Measuring Users Concerns For Information Privacy

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Abstract. In this era, Internet and/or mobile users are openly disclosed, share and expose their personal data and information to viewers. Activities such as subscribe, purchase, register and/or access may lead users to do so. Ignoring the ‘terms of condition’ is a common thing done by the user due to certain factors. In understanding the reasons why users are easily share and expose their personal data while surfing and browsing the Internet and/or mobile applications, this study is formed to investigate the determinants, i.e. concern for information privacy (CFIP) towards the intention to give information. Findings from the first research objective shows that it is quite important to understand, concern and aware on the information privacy. Meanwhile for second research objective three (3) out of four (4) hypotheses found to be significant. The results provided here will help other researchers and policy makers to understand in deep the reasons behind of it. In addition, the study also intended to provides insight for practitioners in establishing or improving any existing policy. Apart from that, the study is also highlighting the important to practise information privacy in meeting an individual concerns.

1. Introduction

Internet is widely use by people nowadays. The age of Internet users’ cover across the board, i.e. school students, universities students, professional workers, pensioners. Thus, the activities of internet users is not limited for communication, it also used for searching information, socialization activities, i.e. social media, do transactions, i.e. online banking, hotel booking, buy merchandises and much more. Internet is a platform that widely provide various services and products. There is no surprise the number of its user is increase yearly world wide. A study conducted from January 2018 to January 2019 by wearesocial, shows that an increment of 9.1% of Internet users while 2% of mobile users [1]. The increment is might due to the internet and mobile users is highly depend and utilize it very well for their daily life management.

For more than 50 decades the existence of Internet, the users is continuously exposed to security issue. To what extend the users is aware, sensitive and concern on this issue. According to [2], Information security is defined as a cycle that involving securing and controlling data from any of four (4) activities such as editing, changes, deleting or viewing from unauthorized personnel. Therefore, Information security should in high priority and in place in order to ensure the internet users’ privacy is secured. Internet users should able to identify which data and/or information can be shared or not. Data manipulation and miss conduct of those data is possible to be happen if it is not taking care accordingly. To study in deep the relation between how well the internet users’ and mobile users’ are concern on information privacy is investigated. Accordingly, this study has the following two objectives:
1. To present the level of intention to give information, trusting beliefs, risk beliefs and concern for information privacy (CFIP).
2. To investigate factors that influences the intention to give information.

2. Literature Review
Giving information during subscribing to new application, filling up survey and product purchasing are some of common activities done by the internet users. To what extent the users shared their information and do they limit themselves from what type of information that they can shared? Normally, users are not aware and not border with what they had shared until certain incident occurs. By then, it is too late to regret and no turning back even they would like to start filtering type of information they would like to shared.

In one hand, the users should concern more on information privacy matters when they are online [3]. This will help them to protect their privacy life in a way. Apart from that, users should protect their personal information from unknown or unauthorized parties. Exposing their information may lead these parties to sell the users data for their own benefits [4]. For worse scenarios, hackers may access to users account without their notice. Protecting information is crucial among users as they may lead more to cons rather than pros issues.

The sharing and exposure of information usually relate with how literate the users are. If the users have the skills and attitude to get know on any incident around them, they will take proactive action from any circumstances occurs themselves. To the extend, trusted parties and prominent application will always gain their users trust to shared their information. This might due to their sufficient knowledge, awareness and less fear on the risk of information harmfulness [4]. In a nutshell, when their knowledge on information privacy is high, trust and risk beliefs are high too, the user has strong action in giving information via online. Based on the above discussion, this study would like to measure hypotheses as below:

Hypothesis 1 (H1) : Risk beliefs is significantly predict intention to give information
Hypothesis 2 (H2) : Trusting beliefs is significantly predict intention to give information
Hypothesis 3 (H3) : Trusting beliefs is significantly correlate risk beliefs
Hypothesis 4 (H4) : Concern For Information Privacy (CFIP) is significantly correlate trusting beliefs

![Figure 1. Research Framework](image)

3. Methodology

3.1. Instrument and Method
In this study, the researchers have used questionnaire as an instrument for data collection. A well validated and reliable measures are highly recommended by [5] in avoiding laborious efforts in developing a new measure. In taking the advice from [5], the instrument was developed based on the work from [6]. 29 items used in measuring the dependent and independent variable while 6 items used to measure the demographic profile. All 29 items were using Likert Scale anchored with 7 option with 1 for “Strongly Disagree” and 7 for “Strongly Agree”, and semantic differential scale, i.e. unlikely and likely, not probable and probable, possible and impossible.

3.2. Population and Sampling
The unit of analysis of this study is individual level. The researchers decided to choose two (2) faculties that located in Puncak Perdana. The respondents are among undergraduate and post graduate students from both faculties. This study has adopted non-probability techniques with convenience sampling. Researchers distributed around 3,000 questionnaires, i.e. printed and non-printed (Google Form) and a total of 2,500 were returned. Upon data cleaning, 115 had to be removed due to incomplete answer.

4. Results and Discussion
4.1. Demographic Profile

Table 1 presents the demographic profile of the respondents. Out of 2385 respondents, 66.8% were female and 33.2% were male. Age among respondents, majority, i.e. 1723 of them were between 20 to 25 years old while the lowest, i.e. 80 of them were age more than 25 years old. With the regard to respondents’ internet experience, the highest percentage i.e. 49.5% indicated that have more than 7 years experience while the lowest which 8.4% was having less than 5 years experience. Majority of the respondents’ i.e. 557 are personally been the victim to an improper invasion of privacy. It indicated that 28.4% of the respondents less very much heard or read (last year) about the use and potential misuse of the information collected from the Internet.

| Table 1. Respondents Demographic Profile | Frequency | Percentage (%) |
|------------------------------------------|-----------|----------------|
| Gender                                   |           |                |
| Female                                   | 1593      | 66.8%          |
| Male                                     | 792       | 33.2%          |
| Age                                      |           |                |
| < 20 Years                                | 582       | 24.4%          |
| 20 - 25 Years                             | 1723      | 72.2%          |
| > 25 Year                                 | 80        | 3.4%           |
| Internet Experience                       |           |                |
| Less Than 5 Years                         | 200       | 8.4%           |
| Less than 6 years                         | 438       | 18.4%          |
| Less Than 7 Years                         | 566       | 23.7%          |
| More Than 7 Years                         | 1181      | 49.5%          |
| How frequently have you personally been the victim of what you felt was an improper invasion of privacy? | | |
| Very Infrequently                         | 210       | 8.8%           |
| Infrequently                              | 237       | 9.9%           |
| Slightly Infrequently                     | 322       | 13.5%          |
| Neutral                                  | 564       | 23.6%          |
| Slightly Frequently                       | 557       | 23.4%          |
| Frequently                                | 346       | 14.5%          |
| Very Frequently                           | 149       | 6.2%           |
| How much have you heard or read during the last year about the use and potential misuse of | | |
| Not At All                                | 53        | 2.2%           |
| Slightly Not At All                       | 94        | 3.9%           |
| Less Not At All                           | 221       | 9.3%           |
| Neutral                                  | 555       | 23.3%          |
4.2. Reliability Analysis

In order to ensure the scale of the instrument used in this study is high, the study has conducted reliability analysis. Table 2 indicated that all variables are above the recommended cut-off value which is 0.7 [7]. Thus, the scale of the instrument used in the study was highly reliable.

Table 2. Reliability Analysis

| Variable                                | No. of Items | Cronbach's Alpha |
|-----------------------------------------|--------------|------------------|
| Intention To Give Information           | 8            | 0.876            |
| Risk Beliefs                            | 5            | 0.828            |
| Trusting Beliefs                        | 5            | 0.916            |
| Concern For Information Privacy (CFIP)  |              |                  |
| Global Information Privacy Concern      | 6            | 0.923            |
| Unauthorized Secondary Use              | 4            | 0.914            |
| Errors                                  | 4            | 0.926            |
| Improper Access                         | 3            | 0.911            |

4.3. Descriptive Analysis

Descriptive analysis of each variable and dimension used in this study is show in table 3. The results show that the mean value of intention to give information is at 4.32 which indicates that the responses feel moderate about it. The mean value for risk beliefs and trusting beliefs are about the same which are at 4.73 and 4.41 respectively which also indicates same as intention to give information. All dimensions in concern for information privacy (CFIP), i.e. global information privacy concern, unauthorized secondary use, errors and improper access show about the same value which are 5.03, 5.17, 5.22 and 5.27 respectively which it shows that the responses are slightly agree with the dimension measured. Overall mean value for CFIP is 5.17 which indicates that it is consistent with the rest 4 dimensions. It shows that the responses feel that it is quite important to understand, concern and aware on the information privacy.

Table 3. Descriptive Analysis of Research Variables/Dimensions

| Variable                                | Mean   | Standard Deviation |
|-----------------------------------------|--------|--------------------|
| Intention To Give Information           | 4.32   | 1.20               |
| Risk Beliefs                            | 4.73   | 1.12               |
| Trusting Beliefs                        | 4.41   | 1.27               |
| Global Information Privacy Concern      | 5.03   | 1.17               |
| Unauthorized Secondary Use              | 5.17   | 1.23               |
| Errors                                  | 5.22   | 1.17               |
| Improper Access                         | 5.27   | 1.22               |
| Concern For Information Privacy (CFIP)  | 5.17   | 1.05               |

4.4. Hypothesis Testing

Table 4, 5 and 6 present the results of the multiple regression analysis. Table 4 shows that the overall research framework is accepted with p-value < 0.05. As shown in Table 5, R recorded a value of 0.247,
hence implying that 24.7% variance in intention to give information can be explained by the combination of the independent variables which are trusting beliefs and risk beliefs.

### Table 4. ANOVA of Regression Analysis

| Model | Sum of Squares | df | Mean Square | F     | Sig.  |
|-------|----------------|----|-------------|-------|-------|
| Regression | 208.387 | 2 | 104.194 | 77.084 | 0.000<sup>a</sup> |
| Residual | 3219.740 | 2382 | 1.352 | | |
| Total | 3428.128 | 2384 | | | |

<sup>a</sup> Dependent Variable: Intention To Give Information

### Table 5. Model Summary of Regression Analysis

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics |
|-------|----|----------|------------------|---------------------------|------------------|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| 1 | 0.247<sup>a</sup> | 0.061 | 0.060 | 1.16262 | 0.061 | 77.084 | 2 | 2382 | 0.000 |

<sup>a</sup> Predictors: (Constant), Trusting Beliefs, Risk Beliefs

### Table 6. Coefficients of Regression Analysis

| Model | Unstandardized Coefficients | Standardized Coefficients | Collinearity Statistics |
|-------|-----------------------------|---------------------------|-------------------------|
| | B | Std. Error | Beta | t | Sig. | Tolerance | VIF |
| 1 (Constant) | 3.192 | 0.111 | | | | | |
| Risk Beliefs | 0.039 | 0.024 | 0.037 | 1.626 | 0.104 | 0.771 | 1.297 |
| Trusting Beliefs | 0.213 | 0.021 | 0.227 | 10.029 | 0.000 | 0.771 | 1.297 |

<sup>a</sup> Dependent Variable: Intention To Give Information

Upon further analysis of the results showed that, out of the two investigated independent variables, only one turned out to be influential in predicting intention to give information. This variable is trusting beliefs ($t = 10.029$, $p < 0.05$) (Refer to table 6).

### Table 7. Multiple Linear Regression Analysis for H1 & H2

| Hypothesis | Correlation | T-Value | P-Value | Decision |
|------------|-------------|---------|---------|----------|
| H1: Risk beliefs is significantly predict intention to give information | 0.145 (None Relationship) | 1.626 | 0.104 | Not Supported |
| H2: Trusting beliefs is significantly predict intention to give information | 0.244 | 10.029 | 0.000 | Supported |
The results in table 8 illustrated that the correlation between information to give information to risk beliefs and trusting beliefs is between 0.145 to 0.244. [8] noted that value between ± 0.00 to ± 0.20 and ± 0.41 to ± 0.60 were considered weak and moderate relationship respectively. Table 9 illustrate the correlation results for hypothesis 3 and 4. Both hypotheses were reported significant.

| Hypothesis | Correlation | T-Value | P-Value | Decision |
|------------|-------------|---------|---------|----------|
| (Positive Weak Relationship) | 0.145 | 0.244 | | |

Table 8. Correlation Analysis

| Pearson Correlation | Intention To Give Information | Risk Beliefs | Trusting Beliefs |
|---------------------|-------------------------------|--------------|-----------------|
| Intention To Give Information | 1.000 | 0.145 | 0.244 |
| Risk Beliefs | 0.145 | 1.000 | 0.479 |
| Trusting Beliefs | 0.244 | 0.479 | 1.000 |

Table 9. Correlation Analysis for H3 & H4

| Hypothesis | Correlation | P-Value | Decision |
|------------|-------------|---------|----------|
| H3: Trusting beliefs is significantly correlate risk beliefs | 0.479 (Positive Moderate Relationship) | 0.000 | Supported |
| H4: Concern For Information Privacy (CFIP) is significantly correlate trusting beliefs | 0.275 (Positive Weak Relationship) | 0.000 | Supported |

5. Discussion and Conclusion

As illustrated in Table 7 and 9, the results summarize the whole four hypotheses in this study. Out of four hypotheses, three found to be supported with p-value < 0.05. Hypothesis 1 found to be not supported (p-value, 0.104 > 0.05). The results for H1 found to be consistent with the finding from [3] event though they are measuring the web security towards behavioral intention. Meanwhile, the findings of H1 and H2 found to be contradict from study [4] because they are measuring between risk taking and trust towards CFIP and not between risk or trust beliefs towards intention to give information. However, they did measure the relationship between CFIP and intention and the findings found to be significant. Perhaps, with the results provided here will help other researchers and policy makers to understand in deep the reasons behind of it. In addition, the study also intended to provides insight for practitioners in establishing or improving any existing policy. Further study should be made in applying different factors, such as, information privacy of mobile or a web site.
### Research Objective

**To present the level of intention to give information, trusting beliefs, risk beliefs and concern for information privacy (CFIP).**

| Hypothesis | Correlation | T-Value | P-Value | Decision |
|------------|-------------|---------|---------|----------|
| -          | -           | -       | -       | Intention To Give Information (mean = 4.32*) Risk Beliefs (mean = 4.73*) Trusting Beliefs (mean = 4.41*) Concern For Information Privacy (CFIP) (mean = 4.41*) |

### Hypothesis

**To investigate factors that influences the intention to give information**

| Hypothesis | Correlation | T-Value | P-Value | Decision |
|------------|-------------|---------|---------|----------|
| H1: Risk beliefs is significantly predict intention to give information | 0.145 | 1.626 | 0.104 | Not Supported |
| H2: Trusting beliefs is significantly predict intention to give information | 0.244 | 10.029 | 0.000 | Supported |
| H3: Trusting beliefs is significantly correlate risk beliefs | 0.479 | - | 0.000 | Supported |
| H4: Concern For Information Privacy (CFIP) is significantly correlate trusting beliefs | 0.275 | - | 0.000 | Supported |

*Note: Likert Scale anchored with 7 option with 1 for “Strongly Disagree” and 7 for “Strongly Agree”*

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