I Will Continue to Use This Nonetheless: Social Media Survive Users' Privacy Concerns

Yohko Orito[1], Yasunori Fukuta[2], Kiyoshi Murata[3]
[1]Faculty of Law and Letters, Ehime University, 3 Bunkyo-cho, Matsuyama, Ehime 790-8577, Japan
orito.yohko.mm@ehime-u.ac.jp
[2]School of Commerce, Meiji University, 1-1 Kanda Surugadai, Chiyoda, Tokyo 101-8301, Japan
yasufkt@meiji.ac.jp
[3]Centre for Business Information Ethics, Meiji University, 1-1 Kanda Surugadai, Chiyoda, Tokyo 101-8301, Japan
kmurata@meiji.ac.jp

Abstract- This study attempts to investigate the attitudes of Japanese social media users with regard to their personal data provision on social media sites and the social responsibility of social media companies in terms of personal data handling. In order to accomplish the purposes of the study, a questionnaire survey and follow-up interviews were conducted. The survey results revealed that the respondents used social media as they like regardless of their recognition of social media companies' and other companies' ways of using personal data they provided on social media sites. Many of the respondents appeared to prefer online socialisation to privacy protection, even though they felt vaguely insecure about their privacy when using social media. Considering the significant influence of social media over users' mental status, identity, autonomy and intellectual freedom, social media companies should provide users with comprehensive and clear explanations about how they collect, store, use, share and sell personal data to take their social responsibility.

Keywords: Social media, Personal data, Privacy, Business Model, Social responsibility.

1. Introduction

In recent years, social media has become widely used around the world. Anywhere, and at any time, social media users can post in various forms of expression, including text, audio, images and moving images, using mobile devices. As in other industrialised countries, many people in Japan use social media, and LINE, Twitter and Facebook are popular especially amongst the younger generations. However, it is well known that social media companies collect and store as much personal data as possible, which they utilise and share for various business purposes. Personal data including user names, e-mail addresses, phone numbers, dates of birth, genders and affiliations are often required for social media user registration. Social media users appear to voluntarily provide personally identifiable information to the companies. In addition, social media sites are designed to encourage active communication between users, prompting disclosure of personal data at every opportunity, as these data are crucial for the profitability of social media companies. Data analyses on users' habits of online activities and user-to-user relationships are conducted by them utilising user personal data such as search keywords, posts, names/handles of friends/followers, photos with name tags and communication metadata, which are automatically collected and stored in their database in a nearly real-time fashion.

Personal data obtained from a social media site are utilised by its operating company for executing their business models (Krombholz et al. [10]). For example, social media companies sell advertising placements on their sites and/or provide advertising platform services to their customer organisations. Social media advertisements are then personalised based on user preferences or behavioural patterns online. Profiling data is derived from an analysis of user personal data stored in the social media company databases. Social media companies may also sell users' personal data to other organisations. These data are usually anonymised

and/or aggregated to avoid prosecution for violation of personal data protection laws. Buyers then use these data to analyse their (potential) customers' preferences, real opinions and consumption propensities, and the results of the analysis may be sold to third-party businesses. Various kinds of personal data provided by social media users are collected, stored, processed and distributed by social media companies, and those data are now considered a crucial component of 'big data' analysis and a precious resource for streamlining the business operations of many companies.

On the other hand, typical Japanese social media users seem unaware of how personal data they post online are utilised by social media companies and other organisations, although it has been repeatedly alleged that societal awareness of privacy and personal data protection has been enhanced in Japan (ECOM [4]; JIPDEC [8]; Public Relations Department of Cabinet Office [20]; Quality of Life Council [21]). Orito et al. [19] and Murata et al. [15] investigate privacy awareness of Japanese online shoppers and find that their concerns about privacy invasion and personal data misuse are centred on financial and/or physical damage caused by, for example, misuse of credit card data or cyberstalking. Therefore, how do the users of "free" online services such as social media recognise the privacy issues related to their service usage? It is not clear whether even the users who are cautious about personal data handling by social media companies recognise the full extent of their (and other companies') use and circulation of personal data those users provide on social media sites. However, it is plausible that knowledge of personal data handling by social media companies could influence users' disclosure of their and others' personal data online.

With these recognitions, this study attempts to investigate the attitudes of Japanese social media users with regard to their personal data provision on social media sites. A considerable number of studies have examined social media users' awareness of privacy issues and/or their attitudes towards personal data disclosure on social media (e.g. Beye et al. [2]; Krasnova et al. [9]; Madden and Smith [12]). In particular, a lot of surveys on Facebook users' attitudes and behaviour have been conducted (e.g. Acquisti and Gross [1]; Debatin et al. [3]; Govani and Pashley [5]; Gross and Acquisti [6]; Krombholz et al. [10]; Tow et al. [22]; Stutzman et al. [23]). Hoy and Milne [7], among others, investigate young-adult Facebook users' privacy beliefs and their concern about third party data usage beyond the original purpose and behavioural advertisement techniques from a perspective of gender differences. O'Brien and Torres [16] also discuss Facebook users' privacy concerns exploring the role of trust in a social networking environment and third parties' access to Facebook user information. They find out that "Facebook users seem willing to push aside trust issues to achieve social interaction" (p. 93) although they tend to have low levels of trust in the social networking environment.

However, as far as we are aware, no research has examined Japanese social media users' understanding of how social media companies and their related third party companies utilise personal data that users post on social media sites such as Facebook and Twitter. It is difficult to confirm that Japanese social media users have similar beliefs or attitudes to those in other countries in terms of privacy issues involved with their social media usage, or they understand the current situations generated by the operation of business models social media companies deploy. To make up for the lack of research, this study conducts an exploratory survey on Japanese social media users' attitudes towards online privacy and recognition of personal data handling by social media companies and their business models. To attain the research purpose, a questionnaire survey and follow-up interviews were conducted in November and December 2013, respectively. The study also discusses the social responsibility of social media companies in terms of personal data handling, taking the results of the authors' related studies (Murata et al. [15]; Orito et al. [19]) into account.

2. The Overview of the Survey

The questionnaire survey was conducted in November 2013 using an online survey site. The respondents were university students from the School of Commerce at Meiji University in Tokyo and from the Faculty of Law and Letters at Ehime University in Matsuyama. A total of 368 valid respondents (110 at Meiji University, 258 at Ehime University) were included in the study, and there was no significant difference between the two sample groups. There are several reasons why university students were selected as respondents to this survey. One of the most important reasons was their experience of social media or social networking services (SNS). Because the major social media such as Facebook and Twitter have been used in Japan since the late 2000s, it was expected that the respondents to the survey (university students aged 18-23 years) had gained their experiences of social media usage during their lower and upper secondary school

years. In addition, because this survey was conducted as part of the coursework at each university, the students could be expected to take it seriously.

The questionnaire's title was "Questionnaire about Social Media Usage" to avoid priming, and the respondents had the option of providing their real names to express their consent for accepting follow-up interviews. Respondent attributes and their social media usage are shown in Table 1. The complete questionnaire is provided in the Appendix.

Table 1. Respondent attributes and social media usage (The number of respondents (%))

Age	18	19	20	21	22	23+
	83 (22.6)	141 (38.3)	38 (10.3)	55 (14.9)	29 (7.9)	22 (6.0)
Gender	Male 209 (56.8)		Female 158 (42.9)		Prefer not to answer 1 (0.3)	
Q1. How often do you use social media?	Always connected with social media and frequently check posts by others					111 (30.3)
	More than three times per day					158 (43.2)
	Once per day					46 (12.6)
	Three times per week					9 (2.5)
	Once per week					8 (2.2)
	I seldom use social media					24 (6.6)
	I don't use social media at all					10 (2.7)
Q1-2. What kind of devices do you use to access social media? (Multiple answers allowed)	Desktop PC 35 (10.8)	Laptop PC 138 (42.6)	Tablet PC 9 (2.8)	Smart Phone 294 (90.7)	Feature Phone 13 (4.0)	
Q2. Which social media do you usually use? (Multiple answers allowed)	Facebook	161 (49.7)	Google+			36 (11.1)
	Twitter	239 (73.8)	LinkedIn			3 (0.9)
	LINE	304 (93.8)	Others			13 (4.0)
	mixi	6 (1.9)	I don't have any particular social media I usually use			4 (1.2)
Q5. What is your purpose for using social media? (Multiple answers allowed)	Post articles, photos and videos					154 (50.8)
	View articles, photos and videos posted by other users, click "Like", comment and repost					193 (63.7)
	View articles, photos and videos posted by other users without clicking "Like", commenting or reposting					86 (28.4)
	Others					10 (3.3)

Respondents who used social media less than three times per week (Q1) and those who did not have any particular social media they usually used (Q2) were excluded from the analysis. According to the results of the survey, over 70% of respondents always connect with social media or connect with social media more than three times per day (Q1), and almost all respondents are using smart phone to access social media (Q1-2). Facebook, Twitter and LINE are the major social media the respondents usually use (Q2). Over a half of respondents post articles, photos and video and over 60% of the respondent view posts by other users and click "Like" or repost (Q5). The questionnaire response tendencies and relationships between the responses to questions were examined through statistical tests including Pearson's chi-squared test and Fisher's exact test. After the online survey, 14 respondents at Meiji University were interviewed in December 2013.

3. Survey Results
3.1. Recognition of Privacy Protection and Privacy Policies

According to the survey results, whereas more than 90% of respondents recognised the importance of privacy protection when they used social media (Table 2), a majority of respondents were unaware of the right to privacy, and nearly a half of respondents could not describe why protection of the right to privacy was important (Table 3). In addition, more than 70% of the respondents who used Facebook and also of those who used Twitter hadn't read the terms of service and/or privacy policies of the social media sites (Table 4).

Table 2. Importance of privacy protection

Q6. Is it important for you to protect your privacy when using social media?		
	Number	%
1. Very important	149	49.8
2. Important	135	45.2
3. Not so important	14	4.7
4. Not important at all	1	0.3
Total	299	

Table 3. Recognitions of the right to privacy

Q7. Do you know what the right to privacy is?			Q8. In general, the protection of the right to privacy is considered important. Do you know why it's important?		
	Number	%		Number	%
1. Yes	147	49.2	1. Yes	151	53.0
2. No, I don't know.	152	50.8	2. No, I don't know.	134	47.0
Total	299		Total	285	

Table 4. Attitudes towards the terms of service /privacy policy

Q9. Have you ever read Facebook's/Twitter's terms of service and/or privacy policy that explains how the social media company deals with personal data provided by individual users?					
Q9-1 Facebook	Number	%	Q9-2 Twitter	Number	%
1. I've read.	57	29.2	1. I've read.	60	25.5
2. I've not read.	138	70.8	2. I've not read.	175	74.5
Total	195		Total	235	

These findings are similar to the results of previous studies on young Japanese online shoppers' attitudes towards online privacy the authors engaged in (Murata et al. [15]; Orito et al. [19]). Many of the respondents did not regard the terms of service and privacy policies of social media as a good source of information on privacy protection or invasion. Even those respondents who had read the terms of service and/or privacy policies might not read them with caution. In fact, several interviewees stated that they had read only a part of the terms or policies concerning, for example, charging and cancellation or termination of their membership.

3.2. Personal Data Protection Behaviour on Social Media Sites

Whereas many respondents de-emphasised the importance of terms of service and privacy policies, the majority of respondents seemed to take care in the disclosure of their personal data on social media sites. As shown in Table 5, 56.7% of respondents published their true names, but more than 80% of respondents refrained from revealing personal data unnecessarily on social media sites. On the other hand, 36.4% of respondents used handles (pseudonyms) and tried to control the disclosure of their personal data. In addition, more than 60% of respondents had changed their privacy settings to limit accessibility to the personal data and/or articles they posted on social media sites (Table 6), more than 80% of respondents did not post information with location data, and nearly 80% didn't post photos with tags of their and/or others' names (Table 7).

The results of the tests of independence between the responses to Q9 and Q10 (Table 8) and between those to Q9 and Q11 (Table 9) statistically confirmed that, for both Facebook and Twitter users, the frequency distribution of responses to Q10 and Q11 was not affected by those to Q9 (chi-squared (4) = 4.792, $p > 0.1$ in the relationship between the responses to Q9-1 and Q10; chi-squared (4) = 5.339, $p > 0.1$ in the relationship between the responses to Q9-2 and Q10; chi-squared (3) = 6.481, $p > 0.05$ in the relationship between the responses to Q9-1 and Q11; and chi-squared (3) = 5.691, $p > 0.1$ in the relationship between the responses to Q9-2 and Q11). The majority of respondents seemed to consider personal data protection when they used social media sites, though they tended not to read the terms of service or privacy policies.

Table 5. Attitudes towards personal data disclosure

Q10. How do you usually register and/or disclose your personal data such as your name, current and old schools and interests on social media sites?		
	Number	%
1. I use my true name and honestly disclose my personal data as much as possible.	30	10.3
2. I use my true name, but disclose as little personal data as possible.	135	46.4
3. I use a handle and disclose as little personal data as possible.	60	20.6
4. I use a handle and disclose my personal data in the way that only my close friends understand that I make the disclosure.	46	15.8
5. I adopt different ways of registering and disclosing my personal data on different social media.	20	6.9
Total	291	

Table 6. Privacy settings

Q11. Have you modified your privacy settings on social media sites to control the extent of the disclosure of your personal data and/or articles you post on social media?		
	Number	%
1. Only users approved by me (e.g. Facebook friends) can access my personal data disclosed on social media sites.	166	57.6
2. Only I can access my personal data disclosed on social media sites.	11	3.8
3. I didn't know that it was possible for me to change my privacy settings on social media sites.	20	6.9
4. I know I can change my privacy settings on social media sites, but I use social media in the default privacy settings.	89	30.9
5. Others	2	0.7
Total	288	

Table 7. Location information and name tags

Q12. Have you posted information (articles, photos, videos, etc.) with location information on social media sites?			Q13. Have you posted photos with tags of other users' names or handles on social media?		
	Number	%		Number	%
1. I have always done this when possible.	7	2.4	1. I have always done this when possible.	7	2.4
2. I have sometimes done this.	40	13.9	2. I have sometimes done this.	57	19.8
3. I have not done this at all.	183	63.5	3. I have not done this at all.	164	56.9
4. I haven't posted any information.	58	20.1	4. I haven't posted any photo.	60	20.8
Total	288		Total	288	

Table 8. Attitudes towards the terms of service/privacy policy (Q9) and personal data disclosure (Q10)

(The number of respondents)

Q10. How do you usually register and/or disclose your personal data such as your name, current and old schools and interests on social media sites?	Q9. Have you ever read Facebook's/Twitter's terms of service and/or privacy policy that explains how the social media company deals with personal data provided by individual users?					
	9-1. Facebook			9-2. Twitter		
	1. I've read	2. I've not read	Total	1. I've read	2. I've not read	Total
1. I use my true name and honestly disclose my personal data as much as possible.	11	18	29	6	18	24
2. I use my true name, but disclose as little personal data as possible.	23	78	101	18	76	94
3. I use a handle and disclose as little personal data as possible.	8	16	24	19	34	53
4. I use a handle and disclose my personal data in the way that only my close friends understand that I make the disclosure.	8	15	23	13	32	45
5. I adopt different ways of registering and disclosing my personal data on different social media sites.	7	10	17	4	14	18
Total	57	137	194	60	174	234

Table 9. Attitudes towards the terms of service/privacy policy (Q9) and privacy settings (Q11)

(The number of respondents)

Q11. Have you modified your privacy settings on social media sites to control the extent of the disclosure of your personal data and/or articles you post on social media?	Q9. Have you ever read Facebook's/Twitter's terms of service and/or privacy policy that explains how the social media company deals with personal data provided by individual users?					
	9-1. Facebook			9-2. Twitter		
	1. I've read	2. I've not read	Total	1. I've read	2. I've not read	Total
1. Only users approved by me (e.g. Facebook friends) can access my personal data disclosed on social media sites.	42	79	121	39	95	134
2. Only I can access my personal data disclosed on social media sites.	1	4	5	3	4	7
3. I didn't know that it was possible for me to change my privacy settings on social media sites.	2	6	8	2	13	15
4. I know I can change my privacy settings on social media sites, but I use social media in the default privacy settings.	9	46	55	13	61	74
Total	54	135	189	57	173	230

3.3. Awareness of the Secondary/Tertiary Usage of Personal Data

The survey outcome that a significant number of respondents were cautious about personal data protection on social media sites did not signify their full understanding of the use of their personal data by social media companies. While 33.0% (99/282) of respondents presumed that the personal data from posted information would be processed for secondary/tertiary use by social media companies or other companies (Q16), 95.7% of respondents (266/278) presumed that the information they themselves had posted on social media sites had not been put into secondary/tertiary use (Q17).

Table 10 is the cross tabulation between Q9-1 (Facebook)/Q9-2 (Twitter) and Q16. Similar outcomes to those described in the above section were derived from the statistical analysis on this table. As shown in it, approximately one third of respondents assumed secondary/tertiary use of personal data by social media companies or other companies (31.7% of Facebook users and 31.3% of Twitter users). However, respondent recognition of the secondary/tertiary usage of their personal data did not significantly influence their behaviour as to whether they read the terms of service and/or privacy policies on social media sites (Q9-1. Facebook: chi-squared (1) = 0.037, p > 0.1; Q9-2. Twitter: chi-squared (1) = 2.544, p > 0.1).

Table 10. Attitudes towards the terms of service/privacy policy (Q9) and recognition of the secondary/tertiary use of personal data (Q16)

(The number of respondents)

Q16. When you post information (articles, photos, videos, etc.) on a social media site, do you suppose that your personal data will be put into secondary/tertiary use by the social media company or other companies?	Q9. Have you ever read Facebook's/Twitter's terms of service and/or privacy policy that explains how the social media company deals with personal data provided by individual users?					
	9-1. Facebook			9-2. Twitter		
	1. I've read	2. I've not read	Total	1. I've read	2. I've not read	Total
Yes	18	41	59	23	48	71
No	37	90	127	35	121	156
Total	55	131	186	58	169	227

The following two tables describe the relationships between respondent recognition of corporate secondary/tertiary use of personal data and behavioural dimensions of social media usage. Chi-squared analysis on Table 11 revealed that respondents' recognition of secondary/tertiary use of personal data did not significantly influence their disclosure of personal data (chi-squared (4) = 3.268, p > 0.1). In Table 12, the relationship between respondents' recognition of secondary/tertiary use and their privacy settings is described. There was no statistically significant relationship between the two variables (chi-squared (3) = 6.245, p > 0.1). Respondents' recognition of secondary/tertiary use of personal data did not influence them to modify the privacy settings to control their personal data disclosure.

Table 11. Attitudes towards personal data disclosure (Q10) and recognition of the secondary/tertiary use of personal data (Q16)

(The number of respondents)

Q10. How do you usually register and/or disclose your personal data such as your name, current and old schools and interests on social media sites?	Q16. When you post information (articles, photos, videos, etc.) on a social media site, do you suppose that your personal data will be put into secondary/tertiary use by the social media company or other companies?		
	1. Yes	2. No	Total
1. I use my true name and honestly disclose my personal data as much as possible.	10	18	28
2. I use my true name, but disclose as little personal data as possible.	45	86	131
3. I use a handle and disclose as little personal data as possible.	19	39	58
4. I use a handle and disclose my personal data in the way that only my close friends understand that I make the disclosure.	16	29	45
5. I adopt different ways of registering and disclosing my personal data on different social media.	3	17	20
Total	93	189	282

Table 12. Attitudes towards modification of privacy settings (Q11) and recognition of the secondary/tertiary use of personal data (Q16)

(The number of respondents)

Q11. Have you modified your privacy settings on social media sites to control the extent of the disclosure of your personal data and/or articles you post on social media?	Q16. When you post information (articles, photos, videos, etc.) on a social media site, do you suppose that your personal data will be put into secondary/tertiary use by the social media company or other companies?		
	1. Yes	2. No	Total
1. Only users approved by me (e.g. Facebook friends) can access my personal data disclosed on social media sites.	60	102	162
2. Only I can access my personal data disclosed on social media sites.	5	5	10
3. I didn't know that it was possible for me to change my privacy settings on social media sites.	3	17	20
4. I know I can change my privacy settings on social media sites, but I use social media in the default privacy settings.	25	63	88
Total	93	187	280

There was also no statistically significant relationship between respondents' recognition of social media-posted personal data utilisation by the social media companies (Q22) and attitudes towards personal data disclosure (Table 13; chi-squared (4) = 2.942, $p >$ 0.1), and between the recognition and respondents' modification of privacy settings (Table 14; chi-squared (1) = 2.773, $p > 0.1$). If social media users assume that companies utilise their personal data for profit, it is plausible that they tend to adopt a cautious attitude

towards posting personal data, or to be motivated to modify their privacy settings. However, the survey results revealed that respondents' recognition of personal data handling by social media companies had no influence over the attitudes of respondents towards personal data disclosure and privacy settings.

Table 13. Attitude towards personal data disclosure and user name (Q10) and recognition of social media companies' usage of personal data posted by users (Q22)

(The number of respondents)

Q10. How do you usually register and/or disclose your personal data such as your name, current and old schools and interests on social media sites?	Q22. How do you think social media companies use your posts (articles, photos, videos, etc.) on the social media sites?		Total
	1. Yes	2. No	
	1. Some of my posts are used by the companies in some way. 2. All of my posts are used by the companies in some way.	3. My posts are stored in the databases of the companies, but are not used by them. 4. My posts are not used by the companies because the posts are deleted after a certain period of time.	
1. I use my true name and honestly disclose my personal data as much as possible.	18	10	28
2. I use my true name, but disclose as little personal data as possible.	68	62	130
3. I use a handle and disclose as little personal data as possible.	35	22	57
4. I use a handle and disclose my personal data in the way that only my close friends understand that I make the disclosure.	22	22	44
5. I adopt different ways of registering and disclosing my personal data on different social media.	10	10	20
Total	153	126	279

Table 14. Attitude towards modification of privacy settings (Q11) and recognition of social media companies' usage of personal data posted by users (Q22)

(The number of respondents)

Q11. Have you modified your privacy settings on social media sites to control the extent of the disclosure of your personal data and/or articles you post on social media?		Q22. How do you think social media companies use your posts (articles, photos, videos, etc.) on the social media sites?		
		1. Yes	2. No	
		1. Some of my posts are used by the companies in some way. 2. All of my posts are used by the companies in some way.	3. My posts are stored in the databases of the companies, but are not used by them. 4. My posts are not used by the companies because the posts are deleted after a certain period of time.	Total
Yes	1. Only users approved by me (e.g. Facebook friends) can access my personal data disclosed on social media sites. 2. Only I can access my personal data disclosed on social media sites.	100	70	170
No	3. I didn't know that it was possible for me to change my privacy settings on social media sites. 4. I know I can change my privacy settings on social media sites, but I use social media in the default privacy settings.	52	55	107
	Total	152	125	277

3.4. Recognition of Social Media Business Models and the User Risks Involved

Many of respondents did not have a clear understanding of social media business models and the user risks involved. Only 4.3% of respondents (12/278) recognised that they had experienced secondary/tertiary use of information they posted on social media (Q17). However, it is a fact that almost all user-provided personal data are utilised by the social media companies and/or their related organisations as a precious resource central to their business models. In addition, many of the responses to the open questions "How do the social media companies and/or other companies utilise the personal data posted on social media sites for secondary/tertiary purposes?" (Q16-1) and "How do social media companies use your posts on the social media sites?" (Q22-1) were ambiguous, suggesting a lack of respondents' understanding.

One interviewee acknowledged that it was difficult for her to imagine the risks of personal data provision on social media because she had not suffered at all as a result of her personal data disclosure online. Several respondents feared misuse of personal data by individual users, rather than business organisations. Thus, they did not want other users to know details of their personal life. Conversely, one interviewee stated that it was personally beneficial to reveal factual personal data on the social media sites to enhance the quality of the online personalised services provided.

In addition, large differences were observed in terms of recognition of social media company accessibility to personal data. Almost 70% of respondents (188/280) thought their posts would be by social media companies over time, with deletion at some future date (Table 15). However, there was a range of their expectations of the durations (Table 16). Thus, many respondents may not fully comprehend the social media business models and the user risks involved.

Table 15. Recognition of the extent of accessibility to personal data after deletion

Q20. How long do you think social media companies continue to store your posts (articles, photos, videos, etc.) after you delete them on the social media sites?		
	Number	(%)
1. They delete my posts as soon as I delete.	53	18.9
2. They store my posts for several months and then delete.	95	33.9
3. They store my posts for a year and then delete.	11	3.9
4. They store my posts for several years and then delete.	29	10.4
5. They continue to store my posts and never delete.	88	31.4
6. Others	4	1.4
Total	280	

Table 16. Recognition of the extent of accessibility to online activities

Q21. How long do you think a social media company keeps storing information about your activities (records of your browsing articles, photos, videos, etc.) on the social media site?		
	Number	(%)
1. They keep little information.	35	12.5
2. They keep the information for several days and then remove from their databases.	46	16.4
3. They keep the information for several months and then remove from their databases.	65	23.2
4. They keep the information for several years and then remove from their databases.	44	15.7
5. The information is never removed from their databases.	87	31.1
6. Others	3	1.1
Total	280	

4. Implications of the Survey Results

The perceptual and behavioural dimensions of social media usage were investigated through statistical analysis of the survey results, and the relationships between them were confirmed. Many respondents recognised the importance of privacy protection, but their perception was not supported by knowledge of the right to privacy, or by thoughtful judgment regarding privacy protection. The inconsistent personal data protection behaviour of respondents was also confirmed statistically. In particular, there was no statistically significant relationship detected between the three behavioural dimensions: whether or not respondents read privacy policies, how they attempted to properly control personal data provision on social media sites, and how they modified privacy settings on social media sites. Moreover, there was no significant relationship between the behavioural dimensions and respondent perception of secondary/tertiary use of personal data. Considering that over 90% of respondents recognised the importance of privacy protection, the authors expected that most of those who acknowledged secondary/tertiary use of their personal data would take appropriate action to protect their online privacy. However, this was not the case. Although almost all of respondents recognised the importance of privacy protection and a majority were concerned about the use and protection of online personal data by social media companies and other companies, such recognition and concern did not motivate them to understand how their personal data posted online were (mis)used or (un)protected.

One plausible reason for these could be a lack of transparency regarding the business models adopted by social media companies. Social media are seemingly free-of-charge online services, and typical users may not fully comprehend the cost of usage and how social media companies profit from users' personal data. The outcomes of the follow-up interviews support this hypothesis. Users' lack of knowledge regarding the business models could result in underestimation of the risks of using social media. Another plausible reason could be the failure of privacy education in Japan. Japanese people are educated about the importance of protecting the right to privacy at both lower and upper secondary schools. However, the education emphasises, without clearly defining privacy and the right to it, that the protection of the right is necessary to keep the serenity of their daily lives and to protect their property, and the relationships between privacy and freedom, let alone privacy and democracy, are usually not mentioned at all in the educational environment where teaching staff are reluctant to deal with political subjects and current affairs in the classrooms. Such privacy education could make Japanese people underestimate the risks of invasions of their privacy made by social media companies and their related organisations. This

rationale seems to be supported by the outcomes of the questionnaire survey and the follow-up interviews.

In addition, many of the respondents appeared to prefer online socialisation to privacy protection, even though they felt vaguely insecure about their privacy when using social media. Or, they might attempt to submit to the belief that infringement of their right to privacy is none for their business. Actually, many of the interviewees told that misuse of personal data or an invasion of privacy would never happen to them. The similar tendencies were observed in the results of the authors' previous surveys (Murata et al. [15]; Orito et al. [19]). Japanese social media users would continue to use social media site regardless of how they consider social media companies reap the benefit from their personal data, and social media would be able to survive users' privacy concerns.

It is difficult for anyone to completely erase personal data posted on the Internet. Once personal comments, photos and videos are uploaded on a social media site, those personal data are collected and stored by social media companies. The stored data may be used by them, their related organisations and/or individual users ignoring the context in which the personal data were uploaded. Users are required to understand the importance of careful personal data handling on social media sites. On the other hand, social media companies should provide users with comprehensive and clear explanations about how they collect, store, use, share and sell personal data. Considering the significant influence of social media over users' mental status (O'Keeffe et al. [17]), identity (Marwick and boyd [13]), autonomy (Murata and Orito [14]) and intellectual freedom (Orito [18]), social media companies should fulfil their social responsibility and accountability.

5. Conclusion

This study examined social media user recognition of personal data handling by social media and other companies, and its influence on user behaviour towards disclosure of personal data and privacy protection online. The survey results revealed that the respondents use social media as they like regardless of their recognition of social media companies' and other companies' ways of using personal data they provide on social media sites. In the meantime, because of the exploratory property of this research, the evidence supporting our conclusion was limited. The lack of consistency between the perceptual and behavioural dimensions of social media users was statistically confirmed by the results of chi-square tests that indicated there was no significant relationship between these variables. However, because these variables were measured by binary or qualitative scales, our choice of method of analysis was very limited. More positive and multi-dimensional evidence is needed to reinforce our findings. In particular, it is necessary to measure the perceptual and behavioural dimensions of the social media users quantitatively and analyse them via the multi-factor ANOVA and its post-hoc analyses in order to explore the complex linkages between and among these variables in detail.

The tremendous advances in big data technology have rendered social media business models unintelligible to typical users. There is also a lack of user understanding of the commercial value and sensitivity of personal data. Personal data should appropriately be protected in the current socio-economic and technological environment, as otherwise the potential danger of violations of human dignity and rights would be created. Ensuring the transparency of social media business models and establishing a proper privacy education system should be recognised as urgent social issues in Japan.

Acknowledgements

References

[1] A. Acquisti, and R. Gross, "Imagined Communities: Awareness, Information Sharing, and Privacy on the Facebook," In G. Danezis, and P/ Golle, (Eds.), *Privacy Enhancing Technologies*, Springer, Berlin/Heidelberg, pp. 36-58, 2006.

[2] M. Beye, A. Jeckmans, Z. Erkin, P. Hartel, R. Lagendijk, R. and Q. Tang, "Literature Overview-Privacy in Online Social Networks" [Online]. Available: http://doc.utwente.nl/74094/1/literaturereview.pdf, Accessed on: Oct 23, 2014.

[3] B. Debatin, J. P. Lovejoy, A. K. Horn, and B. N. Hughes, "Facebook and Online Privacy: Attitudes, Behaviours and Unintended Consequences," *Journal of Computer-Mediated Communications*,

vol. 15, pp. 83–108, 2009.

[4] ECOM, "Survey on Privacy Policy and Other Similar Statements on Websites (in Japanese)" [Online]. Available: http://www.jipdec.or.jp/archives/ecom/report/guideline_20080826.pdf, Accessed on: June 20, 2009.

[5] T. Govani, and H. Pashley, "Student Awareness of the Privacy Implications when Using Facebook" [Online]. Available: http://lorrie.cranor.org/courses/fa05/tubzhlp.pdf, Accessed on: Oct 23, 2014.

[6] R. Gross, and A. Acquisti, "Information Revelation and Privacy in Online Social Networks (the Facebook Case)," *Proceedings of the ACM Workshop on Privacy in the Electronic Society* [Online]. Available: http://www.heinz.cmu.edu/~acquisti/papers/privacy-facebook-gross-acquisti.pdf, Accessed on: Oct 23, 2014.

[7] M.G. Hoy, and G. Milne, "Gender Differences in Privacy-Related Measures for Young Adult Facebook Users," *Journal of Interactive Advertising*, vol. 10, no. 2, pp. 28-45, 2010.

[8] JIPDEC, "Summary of the PrivacyMark Seal System (in Japanese)" [Online]. Available: http://privacymark.jp/seminar/documents/pdf/system_seminar_H24.pdf, Accessed on: Mar 8, 2014.

[9] H. Krasnova, O. Günther, S, Spiekermann, and K. Koroleva, "Privacy Concerns and Identity in Online Social Networks," *Identity in the Information Society*, vol. 2, no. 1, pp. 39-63, 2009.

[10] K. Krombholz, D. Merkl, and E. Weippl, "Fake Identities in Social Media: A Case Study on the Sustainability of the Facebook Business Model," *Journal of Service Science Research*, vol. 4, no. 2, pp.175-212, 2012.

[11] Y. Liu, K. P. Gummadi, B. Krishnamurthy, B., and a. Mislove, "Analyzing Facebook Privacy Settings: User Expectations vs. Reality," *Proceedings of the 2011 ACM SIGCOMM Conference on Internet Measurement*, pp.61-70, 2011.

[12] M. Madden, and A. Smith, "Reputation Management and Social Media: How People Monitor Their Identity and Search for Others Online" [Online]. Available: http://www.pewinternet.org/~/media//Files/Reports/2010/PIP_Reputation_Management.pdf, Accessed on: Oct 23, 2014.

[13] A. E. Marwick, and D. boyd, "I Tweet Honestly, I Tweet Passionately: Twitter Users, Context Collapse, and the Imagined Audience," *New Media & Society*, vol. 13, no. 1, pp. 114-133, 2011.

[14] K. Murata, and Y. Orito, "The Schizophrenic Society: The Potential Risk of Individual Identity Crises in the Participatory Surveillance Environment," In E. Palm, (Ed.), *ICT-ethics: Sweden and Japan, Studies in Applied Ethics*, vol. 15, pp. 10-23, 2013.

[15] K. Murata, Y. Orito, and Y. Fukuta, "Social Attitudes of Young People in Japan towards Online Privacy," *Journal of Law, Information and Science*, vol. 23, no. 1, pp. 137-157, 2014.

[16] O'Brien, D. Torres and M. Ann, "Social Networking and Online Privacy: Facebook Users Perceptions," *Irish Journal of Management*, vol. 31, no. 2, pp. 63-97, 2012.

[17] G. S. O'Keeffe, K. Clarke-Pearson and Council on Communications Media, "The Impact of Social Media on Children, Adolescents, and Families," *Pediatrics*, vol. 127, no. 4, pp. 800-804, 2011.

[18] Y. Orito, "The Counter-Control Revolution: "Silent Control" of Individuals through Dataveillance Systems," *Journal of Information, Communication and Ethics in Society*, vol. 9, no. 1, pp. 5-19, 2011.

[19] Y. Orito, K. Murata, and Y. Fukuta, "Do Online Privacy Policies and Seals Affect Corporate Trustworthiness and Reputation?," *International Review of Information Ethics*, vol. 19, pp. 52-65, 2013.

[20] Public Relations Department of Cabinet Office, "The Public Opinion Research on Personal Data Protection (in Japanese)" [Online]. Available: http://www8.cao.go.jp/survey/h18/h18-hogo/, Accessed on Mar 8, 2014.

[21] Quality of Life Council , "Privacy Protection in Consumer Transaction (in Japanese)" [Online]. Available: http://www.caa.go.jp/seikatsu/shingikai2/kako/spc11/houkoku_b/spc11-houkoku_b-contents.html, Accessed on Mar 8, 2014.

[22] W. M. F. H. Tow, P. Dell, and J. Venable, "Understanding Information Disclosure Behaviour in Australian Facebook users," *Journal of Information Technology*, vol. 25, no. 2, pp. 126-136, 2010.

[23] F. Stutzman, R. Capra, and j. Thompson, "Factors Mediating Disclosure in Social Network Sites," *Computers in Human Behavior*, vol. 27, no. 1, pp. 590-598, 2011.

Appendix: Questionnaire about Social Media Usage

This questionnaire survey is a part of academic research about social media usage conducted by Yohko Orito at Ehime University and Kiyoshi Murata and Yasunori Fukuta at Meiji University. It will take about 10 or 20 minutes to answer all the questions. The private information given by respondents will be used only for attaining the purpose of this research. Any personal information provided by respondents will not be shared with anyone else.

Q0 Please provide your personal information: Name of university, Gender, Age, *Name (optional)*

Q1 How often do you use social media?
1. Always connected with social media and frequently check posts by others.
2. More than three times per day.
3. Once per day.
4. Three times per week.
5. Once per week. → *End of the questionnaire*
6. I seldom use social media. → *End of the questionnaire*
7. I don't use social media at all. → *End of the questionnaire*

    Q1-2 What kind of devices do you use to access social media? (Multiple answers allowed)
    1. Desktop PC   2. Laptop PC   3. Tablet PC   4. Smart Phone   5. Feature Phone
    6. Others → Please specify (   )

Q2 Which social media do you usually use? (Multiple answers allowed)
1. Facebook   2. Twitter   3. LINE   4. mixi   5. Google+
6. LinkedIn   7. Others → Please specify (   )
8. I don't have any particular social media I usually use. → *End of the questionnaire*

Q3 On average, how long do you continuously use social media each time?
About (   ) minutes.

Q4 Which social media do you use most frequently?
1. Facebook   2. Twitter   3. LINE   4. mixi   5. Google+
6. LinkedIn   7. Others → Please specify (   )

Q5 What is your purpose for using social media? (Multiple answers allowed)
1. Post articles, photos and videos.
2. View articles, photos and videos posted by other users, click "Like", comment and repost.
3. View articles, photos and videos posted by other users without clicking "Like", commenting or reposting.
4. Others → Please specify (   )

Q6 Is it important for you to protect your privacy when using social media?
1. Very important.
2. Important.
3. Not so important.
4. Not important at all.

Q7 Do you know what the right to privacy is?
1. Yes. → Please describe the definition of the right. (   )
2. No, I don't know.

Q8 In general, the protection of the right to privacy is considered important. Do you know why it's important?
1. Yes. → Please describe the reason. (   )   2. No, I don't know.

Q9 Have you ever read Facebook's/Twitter's terms of service and/or privacy policy that explains how the social media company deals with personal data provided by individual users?
    Q9-1 Facebook
    1. I've read.   2. I've not read.   3. I don't use Facebook.
    Q9-2 Twitter
    1. I've read.   2. I've not read.   3. I don't use Twitter.

Q10 How do you usually register and/or disclose your personal data such as your name, current and old schools and interests on social media sites?
1. I use my true name and honestly disclose my personal data as much as possible.
2. I use my true name, but disclose as little personal data as possible.
3. I use a handle and disclose as little personal data as possible.
4. I use a handle and disclose my personal data in the way that only my close friends understand that I make the disclosure.
5. I adopt different ways of registering and disclosing my personal data on different social media. → Please describe how differently you register and disclose your personal data on different social media. (   )
6. Others → Please specify (   )

Q11 Have you modified your privacy settings on social media sites to control the extent of the disclosure of your personal data and/or articles you post on social media?
1. Only users approved by me (e.g. Facebook friends) can access my personal data disclosed on social media sites.
2. Only I can access my personal data disclosed on social media sites.
3. I didn't know that it was possible for me to change my privacy settings on social media sites.
4. I know I can change my privacy settings on social media sites, but I use social media in the default privacy settings.
5. Others → Please specify (   )

Q12 Have you posted information (articles, photos, videos, etc.) with location information on social media sites?
1. I have always done this when possible.
2. I have sometimes done this.
3. I have not done this at all.
4. I haven't posted any information.

Q13 Have you posted photos with tags of other users' names or handles on social media?
1. I have always done this when possible.
2. I have sometimes done this.
3. I have not done this at all.
4. I haven't posted any photo.

Q14 When you post information (articles, pictures, videos, etc.) on social media, who do you imagine will see or read it?
1. People who have some relationship with me both in my real life and online.
2. People who have some relationship with me only online.
3. Any social media users including people unknown to me.
4. Jus I will.
5. Others → Please specify (   )

Q15 Who do you consider can access your posts (articles, photos, videos, etc.)?
1. Only people who I allow to access.
2. All users.
3. Others → Please specify (   )

Q16. When you post information (articles, photos, videos, etc.) on a social media site, do you suppose that your personal data will be put into secondary/tertiary use by the social media company or other companies?
1. Yes.   2. No. → Skip to Q17

> **Q16-1 How do the social media company and/or other companies utilise the personal data posted on social media sites for secondary/tertiary purposes?** (   )

Q17 Have you experienced secondary/tertiary use of your posts (articles, photos, videos, etc.) on social media sites by the social media companies or other companies?
1. Yes.   2. No. → *Skip to Q18*

> **Q17-1 How do the companies used your posted information.** (   )

Q18 How do you react when you receive friend or follower requests from those who you know in your real life using their true names or handles?
1. I accept without hesitation.
2. I accept if it's necessary for me.
3. I accept when I can prove the identity of a requester.
4. I don't accept at all.
5. Others → Please specify (   )

Q19 Do you use the same account information (ID and Password) for different social media?
1. I use the same ID and Password for all social media.
2. I use the same Password for all social media.
3. I use the same ID and Password for several social media.
4. I use the same Password for several social media.
5. I use a distinct ID and Password for each social media
6. I use an OpenID.
7. Others (   )

Q20 How long do you think social media companies continue to store your posts (articles, photos, videos, etc.) after you delete them on the social media sites?
1. They delete my posts as soon as I delete.
2. They store my posts for several months and then delete.
3. They store my posts for a year and then delete.
4. They store my posts for several years and then delete.
5. They continue to store my posts and never delete.
6. Others → Please specify (   )

Q21 How long do you think a social media company keeps storing information about your activities

(records of your browsing articles, photos, videos, etc.) on the social media site?
1. They keep little information.
2. They keep the information for several days and then remove from their databases.
3. They keep the information for several months and then remove from their databases.
4. They keep the information for several years and then remove from their databases.
5. The information is never removed from their databases.
6. Others → Please specify (   )

Q22 How do you think social media companies use your posts (articles, photos, videos, etc.) on the social media sites?
1. Some of my posts are used by the companies in some way.
2. All of my posts are used by the companies in some way.
3. My posts are stored in the databases of the companies, but are not used by them. → *Skip to Q23*
4. My posts are not used by the companies because the posts are deleted after a certain period of time. → *Skip to Q23*
5. Others ☐ Please specify (   ) → *Skip to Q23*

Q22-1 How do social media companies use your posts on the social media sites? (   )

Q23 How do you think your profile which you disclosed or your information which you posted (articles, pictures, video, etc.) on social media sites have influence over your identity?
1. Much. 2. To an extent. 3. Not much. 4. Not at all.

Q24 When you disclose your profile or posted information (articles, pictures, video, etc.) on social media, have you ever tried to come up to the expectations about your personality people with whom you have relationships in your real life have?
 1. Yes, I have. 2. Sometimes 3. Few times. 4. No, I haven't.

Q25 Have you ever had negative feelings (e.g. angers, anxieties or shocks) about information on you (articles, pictures, video, etc.) others posted on social media sites?
1. Many times.
2. Sometimes.
3. Few times. → *End of the questionnaire*

4. Not at all. → *End of the questionnaire*
5. Other users have never posted information on me. → *End of the questionnaire*
  Q25-1 What did you do in that case?
  (   )