Perceptions of online privacy: A comparative study of college students in Canada and China

Abstract

Disclosure or privacy, many Internet users are confronting such a dilemma, and netters' decisions may differ from people to people. This article focuses on the cultural impacts on people's perceptions of privacy, starting with an overview of behavioural research regarding online privacy, incorporated with several comparative studies about privacy across nations. This leads us to a research gap on non-prevailing cultures, which brings out the research question of the relationship between cultural backgrounds and individual's concerns of online privacy. To answer that, a survey on college students in Canada and China is conducted, with evidence that cultural backgrounds have a trivial impact on the interpretations of online privacy issues. Potential justifications, research limitations and future orientations are then discussed.

Introduction

Contemporary Internet users encounter rising concerns about online privacy as they benefit from such a system. Kummer and Schulte (2019) reveal a money-for-privacy trade-off in Google's smartphone application market. Meantime, data firm Cambridge Analytica is reported accessing Facebook users' profile information without their authorization (Isaak & Hannah, 2018). Ascribing to the irresponsible utilization of personal data by technology companies, netters with little controls of their privacy are exposed under the risks of gossip, harassment, hacking, phishing, **data mining**, and diverse forms of fraudulent behaviour (Abril et al., 2012).

Critical Summary

Privacy is defined as the control-oriented capability of an individual over personal information (Stone et al., 1983), which emphasizes the personal interpretations of the potentially detrimental outcomes correlated to the self-disclosure. (Cho et al., 2010). Westin (1967) suggests four states of privacy: solitude, intimacy, anonymity and reserve, but are later found problematic because of the absence of consideration associate with social rewards and short-term stimulation in the organizational dimension model (Margulis, 2003; Hallam et al, 2007). Further behavioural investigations rationalize the discrepancies between the intention to secure personal information and the actual disclosure manners, known as the privacy paradox (Norberg et al.,2007).

Such distinctions between privacy concerns and protective behaviours are also studied in the online realm. Acquisti and Gross (2006) found the usage of social network sites weakly relating to the perceptions of privacy. To justify this phenomenon, Ellison et al. (2010) claim that the information-sharing behaviour at online platforms may lower the barrier of interaction, whereas Mazer et al. (2009) found online credibility enhanced with increasing self-disclosure, which accounts for the complexity and multi-faces of online privacy (Trepte et al., 2011).

Meanwhile, the distinguishable "collective programming of the mind" (Hofstede, 2001) and the "culturally-specific psychological manifestations" (Altman, 1975) account for the cultural context of privacy. Hence, Internet users with various cultural backgrounds could perceive potential privacy violations differently (Lowry et al., 2011). For example, a study has examined that a population with higher collectivist characteristics has less privacy control in online expressions (Wang and Liu, 2019). Additionally, researchers analyzed the nationality of Internet users and their perceptions of online privacy. Lili and Min (2014) claim that privacy concerns in Korea are slightly higher than those in China in addition to the overall high ANOVA score for both nations. Another investigation proceeded between the U.S. and China also

conclude that Chinese netters have less awareness of privacy than their counterparts (Nemati et al., 2014), which complements the previous study earlier before one decade (Zhang et al., 2002).

Research Gap

Although research reveals the possibility that a population with Chinese cultural background has relatively intense privacy vulnerability, results obtained from the crude comparison among a few representative cultures are not considered general. Canada, as a non-prevailing research target, requires further exploratory studies to examine the broad culture-and-privacy relationship among nations. For this article, people's perspective of online privacy in Canada and China is inspected.

Research Question

This study implements the form of **primary research** with a survey on college students in Canada and China, which would essentially analyze the influences of national origin acting on users' perspectives of online privacy, and aims to primarily examine the relationship between cultural backgrounds and individual's concerns of online privacy with respect to the existing theories.

Methodology

Participants

As to explore the diversity of characteristics between two nations, a survey is conducted among 40 participants who are considered eligible as long as they are currently accepting college education in Canada or China. Samples are divided such that half of the respondents are in Canada, while another half are in China. This survey chooses college students because the user group aged 18-29 is dominant among all Internet users in both Canada and China (CIRA, 2020;

Cyberspace Administration of China, 2020). Consider insufficient time to reach a larger population and limitations on statistical methods, this study takes **convenience sampling** as the cost-efficient sampling method.

Procedure

The researcher will attempt to invite eligible participants through popular social media platforms such as WeChat, Facebook, and Instagram. Those who are volunteered to take the survey should receive a link to the survey. Participants may also invite their friends or schoolmates for the questionnaire. After the results are collected, data are merged and analyzed by statistical methods.

Data Analysis

A total amount of 40 surveys are collected from 40 eligible respondents by invitation in August 2020. The calculated response rate for this survey is 100%. The demographic data represent that most respondents are currently under the progress of a Bachelor's degree. Particularly, the Chinese sample is primarily drawn from Guangdong province in southern China, while most of the participants in Canada study in Vancouver or Winnipeg, and are mainly graduates from local high school.

Most data analysis proceeds in Jupiter notebook with R. Answers in the surveys are scaled and proceeded with the built-in Shapiro-Wilk's method to test normality. If normality is assumed, the t-test is then applied via built-in functions in R. Otherwise, the Wilcoxon test would be the alternative. The purpose of applying either function is to evaluate the **statistical significance** of diversity between individuals' privacy perceptions by the generated p-value. In addition to the inferential statistical methods, the mean differences are calculated to interpret the magnitude of diversity. Box plot visualizes the relationship among the upper quartiles, medians,

lower quartiles, maximums and minimums of the results, which would become the supplemental analytical method for the comparison.

Design Instrument

The survey is designed with ten five-point or four-point scale questions. It starts with an introduction, followed by an acknowledgment about the implementation of the collected results. All questions are adapted from previous research, articles or news. Within the ten survey questions, the awareness of how personal information is used by social media platforms (OPC, 2019), the consciousness of the privacy policy (Zhang et al., 2002), the awareness of password protection (Debatin et al., 2009), the comfort zone of sharing information with others (Debatin et al., 2009), the sensitivity with privacy settings (Debatin et al., 2009), the trade-off under privacy paradox (Hallam & Zanella, 2017), and the ownership about the personal information (OPC, 2019; Hallam & Zanella, 2017) are examined over the participants (See Appendix).

Result

The results of data analysis have indicated interesting patterns, as the two groups of participants reflect non-significant differences regarding the perceptions of online privacy (see p-values in Table 1). Overall, in addition to the medium-high level of privacy concerns for both nations, Chinese participants show greater a variety of answers whereas the Canadian respondents have more concentrated results (see question 1, 4, 5, 9, 10 in Figure 1). Remarkably mean difference is reflected in the consciousness of the privacy policy, where the Chinese samples show more concerns than their counterparts (see question 3 in Table 1). Similar tendencies are however considered biased in examining the awareness of how personal information is used since each group displays better performance respectively in one question

under this topic (see question 1, 2 in Table 1). The mean value of the answers reaches its maximum regarding the right to exercise autonomy over personal information by Canadian participants, and such agreement also appears over the Chinese group (See question 6 in Table 1). Conversely, the lowest mean score locates at the money-for-privacy problem, as the Canadian respondents show intense disagreement for this trade-off. Their counterparts, however, express lighter incompatibility (see question 4).

Table 1

Question number, mean value, mean difference and p-value under different research topics

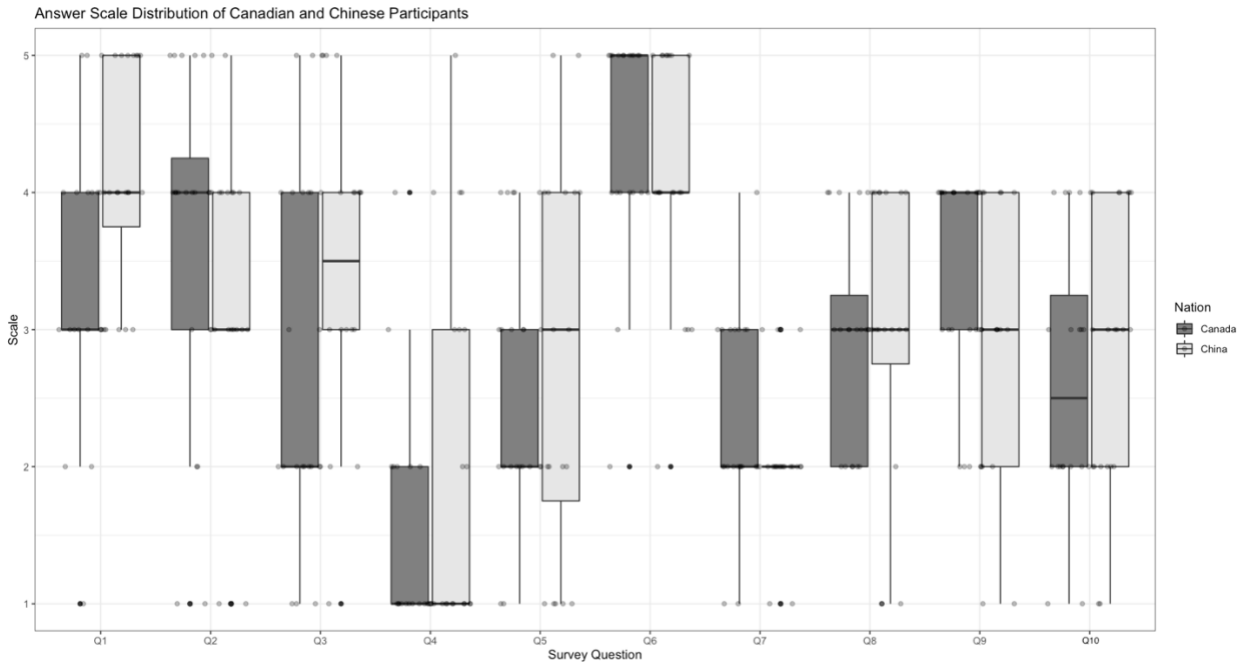
Question	Canadian Sample	Chinese Sample	Mean Difference	p-value
	Mean	Mean		
The awareness of how personal information is used				
1	3.40	4.10	-0.70	0.030934
2	3.65	3.25	0.40	0.174311
The consciousness of the privacy policy				
3	2.80	3.45	-0.65	0.112349
The participants' trade-off under privacy paradox problems				
4	1.50	2.05	-0.55	0.269306
10	3.80	3.60	0.20	0.620708
The level of control and ownership about personal information				
5	2.55	2.80	-0.25	0.512353
6	4.40	4.15	0.25	0.308420
The awareness of password protection				
7	2.35	2.05	0.30	0.147957

	The privacy settings of social media platforms			
8	2.95	2.90	0.05	0.796411
9	3.40	2.95	0.45	0.146957

Note. For questions 1-6, the scale is designed from 1 to 5. For question 7-10, the scale is designed from 1-4. The mean difference is calculated by subtracting the mean value of the Chinese sample from the mean value of the Canadian sample.

Figure 1

Answer scale distribution of Canadian and Chinese participants



Note. For questions 1-6, the scale is designed from 1 to 5. For question 7-10, the scale is designed from 1-4.

Discussion

This study primarily explores the relationship between cultural backgrounds and perceptions of privacy for college students in Canada and China, and evidence indicates a rather biased relationship due to the insufficiency of statistical differences, which suggests a weak cultural impact on privacy perspectives in the targeted countries. Particularly, the overall high performance of the Chinese participants complements the conclusions of Lili and Min (2014) and Zhang et al. (2002), but contradicts the statement that "Chinese users may be at greater risk of privacy violations" (Nemati et al., 2014). This may be explained by China's retrogressive legislation on privacy protection in constructing a sophisticated regulatory model for the use of personal data (Wu et al., 2011), which causes to less trust and more privacy concerns over domestic online platforms (Zhang et al., 2002). Differences in personal values appear with minor impacts on the privacy-and-culture relationship, as the mildly rebellious of individualism emerges gradually among Chinese millennial youth via the exposure to western prevailing culture (Moore, 2005). However, this theory may not be compatible with previous research suggesting high collectivist characteristics in China (Steele & Lynch, 2013; Wang and Liu, 2019).

This study also found that Chinese participants are less likely to implement privacy-protecting strategies than Canadian users. Although respondents in China are more confident with their control over personal information (see question 5 in Table 1), they also attain worse scores in password protection, privacy settings and privacy trade-off problems despite the high-level privacy concerns. Such discrepancies between privacy attitudes and actual behaviours comply with Norberg et al. (2007)'s definition of privacy paradox, which is interpreted as the "mental calculus" between positive intentions related to social rewards and negative intentions related to privacy concerns (Hallam & Zanella, 2017). Specifically, the survey provides evidence

that the Chinese users are less mindful of other users accessing their personal information (see question 5 in Table 1), similar to Nemati et al. (2014)'s findings that "Chinese respondents are more comfortable sharing information with a wider variety of people". A possible explanation is that the Chinese culture has stronger desires for social gratification (Hou et al., 2017), which agrees with Lowry et al. (2007)'s claim that Chinese culture is "more likely to desire committed, close, and strong relationships with others".

One importance associated with this research exhibits that cultural backgrounds have minor effects on privacy concerns, but the influences are observable in privacy-coping behaviours, which indicates the differences under privacy paradox problems across nations. The social satisfaction in Chinese culture is linked to the positive feedback of social rewards to further justify this phenomenon. This article also attempts to rationalize the increasing privacy concerns in China compared to previous studies, providing possible explanations from the external and internal aspects.

Limitation

Several restrictions are encountered in this study, specified into reliability and validity issues. Reliability is a matter of reproducibility and consistency, which is limited by the sampling method. Convenience sampling with a relatively small sample size in this research is implemented for this research. This sampling method has demographic data not drawn nation-wide but from specific regions, as well as insufficient consideration of the multi-cultural characteristics in Canada. Hence, to reduce inconsistency for the survey, respondents are chosen from multiple cities with various cultural backgrounds. Nevertheless, college students in the urban regions who are Asian and Canada-born citizens (particularly for Canadian sample) take more weight in the sample since they are more reachable. Therefore, these insufficiencies lead to

limited generalizability and reproducibility (Hu & Qin, 2018). The validity of the results corresponds to the measurement from established theories. This study applied only the basic concepts of privacy and culture due to the restriction of knowledge to adapt to the advanced research model, which limits the in-depth exploration of the cultural impact on privacy perceptions. To improve the quality of the measurement technique, Hodstede (2001)'s cultural dimension can be implemented to substantiate cultural differences from five degrees, whereas utilizing Petronio's CPM (Communication Privacy Management) theory (Petronio & Durham, 2008) would explain people's decision-making process insightfully. Since nationality is the single variable in this study for simplicity, factors that may potentially affect accuracies on privacy views such as age, gender, fields of study, family backgrounds (Xu et al., 2017), level of addiction to the Internet (Nemati et al., 2014) and socioeconomic status for college students might be neglected. Besides, to accurately justify the broad relationship between national origin and privacy perceptions, more research should be conducted regarding the minor populations with different online such as website managers (Ginosar & Ariel, 2017) or policymakers (Wu et al., 2011) as to complete the analytical framework for privacy research.

Conclusion

This study examined the relationship between cultural backgrounds and personal perceptions of online privacy, in comparison to Canada and China by statistical methods. Participants from both countries reflect a high level of privacy awareness. However, differences are found in this study with respect to previous research as the national origin has minor effects on privacy concerns. Possible explanations have been discussed from the aspect of relevant legislation, trust to companies, changes in personal values and social rewards. Limitations are

encountered on the sampling method, generalizability of the results and some potential determinants of privacy perceptions. Future investigations may focus on non-prevailing identities on the Internet and implement advanced research frameworks.

Appendix

Survey Instrument

Research Topic	Question	Type
The awareness of how personal information is used	Social media platforms collect my age, gender and what I have posted online, as to provide customized content.	5-point scale from "Strongly concern" to "Don't care"
	When I talk to the AI voice assistance on my phone, it uploads the audio recordings to improve the services.	
The consciousness of the privacy policy	Before I register for online services, I care about the privacy terms and policies.	5 levels from "Strongly agree" to "Strongly disagree"
	To obtain a free gift valued at $25, I would share my living location online.	5 levels from "Strongly agree" to "Strongly disagree"
The participants' trade-off under privacy paradox problems	Suppose most of your friends are on one social media platform, while this platform is collecting users' chat history. You would more likely to:	Multiple choice of "Stop using this platform", "Keep using this platform, but avoid sharing any personal information", "Keep using this platform, but take extra caution when sharing sensitive personal information", ''Do nothing about it"
The level of control and ownership about personal information	I have a great deal of control over how my personal information is being used by technology companies.	5 levels from "Strongly agree" to "Strongly disagree"
	As an online consumer, I have the right to exercise control and autonomy over decisions about how my information is collected, used, and shared.	
The awareness of password protection	Passwords for your online services are:	Multiple choice of "All the same", "The same, except for some important services", "Mostly different", "All different"
The privacy settings of social media platforms	The privacy settings for the personal profile of that social media platform is:	Multiple choice of "Everyone can see it", "Some of my networks and some of my friends can see it", "Only my friends can see it", "I have different settings for different parts of my profile"
	I change the privacy settings on that social media platform when:	Multiple choice of "Right at the beginning", "After I figure out how to adjust the privacy settings", "After a while", "Never"

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