GENDER DIFFERENCES IN FACEBOOK'S PRIVACY SETTINGS

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ABSTRACT

Among all social networking sites, Facebook has the largest number of registered users. To register for a Facebook account, users have to create their personal profile with personal details such as name, resident address, email address, phone numbers, relationship status etc. However, disclosure of personal information has raised some concerns about privacy. Studies showed that Facebook's privacy can be influenced by personality, age, gender and culture. This research investigated possible gender differences of Facebook privacy settings. Hypotheses about gender differences of Facebook privacy settings was developed. Data were collected from 300 college students in Taiwan, with 254 valid data. The results showed female users were significantly different from Male users in all 11 Facebook Profile settings. Overall, females were more concerned about sharing their personal information than males and had chosen higher levels of privacy on all 11 privacy settings.

Keywords: Gender Differences, Privacy, Facebook's profile, Taiwan

INTRODUCTION

There were 1.39 billion monthly active Facebook users and 890 million daily active Facebook users for December 2014 [4]. In recent years, most of their growth had come from foreign countries and about 82.4% of their daily active users are outside the US and Canada. Asia has 411 million monthly active users and Taiwan has 11 million users with the highest penetration rate of 60% in Asia [20].

To create a Facebook account, a user must enter their name, resident address, email address, phone numbers, relationship status etc. The user can decide how these personal data are viewable by choosing one of the following privacy settings: everyone, friends of friends or friends only. Many factors such as personality, gender, age, and culture may have influences on Facebook's information disclosure and privacy settings.

The purpose of this research was to explore possible gender differences of Facebook's privacy settings of college students in Taiwan. Analyzing Taiwanese college students' gender differences in privacy settings may provide insights about Facebook's usage in a different culture and language.

LITERATURE REVIEWS

Gender Differences in Facebook Uses

Personal profiles and data uploaded to social networking sites have provided enormous amount of data for researchers to investigate possible digital divide due to personality, race, gender, culture and social-economic status. In other words, personal profiles and uses of a social networking site may be different because of different personality, gender, race, culture and social-economic status. Extraversion people and openness people tended to socialize with others and had more friends than people with other personality types, but neuroticism people used Wall and showed more personal information on Facebook [1, 15, 16]. American females spent more times on Internet than American males, but American males spent more time on videogames than American females, and the amount of times spent on Internet had impact on academic performance [7]. Females were more likely to maintain their existing friendships with other females through Myspace and had private profiles, but males tended to use Myspace for dating [22]. Females used social networking sites for maintaining existing relationships, but males used them for finding new relationships [13]. Females spent more times, felt attached and had more friends on Facebook than males [11, 23]. Females were more likely to communicate and share information (status update, photos posting and tagging, commenting, checking on friends) than males [8].

Gender Differences and Facebook Privacy

Facebook's users have revealed a large amount of personal information, but most users are not aware of privacy options and allow others to view and search their personal profiles [2, 9, 19] or they thought they protected their privacy by limiting access to their profiles to friends only, however, any strangers could connect with them as friends [3]. Due to privacy concerns, some users had committed virtual identity suicide by cancelling their Facebook accounts [18].

Lewis, Kaufman and Christakis [10] found out that a student's gender, Facebook activity level, and friends have influence on the student's private profile. Grubbs and Milne [5] investigated gender differences in young adult Facebook users' privacy beliefs and privacy protection behaviors, and found out that females had higher privacy concerns and privacy protection than males. Users' self-disclosed information can be classified into four categories (basic, personal, contact, and work and educational) [17]. Basic information includes gender, birthday, relationship status and hometown. Personal information includes personal interests, activities and music. Contact information includes emails, phone number and personal website. According to Special and Li-Barber [17], more basic information and contact information were disclosed by males than females, but females had higher privacy settings than males. Nosko, Wood and Molema [14] studied differences of age, gender and relationship on information disclosures of personal identity, sensitive personal data and possible disgraceful information and they found that disclosures of gender and age information were highly related to sensitive personal information, however, there was no differences between females and males in regard of information disclosed in their Facebook profiles. Waters and Ackerman [24] looked at gender differences in four different motivations of information disclosures in Facebook (1: sharing information with others, 2: storing information online and use it for entertainment, 3: keeping up with trends, and 4: showing off) but found females had a higher motivation of disclosing gender differences in only one motivation (storing information and entertainment). They concluded that females were personal information than males because they viewed Facebook as a way of storing information and a form of entertainment. Taraszow et al. [21] looked at disclosure of contact information by young people and found that males were more likely to disclose email, cellular numbers and address than females.

RESEARCH METHODOLOGY

Hypotheses

The above researches indicated possible gender differences in Facebook usages, and influences of gender and friends on private profiles; however, the results were not conclusive and researches about possible gender differences in Facebook's privacy settings were rather limited. The study explored possible gender differences in privacy settings of Facebook profile. 11 hypotheses with 11 profile settings was developed.

H1: Female users' privacy settings of "see my personal information" are different from those of male users.
H2: Female users' privacy settings of "search my personal information" are different from those of male users.
H3: Female users' privacy settings of "Status and posts" are different from those of male users.
H4: Female users' privacy settings of "Wall" are different from those of male users.
H5: Female users' privacy settings of "Family and relationships" are different from those of male users.
H6: Female users' privacy settings of "Photos and videos" are different from those of male users.
H7: Female users' privacy settings of "Religious and political views" are different from those of male users.
H8: Female users' privacy settings of "Birthday" are different from those of male users.
H9: Female users' privacy settings of "comments on postings" are different from those of male users.
H10: Female users' privacy settings of "Email and instant message" are different from those of male users.
H11: Female users' privacy settings of "Phone number and address" are different from those of male users.

Survey Instrument

The survey instrument had 13 items. The first one was gender (male, female), the second one was class (freshmen, sophomore, junior, senior, and graduate) and the other 11 items about personal profile (see my personal information, search my personal information, status and posts, walls, family and relationship, photos and videos, religious and

political views, birthday, comments on postings, email and instant message, phone and address) were based on Ross et al. [15] questionnaire's security questions with revised scale of three privacy settings (1. Everyone, 2. Friends of friends, 3.Friends only).

Participants

Surveys were distributed to 300 college students of a university in Taiwan, with 254 valid data sets. The data sets were analyzed with SPSS. Among the 254 students, 58 students were male (22.8%), and 196 students were female (77.2%). Based on classes, there were 2 graduate students, 55 freshmen, 78 sophomore, 84 juniors and 35 senior.

RESULTS

Descriptive Statistics

Table 1 depicted means and frequency distributions of 11 privacy settings in the descending order of means. Phone number and address has the highest mean of 2.36, and Search my personal information has the lowest mean of 1.82. An item with a higher mean value indicated a higher privacy concern than an item with a lower mean value. It was interested to see that the frequency distributions of three privacy settings were not distributed evenly. In general, most users chose either a tight privacy setting (friends only) or a loose privacy setting (open to everyone), but only a very few users chose "friends of friends" privacy setting. For items with mean value above 2.00, there were more users chose "Friends only" privacy setting, but for items with means below 2.00, there were more users chose the "open to everyone" privacy setting.

Table 1. Descriptive Statistics of Privacy Settings (N=254)

Item	Mean	Std. Dev.	Frequency Dist.*		
			1	2	3
Phone number and Address	2.36	.904	74	14	166
Email and Instant Message	2.08	.972	110	13	121
Photos and videos	2.07	.963	109	18	127
Family and relationship	2.07	.961	109	19	126
Status, Photos and Posts	2.01	.960	115	21	118
Comments on Postings	1.97	.961	121	20	113
Wall	1.96	.950	120	25	109
Religious and Political views	1.95	.973	126	14	114
See my personal information	1.90	.967	132	15	107
Birthday	1.88	.964	135	15	104
Search my personal information	1.82	.949	141	18	95

Reliability Testing and Factor Analysis

The reliability testing result with a Cronbach's alpha value of .967, meant these 11 items of privacy settings were highly reliable and consistent. A factor analysis was conducted to identify possible factors of the 11 profile settings. With a KMO value of .938 and a significant Bartlett's Test of Sphericity (*p*=.000), the data were adequate for factor analysis. However, only one component was extracted with cumulative variance of 75.453%. A second run of factor analysis with 3 fixed factors, yielded three factors, which had a cumulative variance of 85.305%.

Table 2. Factor Analysis

Item	Basic	Personal	Contact
Birthday	**.803**	.396	.224
Religious and political view	**.784**	.339	.412
Wall	**.622**	.508	.446
Family and relationships	**.559**	.428	.557
Comments on posting	**.540**	.515	.488
Search my personal information	.335	**.855**	.265

See my personal information	.394	**.812**	.298
Status and Posts	.441	**.636**	.508
Phone number and address	.212	.232	**.858**
Email and instant message	.371	.296	**.774**
Photos and videos	.567	.443	**.577**

Note: Factor loading>.50 were in boldface.

The first factor named "basic information" had 5 items (birthday, religious and political views, wall, family and relationships, and comments on postings) explained 29.595% of variance, the second factor named "personal information" had 3 items (search my personal information, see my personal information, and status and posts) explained 28.358% of variance, and the third factor named "contact information" had 3 items (phone number of address, email and instant message, and photos and videos) explained 27.352%.

Hypotheses Testing

The hypotheses were tested with the independent sample *t* test method. Table 3 depicted the results of gender differences in 11 privacy settings. All hypotheses about significant differences between females and males in privacy settings were supported. It was interested to see that the levels of significance were different among the three factors. Most items of basic information for females were significantly differences from those of males at the significant level of .05, except the item "Family and relationship" at the significant level of .01. Most items of Personal information for females were significantly differences from those of males at the significant level of .01, except the "see my personal information" item with the significant level of .05. All items of contact information for females were significantly different from those of males at the significant level of .001.

Table 3. Independent t-test of Gender and Privacy Settings

Factor	Item	Gender	Mean	Std. Dev.	*t* value	*p* value
Basic	Birthday	Male	1.66	.928	-2.015	.045*
		Female	1.94	.967		
	Religious and Political views	Male	1.71	.955	-2.208	.028*
		Female	2.03	.968		
	Wall	Male	1.74	.947	-1.975	.049*
		Female	2.02	.944		
	Family and relationship	Male	1.72	.951	-3.145	.002**
		Female	2.17	.943		
	Comments on Posts	Male	1.72	.951	-2.221	.027*
		Female	2.04	.955		
Personal	Search my personal information	Male	1.53	.883	-2.630	.009**
		Female	1.90	.953		
	See my personal information	Male	1.64	.931	-2.386	.018*
		Female	1.98	.966		
	Status and Posts	Male	1.72	.951	-2.629	.009**
		Female	2.10	.948		
Contact	Phone number and Address	Male	1.98	1.000	-3.732	.000***
		Female	2.47	.844		
	Email and Instant Message	Male	1.71	.955	-3.420	.001***
		Female	2.19	.952		
	Photos and videos	Male	1.69	.940	-3.507	.001***
		Female	2.18	.943		

Sig. level *p<.05, **p<.01, ***p<.001

LIMITATIONS AND FUTURE STUDY

This findings were based on sample of one university's students with similar demographic backgrounds, therefore the findings may not be applicable to students of other universities in Taiwan or students from different countries with different languages and cultures. For future research, it would be interested to investigate possible influences of other demographic variables (ages, culture, and language) on privacy settings of Facebook profile in addition to gender difference.

CONCLUSIONS

Previous researches showed that females has a higher degree of privacy protection than males [5, 17] and males liked to disclose more basic and contact information than females [17, 21], but females were more motivated to disclose personal information than males [24]. Though participants of this research were from a country with different language and culture, the findings of this research were consistent with the previous researches. Overall, there were gender differences in privacy settings and females had a higher degree of privacy protection than males about their Facebook profile.

Regardless of gender, people tended to set a higher degree of privacy protection on contact information (phone number and address, email and instant messages, and photos and videos) and there were more people chose to disclose their contact information to friends only. On the other hand, people tended to set a lower degree of privacy protection on personal information (see and search my personal information) and basic information (birthday, religious and political views) and more people chose to disclose these information to everyone. This research also found that females had higher degree of privacy protection on all three categories of profile information (basic, personal and contact) than males. In addition, the contact information had the highest degree of gender differences, followed by personal information, and basic information. The gender differences between female and male could be attributed to tendency of risk avoidance of females vs. risk seeking of males [6].

Social networking sites such as Facebook have been used not only for connecting with others but also for sharing information with others, and many businesses have been developing their Facebook presences to promote their products and enhance their customer relationships via sharing company and products information on Facebook. If businesses want to connect with their customers and promote their products, then they have to assure them that their privacy are highly protected and they will not share their information with other vendors. It is especially critical to earn female customers' trust due to their risk avoidance tendency.

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REFERENCES

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1. Amichai-Hamburger, Y., & Vinitzky, G. (2010). Social network use and personality. *Computers in Human Behavior*, *26*(2010), pp. 1289-1295.
2. Acquisti, A., & Gross, R. (2006). Imagined communities: Awareness, information sharing, and privacy on the Facebook, in *6th International workshop on Privacy Enhancing Technologies*.
3. Debatin, B., Lovejoy, J., Horn, A., & Hughes, B. (2009). Facebook and online privacy: Attitudes, behaviors, and unintended consequences. *Journal of Computer-mediated Communication*, *15*(2009): 83-108.
4. Facebook. (2015). Facebook company information, Facebook Newsroom. Available: http://newsroom.fb.com/company-info/
5. Grubbs, M., & Milne, G. (2010). Gender differences in privacy-related measures for young adult Facebook users. *Journal of Interactive Advertising*, *10*(2), 28-45.
6. Harris, C., & Glaser, D. (2006). Gender Differences in risk assessment: Why do women take fewer risks than men? *Judgment and Decision Making*, *1*(1), 48-63.
7. Jackson, L., Zhao, Y., Kolenic, A., Fitzgerald, H., Harold, R., & Von Eye, A. (2008). Race, gender, and Information Technology use: The new digital divide. *Cyberpsychology & Behavior*, *11*(4), 437-442.
8. Junco, R. (2013). Inequalities in Facebook use. *Computers in Human Behavior*, 29(2013): 2328-2336.
9. Lampe, C., Ellison, N., & Steinfield, C. (2007). A familiar Face(book): Profile elements as signals in an online social network, *CHI 2007 Proceedings*, 435-444.
10. Lewis, K., Kaufman, J., & Christakis, N. (2008). The taste for privacy: An analysis of college student privacy settings in an online social network. *Journal of Computer-Medicated Communication*, *14*, 79-100.

11. McAndrew, F., & Jeong, H. (2012). Who does what on Facebook? Age, sex, and relationship status as predictors of Facebook use. *Computers in Human Behavior*, *28*. 20120: 2359-2365.
12. McCrae, R., & John, O. (1992). An introduction to the Five-Factor model and its applications (special edition). *Journal of Personality*, 60, 175-215.
13. Muscanell, N., & Guadagno, R. (2012). Make new friends or keep the old: Gender and personality differences in social networking use. *Computers in Human Behavior*, *28*, 107-112.
14. Nosko, A., Wood, E., & Molema, S. (2010). All about me: Disclosure in online social networking profiles: The case of Facebook. *Computers in Human Behavior, 26*, 406-418.
15. Ross, C., Orr, E. S., Sisic, M., Arseneault, J. M., Simmering, M. G., & Orr, R. R. (2009). Personality and motivations associated with Facebook use. *Computer in Human Behavior*, *25*, 643-654.
16. Ryan, T., & Xenos, S. (2011). Who uses Facebook? An investigation into the relationship between the Big Five, shyness, narcissism, loneliness, and Facebook usage. *Computers in Human Behavior*, *27*, 1658-1664.
17. Special, W., & Li-Barber, K. (2012). Self-disclosure and student satisfaction with Facebook. *Computers in Human Behavior*, *28*, 624-630.
18. Stieger, S., Burger, C., Bohn, M., & Voracek, M. (2013). Who commits virtual identity suicide? Differences in privacy concerns, Internet addiction, and personality between Facebook users and quitters. *Cyberpsychology, Behavior, and Social Networking*, *16*(9), 629-634.
19. Stutzman, F., (2006). An evaluation of identity-sharing behavior in social network communities. *International Digital and Media Arts Journal*, *3*(1), 10-18.
20. Taipei Times. (2014). Taiwan likes Facebook, has Highest Penetration. Available: http://www.taipeitimes.com/News/biz/archives/2014/02/28/2003584495
21. Taraszow, T., Aristodemou, E., Shitta, G., Laouris, Y., & Arsoy, A. (2010). Disclosure of personal and contact information by young people in social networking sites: An analysis using Facebook profiles as an example. *International Journal of Media and Cultural politics*, *6*(1), 81-101.
22. Thelwall, M. (2008). Social networks, gender, and friending: An analysis of Myspace member profiles. *Journal of the American Society for Information Science and Technology*, *59*(8), 1321-1330.
23. Thompson, S., & Lougheed, E. (2012). Frazzled by Facebook? An exploratory study of gender differences in social network communication among undergraduate men and women. *College Student Journal*, *46*(1), 88-98, Mar 2012.
24. Waters, S., & Ackerman, J. (2011). Exploring privacy management on Facebook: Motivations and perceived consequences of voluntary disclosure. *Journal of Computer-Mediated Communication*, *17*, 101-115.