recent years, social networking has become a global phenomenon (Boyd and Ellison 2008). Some of top social networking sites boast hundreds of millions of users. People of all ages use online social networking sites as a primary communication media to get or stay connected with their friends and family (Livingstone 2008). Individuals voluntarily share a lot of information on the social networking sites. For instance, prior research has observed that users share personal information, such as personal interests, special hobbies, and several other facets of their lives in an effort to develop intimate and personal connections with other users (Vasalou, et al. 2010). Also, a lot of personally identifiable information is collected during the sign-up process (Bonneau and Preibusch 2009).

Social networking sites have been subject to legal scrutiny due to their privacy violations. Personal information shared on social networking websites has been targeted and misused by many sources including law enforcement agencies, identity thieves, sexual predators (Pilkington 2007), prospective and current employers (Finder 2006), educational institutions, and other third-party websites (Fogel and Nehmad 2009). The consequences for social networking users have been socially damaging and humiliating (Rosenblum 2007). For social networking companies such incidents can destroy their reputation. Accordingly it is vital to explore and understand the various privacy controls available to users for protecting their information.

This study extends the current research by taking a holistic approach to conduct a thorough analysis of privacy controls available in social networking sites. In addition, this research moves beyond personal information and attempts to identify other types of information that can be shared on social networking sites and privacy controls available to protect them.

RELATED WORK

In recent years, academic scholars have increasingly focused on social networking issues. Prior research has focused on different aspects of social networking. Some studies have examined the factors that

motivate individuals to participate in social networking (Boyd and Ellison 2008, Tufekci 2008). Others have analyzed user attitudes towards social networks with an emphasis on information sharing and disclosure (Constant, et al. 1994, Livingstone 2008). Another stream has focused on the relationship between cultural affiliation and social networking (Fogg and Iizawa 2008, Vasalou, et al. 2010).

Research on privacy and user security has been a active area, but the focus has been on privacy policies (Bonneau and Preibusch 2009), potential threats and risks of using social networking (Dwyer, et al. 2007, Frankowski, et al. 2006). Some researchers have taken a technical approach to examine the security flaws (Bonneau, et al. 2009) and/or the network architectures (Anderson, et al. 2009) with an emphasis on proposing new privacy preserving front ends for existing social networks. Another interesting stream of research has focused on developing models to solve the “privacy paradox” which refers to users showing high concerns to privacy but at the same time sharing a large amount of data (Poindexter, et al. 2006).

A common agreement among all the social networking research is that users display high concern towards privacy. In addition, there is consensus that privacy in social networks is dysfunctional and requires remodeling.

In the past, several studies have noted that users genuinely do express concern about their privacy (Acquisti and Gross 2006, Bonneau and Preibusch 2009, Gaurav Bansal, et al. 2008). In fact, some users indicated privacy as a primary influencing factor on their choice of social networking sites. Yet while informative, most of the studies have focused on user behavior, specifically how privacy policies affect or influence user behavior. Moreover, the focus has been largely on personal information. On the contrary, recent trends indicate that individuals share more than just personal information on social networking sites (Strater and Richter 2007). Therefore, it is important to explore the privacy controls available to protect other types of information. As previously stated the main objective of this study is to develop a comprehensive rubric of privacy controls available on social networking sites. In addition, this study explores the options available to share different types of information and the privacy controls available to protect it.

METHOD

An exhaustive survey of the major, general-purpose social networking sites was conducted in order to explore the various privacy controls available for users to protect their information. In addition, this research captured the different types of information that can be shared on social networking sites and their associated privacy controls.

Selection of Sites

A group of fifty online social networking sites were selected for the survey, details listed in Table 1. The sites were chosen based on its popularity and number of users, which were collected and verified from various outlets such as Wikipedia, Web Trends, and the e-business MBA knowledge base among others. To be included in the survey the sites had to meet four criteria – (1) the main purpose of the site should be general purpose social networking i.e., the primary use of the site is interacting with others through profile pages on the web (2) the site should be available in English (3) the site must be active and fully functional; (4) the accessibility should be free and require no fee or special invitations. These criteria were necessary to ensure fair comparison between sites and to avoid general content sharing websites such as Youtube, Flickr among others. The constraints enforced in this study are consistent with prior research (e.g., Bonneau and Preibusch 2009) examining user privacy in social networking sites.

RESULTS & DISCUSSION

To determine legitimacy of the site general information about the site, such as its launch date, estimated user count and traffic ranks, country of operation, and purpose were collected. All these details are listed in Table 1. To get access to various privacy controls a user account was created for each site, recording the amount of information required in order to register an account. In addition, all the publicly viewable sections of the webpage that are presented to non-members who visit the site were examined. This was done to analyze how and where the profile information is displayed. Following this, the different types of information a user can post on the site and privacy controls available to protect that information was recorded.

Table 1. List of Social Networking Sites included in the Survey

Social Site	Networking	Alexa Rank (Adjusted)	Traffic	Users (M)	Country	Category
Facebook		1		500	USA	General-Purpose
Habbo		19		200	Finland	Gaming
Twitter		2		175	USA	Micro-blogging
Bebo		13		117	USA	General-Purpose
MySpace		3		100	USA	General-Purpose
Tagged				100	USA	General-Purpose
Okrut		6		100	USA	General-Purpose
Friendster		8		90	USA	General-Purpose
Badoo				86	UK	General-Purpose
LinkedIn		4		80	USA	Business-Networking
Hi5		5		80	USA	General-Purpose
NetLog				70	Belgium	General-Purpose
Flixster		16		63	USA	Media recommendation
MyLife				51	USA	Reunion
Classmates.com				50	USA	Reunion
Last.fm		12		30	USA	Media recommendation
Viadeo				30	France	Business-Networking
WeeWorld		20		30		Gaming
Xanga		15		27	USA	General-Purpose
GaiaOnline				23.5	USA	Gaming
SkyRock				22	France	General-Purpose
MyYearbook				20	USA	General-Purpose
BlackPlanet				20	USA	General-Purpose
Fotolog				20		Photo-blogging
FriendsReunited				19	UK	Reunion
LiveJournal				17.5	Russia	General-Purpose
meinVZ				17	Germany	General-Purpose
Sonico				17	Argentina	General-Purpose
Plaxo				15	USA	General-Purpose
StumbleUpon		9		10.6	Canada	Media recommendation

Multiply		10	USA	General-Purpose
Hyves	10	10	Netherlands	General-Purpose
BuzzNet		10	USA	Media recommendation
WAYN	18	10	UK	Travel
Care2		9.9		General-Purpose
DeviantART	7	9		Media recommendation
XING	11	8	Germany	Business-Networking
MyOpera		5.5		Blogging
OpenDiary		5		Blogging
Livemocha		5		Language Learning
weRead		4		Media recommendation
ibibo	14	3.5	India	General-Purpose
MocoSpace		3	USA	General-Purpose
CouchSurfing		1.5	USA	Travel
Nexopia		1.4	Canada	General-Purpose
PerfSpot	17		USA	General-Purpose
Yonja			USA	General-Purpose
Sofamous (formerly Bahu)			France	General-Purpose
Eons			USA	General-Purpose
ExperienceProject			USA	Privacy-Specific

Source: <http://www.alexa.com/topsites>

Overall the number of users and traffic for most of the social networking sites were impressive. External sources were relied upon since it was difficult to determine the number of users directly. However, the numbers were not consistent across the external sources. The same applies to popularity of the social networking sites. For instance, the e-business knowledge base ranked Facebook as 1, Twitter as 2, and MySpace as 3. The Web Trends ranked Facebook as 1, MySpace as 2, and Twitter as 3. Due to this inconsistency publicly available Alexa ranking was utilized (Alexa). These are commonly used as a general indicator of the amount of traffic a site is receiving and as an indirect scoring for a site's popularity.

The number of privacy controls available on social networking sites was significant. More interestingly, social networking sites enable users to share more than just personal information. In particular, it was observed that users are able to share social and professional information. Social information refers to data that helps the individual to socialize with similar people. For example, group affiliations, network interests and tags on preferred videos. Professional information relates to the posting data about one's expertise, credentials, and experience. This includes information such as degrees, educational levels, certificates, and place of employment.

Table 2: Summary of Privacy Tools

PROFILE PROTECTION

1. Option to share your profile anonymously
 2. Option to block photos/videos shared by others
 3. Option to disable "places I check in to" feature by others
 4. Option to share when you have visited someone's profile (browse anonymously)
 5. Option to block posts by others on your profile
 6. Option to enable/disable messages
 7. Option to enable/disable friend requests
 8. Option to control visibility on Search
 9. Option to control visibility on Public Search
 10. Option to share when you update your profile
 11. Option to share when you use Mobile
 12. Option to block users
 13. Option to block users by age
 14. Option to block unwanted application invites from certain users
 15. Option to block unwanted event invites from certain users
 16. Option to block entire applications
 17. Option to filter group invitations
 18. Option to block market research surveys
 19. Option to choose whose profile pictures to view
 20. Option to block partner advertising
 21. Option to enable/disable personalization on third party sites
 22. Option to block third party sites from accessing your information, if not connected to them
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PERSONAL INFORMATION

1. Option to share birthday
2. Option to share your age
3. Option to share posts by me
4. Option to share gender
5. Option to share real name
6. Option to share IM screen name
7. Option to share display name
8. Option to share profile picture
9. Option to share relationships/marital status
10. Option to share biography/favorite quotes
11. Option to share your vanity URL/numerical friend ID
12. Option to share e-mail address
13. Option to share family members
14. Option to share home address
15. Option to share current city/hometown
16. Option to share mobile phone number

17. Option to share other phone number
18. Option to share religious/political views
19. Option to control personal information shown by applications
20. Option to control personal information used by applications
21. Option to share photo albums and videos
22. Option to share when you add new photos, videos, or blogs
23. Option to share when you add new friends
24. Option to show online status

SOCIAL INFORMATION

1. Option to share education/work experience
2. Option to share interests/other information
3. Option to share friends list/connections
4. Option to share the networks you are associated with
5. Option to share information about application activity
6. Option to share groups/associations
7. Option to share what types of contact you are interested in
8. Option to share when you join a new group
9. Option to share when you are a fan
10. Option to share when you post events
11. Option to share when you are tagged in a photo, video, or blog
12. Option to share when you create new friend categories
13. Option to share e-mail and IM addresses to help friends find you

PROFESSIONAL INFORMATION

1. Option to share your blogs
 2. Option to share recommendations from others
 3. Option to share honors and awards
 4. Option to share when you add new blogs
 5. Option to share when you are attending events
 6. Option to share new companies
 7. Option to share when you install or rate an application
 8. Option to share comments posted on another profile
 9. Option to share your news feed
 10. Option to share new recommendations
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This study found sixty-nine privacy controls pertaining to profile, personal information, social information and professional information. All the details are listed in Table 2. From a privacy control standpoint, there was more privacy control for personal information compared to social and professional information. This is consistent with the current market trends and research which has primarily emphasized the need for protecting profile and personal information (Bonneau and Preibusch 2009). More interestingly, emergence of privacy controls for social and professional information indicate the future expectations of social networking trends, that is, moving beyond just sharing personal information. This is consistent with today's work environment where recruiters are increasingly using social networking to search and hire potential candidates (Albrechtslund 2008). Thus, it is important for social

networking users to control what information should be displayed to potential employers. Another interesting observation was the availability of fine-grained privacy controls. Inasmuch, users have more options to manipulate their visibility rather than simply opt-in or opt-out. However, the fine grained controls can be a double edge sword, that is, in some situations it can become very stressful and confusing for novice users.

In summary, this study has two main contributions. First, the results of a thorough analysis of privacy controls will help users understand the degree of protection available on social networking sites. Second, the comprehensive list included what information is being protected by privacy tools which can help the user determine what information is safe to share on the social networking sites. For social networking site developers, the comprehensive rubric will assist them in identifying the gaps in their privacy controls which if addressed can enhance their reputation.

Additionally, this study found that the social networking industry is reacting to user's privacy concerns. By extension this would necessitate the importance of being proactive in identifying any privacy violations.

CONCLUSION

Online social networking is a promising and growing phenomenon. Individuals are finding various ways to use social networking sites. This study found that social networking companies are encouraging users to share different types of information by providing privacy controls to protect that information. However, proportions of privacy controls were not balanced. In other words, there were more privacy controls for protecting profile and personal information than social and professional information. From a broader standpoint, this implies that social networking sites are taking a reactive approach rather than a proactive approach to privacy. Therefore it is important for the users to monitor continuously their privacy and report any violations.

Overall privacy in social networking is still at its infancy which urges the need for more research in identifying new issues and providing options or solutions that can be implemented by ordinary users. For instance, exploring the ease of use and the customization of the privacy controls identified in this study would be worthwhile effort. Similarly, determining the privacy concerns across all the social networking sites will help users understand the reliability of those sites. This research hopes that the ideas presented here, along with the published dataset, will be an important starting point.

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