Google Now and User Data

A Diary Study on Perceptions of Collection and Use of Personal Data by *Google Now* Cards

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Abstract

In this diary study 24 participants were asked to use Google Now for 28 days, in order to learn about occurrences of negative affect caused by the use of personal data and possible factors influencing such an affect, especially situational factors and personal dispositions. The use of personal data by Google Now cards barely evoked negative affect at all. Personality, trust and situational factors proved to influence affective reactions of the participants.

Keywords: Google Now; privacy; affect heuristics; diary study

1   Introduction

Internet users do not necessarily have a carefree attitude at the use of their personal data, but privacy concern does not have a direct impact on privacy behavior (Kokolakis, 2015). Affect heuristics explain differences in attitude and behavior with the influence of emotions on risk perception. Positive affect mitigates risk perception, while negative affect intensifies it (Slovic et al., 2007). A few studies have shown that positive emotions can increase trust and willingness to disclose information online (e.g. Kehr et al., 2015). This study tries to identify factors leading to a negative affect when con-

fronted with the use of personal data. Google's "personal assistant" Google Now lends itself to visualize the extent of personal data collection and use. By evaluating personal data collected with different Google products, it can present the users "cards" – small pieces of information it deems interesting for the user, e.g., news articles, traffic information for their daily commute, and the like (Guha et al., 2015).

2   Methodology

To identify possible factors influencing emotional reactions 24 participants, who had not used Google Now before, were asked to fill a questionnaire that measured their personality, the level of their general privacy concerns and their trust in Google. This was followed by the diary period over a four-week period. The participants completed a short daily online questionnaire asking them for their emotional reactions to individual Google Now cards and rate the usefulness of the cards. In case a negative affect was reported, the online questionnaire also asked for possible reasons. After the diary period, each participant took part in a personal guided interview to learn more about their experience on Google Now. Emotional reactions were collected with a semantic differential scale. To measure personality we adopted a Big-Five model scale (Rammstedt et al., 2013). As trust and general privacy concerns might be influenced by the use of Google Now, both were measured before and after the diary period. To evaluate the interrelations between measured factors, we used Spearman-Rho correlation, as most of our scales were of ordinal type.

3   Results

Google Now barely evoked negative affect. Of 1,141 card ratings collected with the diary, only 96 reported negative affect. Only in 33 cases the use of personal data was the cause of negative affect. Negative affect was most often triggered by the content Google Now presented to the users, such as news on terror attacks. Participants who felt negative about Google Now using

their personal data had a higher level of neuroticism in their personality – meaning they generally feel uneasy quickly. However, neuroticism was the only personality factor that showed an interrelation with affective reactions on Google Now. Situational factors, like the type of information used, proved to have an impact on emotional reactions. Cards using location information (e.g., cards informing them of traffic conditions) were most prone to evoke negative affect. The same can be said about cards drawing information from emails (e.g., cards presenting information on a booked flight). The predictive power of Google Now was another aspect that made the participants feel uneasy. On the other hand, inappropriate predictions, resulting in irrelevant cards, helped them to feel appeased, thinking Google does not know too much about them. The participants generally rated Google Now cards as rather useful and relevant. Interrelations between the rating of the usefulness and the affective reaction were weakly present in this study. Trust in Google increased after the diary period. This is probably due to the fact that the majority of cards resulted in a positive affect. General privacy concerns did not have an impact on affective reactions.

4   Conclusion

This study hints toward affect heuristic being a promising approach to learn more on privacy attitudes. The results strengthen the hypothesis that privacy perceptions are strongly based on emotion. Rather than asking hypothetical questions or measuring general attitudes towards privacy, more field studies should be undertaken, as situational factors have proven to influence perception of the use of personal data. Also finding a way to measure unconscious affective reactions will probably result in more insight into factors influencing affective reaction.

References

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