

# User Comprehension of Technical Terms in Privacy Policies and Expectations of the Privacy Protection Law in Japan

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## Abstract

Users' misunderstandings and incorrect expectations of data practices described in privacy policies constitute barriers to "true" informed consent. Herein, we explore Japanese users' comprehension of privacy-related technical terms and their expectations of the data practices, which online services can employ under the Japanese privacy protection law ( $N = 362$ ). Our results suggest that Japanese users have deep-seated misconceptions, and we recommend that researchers and providers should make substantial improvements to documentation on privacy to prevent misconceptions.

## 1 Introduction

The fact that privacy policies are often difficult to understand [2] remains a challenge. In 2021, Tang et al. investigated the role of technical terms in policy transparency and found pervasive misconceptions among users in the U.S. [10]. Their results suggest that the use of technical terms in policies is a barrier to informed consent.

An important factor in users' privacy-related misconceptions is their country of residence [3]. Besides, users' privacy perceptions and expectations can differ by culture [5, 11].

In this study, we replicate, among Japanese users, the survey conducted by Tang et al. [10] on user comprehension of technical terms because they hold different perceptions of privacy and are under regulations distinct from users in Western cultures [6]. Furthermore, we investigate their expectations of the Japanese privacy protection law (*Act on the Protection of Personal Information* [1]). This is because we are concerned

that users may have incorrect expectations of data practices, which online services can employ under the law and declare in their privacy policies.

Using an online survey with 362 Japanese participants, we identified lower accuracy of defining terms compared to the original study. Additionally, we identified Japanese participants' misconceptions of the protection law; for instance, some participants incorrectly believed that their data could not be transferred to foreign third parties. Overall, our results indicate the need for detailed and cross-cultural research, as well as carefully designed support to eliminate mismatches between user expectations and actual data practices.

## 2 Methodology

Our survey comprised four parts: (1) comprehension of technical terms in privacy policies (replication); (2) acceptance of policies (replication); (3) expectations of the Japanese privacy protection law (our original); and (4) demographic data. In part 1, we asked participants to select the best description for the definitions of 18 technical terms without an Internet search. To determine the Japanese terms that are generally used to represent original English technical terms, we preliminarily investigated popular global services with published privacy policies in both English and Japanese. In part 2, we asked participants about the likelihood of accepting given data use policies on a 5-point Likert scale. Participants were presented with data use policies written either with technical terms or in explanatory language. In part 3, we asked participants to select the best description of the data practices that online services can employ under the Japanese privacy protection law. The participants could not return to the previous parts to check earlier questions. Our survey was approved by the IRB.

The participants were recruited through Lancers [4], a widely used Japanese crowdsourcing service, and they received compensation exceeding the minimum wage in Japan. We received 362 valid responses. Our participants skewed male, similar to those in the original study, but our population showed less of a younger skew (see Appendix A).

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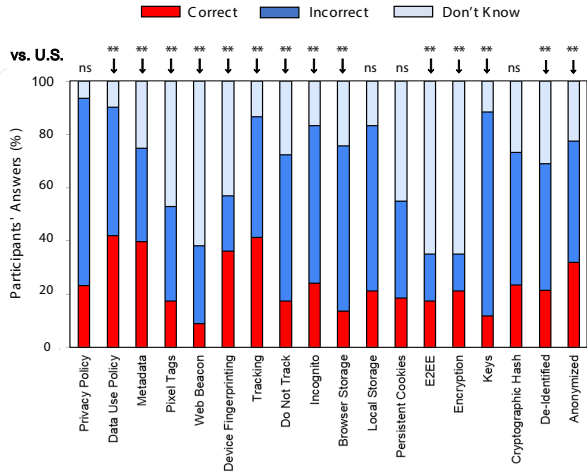


Figure 1: Accuracy of defining technical terms (Japan). We performed Chi-square tests to compare the accuracy with which each term was understood between U.S. and Japan. Precisely, \*  $p < .05$ , and \*\*  $p < .05$  after applying the Benjamini-Hochberg correction for multiple comparisons.

### 3 Results

#### 3.1 Comprehension of Technical Terms

Figure 1 illustrates the distributions of Japanese participants’ responses to the definitions of technical terms. Overall, Japanese participants had less knowledge of technical terms: for 14 of 18 terms, Japanese participants had significantly lower accuracy than U.S. participants. Specifically, the Japanese participants tended to select “I don’t know”. Technical terms that had low accuracy were similar in U.S. and Japan (e.g., *web beacon*). The original work proposed that providers should use *data use policy* instead of *privacy policy*, as users described *privacy policy* as guaranteeing data protection, confidentiality, or consent [10]. Although the Japanese participants defined *data use policy* more accurately than they did *privacy policy*, fewer than half of the participants (42.0%) did so correctly. In Japan, researchers and providers must address users’ deep-seated misconceptions more seriously, beyond simply using an alternative term.

Furthermore, Japanese participants tended to exhibit greater differences in the acceptance rates of policies written with technical terms and those written in explanatory language than the U.S. participants; the Japanese acceptance rates were significantly different for five of eight terms (details appear in Table 3 in Appendix B). This may be affected by Japanese participants’ low accuracy in defining technical terms.

#### 3.2 Expectations of the Privacy Protection Law

In addition to technical terms, we found that many Japanese participants had incorrect expectations of the Japanese privacy protection law. Over a quarter (27%) incorrectly believed that providers could not transfer user data to foreign countries

Table 1: Expectations of the privacy protection law in Japan.

Data transfer to foreign third parties	
Prohibited	13.5%
Not allowed to unauthorized countries	13.5%
<b>Allowed if with appropriate informed consent</b>	<b>49.2%</b>
Allowed without user consent	1.9%
I don’t know	21.8%
Data usage of users with no accounts	
Cannot collect due to no consent to PP	9.4%
Can collect, but cannot utilize due to no consent to PP	40.6%
<b>Can collect and utilize as described in PP</b>	<b>34.3%</b>
I don’t know	15.7%

The bold items indicate the best description of the Japanese protection law (*Act on Protection of Personal Information* [1]). PP: privacy policies.

(or at least to unauthorized countries), as shown in Table 1. We noted that more participants had incorrect expectations regarding the data collection and use of those who do not have an account – who just browse; half incorrectly believed that providers could not collect or use such data. These results indicate that the Japanese tend to think that the law provides stricter protection than it actually does.

The Japanese privacy protection law defines certain information as “sensitive personal information,” and this information requires special care. Most participants incorrectly believed that financial information (e.g., bank accounts, credit cards, and income) fit within this category (the details of the responses appear in Figure 2). Meanwhile, many participants incorrectly believed that information on religion and infectious disease status is not “sensitive personal information.”

### 4 Conclusion and Discussion

In this study, we found that Japanese participants possessed less knowledge of privacy-related technical terms than U.S. participants and that the use of technical terms in policies significantly affected their acceptance rate. Additionally, Japanese participants tended to think the law provides stricter protection than it actually does. An earlier study reported that users had incorrect expectations of data practices on specific categories of online services (e.g., finance) [9]. However, our results indicated a more serious issue – users possess fundamental misconceptions of what are legal data practices. User misconceptions of technical terms and privacy protection laws may expose users to unintended privacy risks, especially when they do not read or cannot understand privacy policies. Researchers should identify any users’ misconceptions of privacy policies and work with providers to develop improved measures (e.g., highlighting items that users often misunderstand). Meanwhile, countries provide different levels of privacy education development and privacy protection laws. Thus, providers with a global userbase may need to provide tailored support to address misconceptions specific to a country’s users. Our future work will explore users’ (mis)conceptions in a range of countries.

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## Appendix

### A Participants’ Demographic Information.

Table 2: Participants’ Demographic Information.

		Original [10]	Ours	Japan Stat [8]*
Age	18-24	5.5%	3.0%	8.0%
	25-34	44.4%	21.8%	12.0%
	35-44	27.9%	37.6%	14.4%
	45-59	17.1%	32.3%	25.0%
	60-74	5.0%	5.2%	23.2%
	75+	0.1%	0.0%	17.4%
Gender	Male	60.8%	62.7%	48.2%
	Female	38.8%	37.0%	51.8%
	Other/No	0.5%	0.3%	N/A

\*The denominator is the total population aged 18+.

Table 2 presents a comparison of the demographics (age and gender) between the participants in the original study [10], our participants, and a representative Japanese sample. Internet use among the Japanese population is close to 100% among those aged 13–59 but is progressively lower among the 60–69 age group (82.7%), the 70–79 age group (59.6%), and 80+ age group (25.6%) [7]. We were able to successfully recruit many participants from the 45–59 age group, who account for a high percentage of the Japanese population and have a high rate of internet use.

Our participants tended to be educated: 60.5% had completed at least a bachelor’s degree. With respect to their technical background, 11.0% of our participants worked in the tech industry or had studied computer science or a related field.

### B Detailed Results

**Acceptance rate** Table 3 shows the mean likelihood to accept a data use policy written with technical terms against a policy written in non-technical, explanatory language. The extent of the effect of using technical terms in acceptance rate was greater in Japan, and the direction of the effect seems to be mostly consistent across the U.S. and Japan. The authors of the original paper considered that this effect direction was shown for the following reasons. The effect direction was consistent with the misconceptions that users might hold about technical terms. For technical terms for which users misunderstand the full scope of the data practice, users were

more comfortable with the policy containing the technical term than with the equivalent policy that used non-technical, explanatory language. On the other hand, for technical terms for which users misunderstand the security and privacy being offered by the company (i.e., for the terms that users misunderstand to be not secure), users were less comfortable with the policy containing the technical term than with the equivalent policy that used non-technical, explanatory language. We believe that these reasons are convincing. However, for the Japanese participants, because much greater percentages of participants selected “I don’t know” for definitions of the technical terms, the interpretations of the effect direction may be more complicated. The cultural characteristics of users’ acceptance behavior (e.g., whether people are likely to accept optimistically things they do not know) may affect the direction of the effect. We will conduct a further analysis or follow-up study to identify the effects of using technical terms in policies on Japanese users.

**Sensitive personal information** We asked the participants what information they thought applied to “sensitive personal information” under the Japanese privacy protection law. In the law, “sensitive personal information” requires special care to prevent unjust discrimination, prejudice, or other disadvantages [1]. The law imposes stricter legal obligations in the case of the leakage of “sensitive personal information” than the leakage of personal information that does not apply to “sensitive personal information.” Figure 2 displays the Japanese participants’ expectations of “sensitive personal information.” Only 5 out of 10 items had more than half of the correct answers, indicating that user misconceptions were common. For information items that many considered to be as “sensitive personal information” (e.g., bank account, credit card, and financial assets), the participants would expect to be strictly protected. Highlighting the data practices for such data in privacy policies may be useful.

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Table 3: Mean likelihood to accept a data use policy (technical terms vs. non-technical, explanatory language).

	Japan			U.S. [10]		
	Accept (Tech.)	Accept (Expl.)	<i>p</i> -value	Accept (Tech.)	Accept (Expl.)	<i>p</i> -value
Aggregated Info	<b>3.48</b>	2.26	< 0.001**	3.17	3.04	0.158
Web Beacon	<b>2.58</b>	1.91	< 0.001**	2.66	2.43	0.069
Tracking	<b>2.62</b>	2.35	0.013**	2.82	2.64	0.105
Session Cookies	3.30	3.25	0.608	3.17	3.17	1.000
Persistent Cookies	3.05	3.07	0.862	2.91	2.81	0.416
E2EE	3.72	3.76	0.680	4.08	4.04	0.747
Encryption	3.18	<b>3.86</b>	< 0.001**	2.94	<b>3.66</b>	< 0.001**
Anonymized Info	3.25	<b>4.12</b>	< 0.001**	3.21	<b>3.93</b>	< 0.001**

t-tests for acceptance rate of each term between Tech. and Expl. Precisely, \*  $p < .05$ , and \*\*  $p < .05$  after Benjamini-Hochberg correction for multiple comparisons. Note that we performed unpaired t-tests because we adopted a between-participants design (i.e., the participants were presented either policies written with technical terms or policies written in explanatory language), while the original paper performed paired t-tests due to within-participants design.

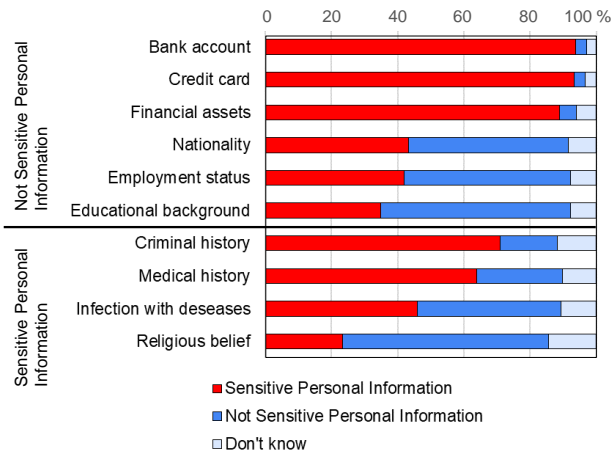


Figure 2: Expectations of “sensitive personal information” (Japan).

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