Impact of Push Notification Information Framework and Product Type on Purchase Intention-Based on Privacy Concern Perspective

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Abstract. Based on the perspective of consumer privacy attention, this paper verifies the influence of the interaction of push notification information framework and product type on consumers' purchase intention through three experiments, and analyzes the intermediary effect of product perceived value in it and the regulating role of privacy attention. Research shows that for functional products, the push notification benefit framework can improve consumers' purchase intention more than the loss framework. However, this interaction will be regulated by consumers 'privacy attention: the common influence of push notification information framework and product type on purchase intention only exists in the context of low consumer privacy attention.

Keywords: personalized recommendation; privacy concern; information framework; perceived value; product type

1 Introduction and Literature Review

1.1 Push Notification Information Framework, Product Type and Purchase Intention

Thanks to the number of online buyers and the wider access to the product of online shopping and all-weather access(Rubin, 2020)[1]. However, 75% of goods are abandoned by consumers after being added to the shopping cart. The phenomenon of leaving the shopping platform without any purchase is called "e-shopping cart abandonment"(Ni, 2020)[2]. One of these innovations is push notifications with reminders. The push notification of the e-commerce platform will be displayed in the form of a brief message on the consumer's screen. When the consumer clicks the notification, the corresponding website will be opened in the application to remind the consumer to complete the transaction. According to the motivation and experience of consumers to buy products, products are usually divided into functional products and hedonistic products. Research on product type shows that product type has an influence on consumers(Zhang & Wang, 2024)[3]. For functional products, providing information on benefits leads to increased preference for advertising when the product is functional .

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This study is based on the information framework theory and takes Taobao platform as the research situation, trying to solve the following problems: First, will the interaction between the information framework and product type in the descriptive text of push notification have an impact on consumers' "abandoning car" behavior? Second, what is the potential mechanism of the interaction between the information framework and the product type in the descriptive text of the push notification on the consumers' "car abandonment" behavior? Third, are there boundary conditions for the above influence effects?

Therefore, the present study proposed the following hypotheses.

H1: The interaction between the push notification information framework and the product type has an impact on consumers' purchase intention

H1a: For functional products, using the benefit framework of push notification can improve consumers' purchase intention more than the loss framework.

H1b: For hedonic products, the loss framework can improve consumers' purchase intention more than the benefit framework.

1.2 Modulatory Role of Privacy Concerns

Privacy concern refers to the degree of users' attention to the collection and use of personal privacy (Ortiz, 2018)[4]. In order to provide accurate online personalized advertising services, these online platforms need to collect and analyze users' personal information(Munger, 2001)[5]. Yan Weiwei et al. believe that privacy concerns can significantly affect the willingness to give up the use of AI services through perceived risk(Christian, 2022)[6]. Due to the intrusive nature of push notifications, it is easy to cause the negative emotions of consumers and lead to the emergence of disgusted behaviors. Therefore, the higher the privacy attention, the more consumers will avoid the behavior to resist the push notifications, so that the interaction between the push notification information framework and the product type is no longer significant. Accordingly, the following research hypotheses are proposed. Accordingly, the following research hypotheses are proposed.

H2: Privacy concerns play a regulatory role in the impaction

H2a: For consumers with low privacy concerns, there is an interactive effect of push notification information framework and product type on consumers' purchase intention.

H2b: For consumers with high privacy concerns, there is no interactive effect of push notification information framework and product type on consumers' purchase intention.

1.3 The Mediating Role of Perceived Value

Perceived value represents consumers’comprehensive subjective assessment of products&; features, functions and shopping experience. It is an effective tool to understand and predict consumers; preferences and purchasing behavior. By perceiving value, practitioners can gain a deeper insight into the decision-making process of consumers, which can better meet their needs (Kim, 2006)[7]. Customers with a strong desire to buy usually organize the product into their e-shopping cart after research and comparison, and finally complete the purchase. It can be seen that although the perceived value of

products is the subjective feeling of consumers, it will also be affected by external factors such as push notification content. Therefore, the matching of the push notification information framework and product types will form a more positive product perceived value and consumer response.

H3: The perceived value of products plays a mediating role in the impaction

Based on the above theoretical assumptions, the proposed research model is shown in Figure 1.

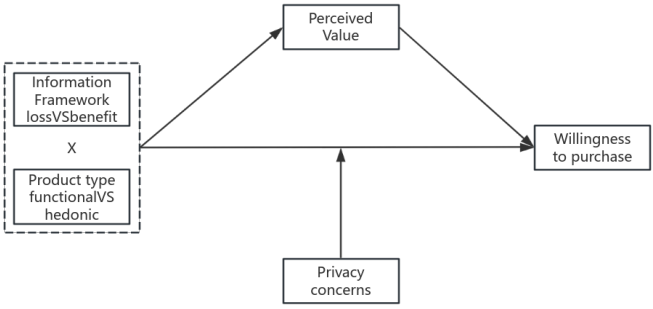

Fig. 1. Studies model

2 Experiment 1 Design and Data Analysis

During the experiment, the subjects will be randomly assigned 4 experimental groups. Subjects will see a screenshot of the push notification page on the phone screen, as shown in Figure 2. Then, the purchase willingness of consumers was measured, and the scale was referred to the study of Hoeffler. The Cronbach's α=0.927.

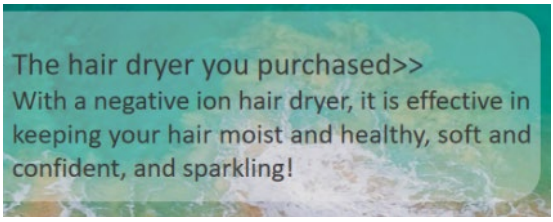

Fig. 2. Experiment 1 stimulated material

The manipulation of the product type showed in Figure 3. The mean score of the functional product group was significantly. Secondly, verify that the interaction between the push notification information framework and the product type has an impact on consumers' purchase intention. Further simple effect analysis, the results are shown in Figure 3. For functional products, push notification adopting the benefit frame can improve consumer purchase intention more than the loss frame (M benefit frame functional product =5.194, M loss frame functional product =4.361, F=7.736, p <0.05).

Therefore, H1a is verified; for hedonic products, the push notification is slightly more willing than the loss frame (M =4.528, M =4.604, F=0.065, p> 0.05). And H1b was not validated.

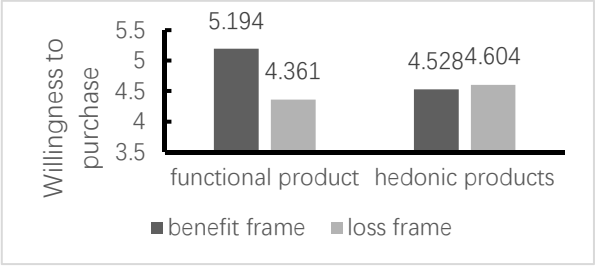

Fig. 3. The influence of information framework and product type on purchase intention

3 Experiment 2 Design and Data Analysis

Experiment 2 adopted the information framework (benefit framework vs loss framework) product type (functional vs hedonic). The procedure, manipulation and scale of Experiment 2 were basically similar to that of Experiment 1. The main difference was the replacement of stimulus materials and the privacy concern scale. Privacy concerns used the IUIPC scale to collect informations(Du, 2023)[8].Measure item Cronbach's α =0.866. In the study, a total of 244 valid questionnaires were collected.

High and low privacy concern subjects were distinguished by the average score, equal to the average score, randomly assigned into the two groups. The results showed that in the high privacy attention group, the interaction effect of information framework and product type on purchase intention was not significant (F (1,130) =2.134, p=0.147). In the low-privacy attention group, the interaction effect of information framework and product type on purchase intention was significant (F (1,106) =4.935, p=0.028 <0.05). Further simple effect analysis found that compared with the loss framework, adopting the benefit framework can improve consumers' willingness to buy functional products (M product =5.388, M product =4.490, F (1,106) =5.810, p=0.018 <0.05). H2 was verified.

4 Experiment 3 Design and Data Analysis

Experiment 3 used the same manipulated materials and procedures as in Experiment 1, and added the measurement of the perceived value of the product..

First, the interaction between the push notification information framework and the product type is verified. Two-way ANOVA was performed with the information framework and product type as independent variables and purchase intention as the dependent variable. The data results showed that the interaction between the product type and the information framework was significant (F=5.508, p <0.05), and the effect of the

interaction between the two on the dependent variable is shown in Figure 4. The results again verify that H1 holds.

Second, the mediation effect test used the Bootstrap method to examine the mediation role of perceived value using the model 7 in PROCESS compiled by HAYES. The results showed that the interaction between information framework and product type significantly affected consumers 'perceived value (β =0.76, SE=0.30, LLCI = 0.1700, ULCI = 1.3676), and perceived value significantly affected consumers' purchase intention (β =0.7036, SE=0.06, LLCI = 0.5895, ULCD = 0.8176). At the same time, the results showed a significant regulatory mediation effect (BootLLCI=0.1259, BootULCI=1.0134, excluding 0), which indicated that perceived value played a mediating role in the influence of push notification information framework and product type on consumers' purchase intention. The H3 is therefore assumed to hold.

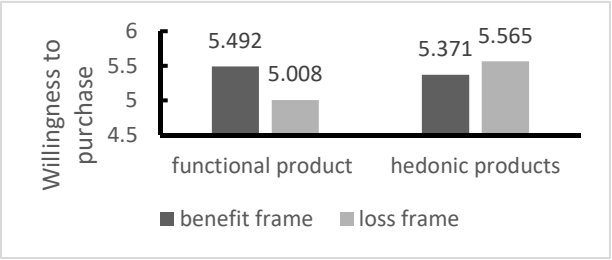

Fig. 4. The influence of information framework and product type on purchase intention

5 Research Conclusions

First, the push notification information framework and product type have an interactive effect on consumers' purchase intention. For functional products, using the benefit framework of push notifications can improve consumers' purchase intention more than the loss framework. This may be because the benefit framework that emphasizes the benefits can highlight the utilitarian attributes and tool value of functional products, so that consumers can have a strong sense of gain. For the information framework study related to hedonic products, this paper failed to draw consistent results, and the influence difference of the two types of information framework on purchase intention was significantly reduced.

Secondly, the consumer privacy attention is the boundary condition that the product type and information framework affect the purchase intention. For consumers with high privacy attention, there is no interaction between product type and information framework on purchase intention; for consumers with low privacy attention, product type and information framework have significant interaction on purchase intention.

Finally, product perceived value plays a mediating role in the joint influence of push notification information framework and product type on consumers' purchase intention. The conclusion explains the internal mechanism that push notification information framework and product type jointly affect the purchase intention, that is, product perceived value. When the information framework matches the product type, consumers'

level of product perceived value is higher, thus promoting the purchase intention and reducing the probability of consumers giving up the shopping cart.

References

1. Rubin, D., Martins, C., Ilyuk, V., & Hildebrand, D. (2020). Online shopping cart abandonment: A consumer mindset perspective. *Journal of Consumer Marketing*, *37*(5), 487–499. https://doi.org/10.1108/JCM-01-2018-25
2. Ni Wei Jian, Guo Haoyu, Liu Tong, & Zeng Qingtian. (2020). Basket recommendation method based on multi-head self-attention neural network. Data Analysis and Knowledge Discovery, 4(Z1), 68–77. https://doi.org/10.11925/infotech.2096-3467.2019.0728.
3. Zhang Yi & Wang Shizhe. (2024). From the perspective of consumer economy: A study on the impact of commodity price presentation on purchase decisions: and the impact of different product types. Price Theory and Practice, 1–5. https://doi.org/10.19851/j.cnki.CN11-1010/F.2024.05.118 (Advance online publication)
4. Ortiz, J., Chih, W.-H., & Tsai, F.-S. (2018). Information privacy, consumer alienation, and lurking behavior in social networking sites. *Computers in Human Behavior*, *80*, 143–157. https://doi.org/10.1016/j.chb.2017.11.005
5. Lauren Munger, J., & Grewal, D. (2001). The effects of alternative price promotional methods on consumers' product evaluations and purchase intentions. *Journal of Product & Brand Management*, *10*(3), 185–197. https://doi.org/10.1108/10610420110395377
6. Christian Busch.(2022).Towards a Theory of Serendipity: A Systematic Review and Conceptualization. Journal of Management Studies,61(3),1110-1151. https://doi.org/10.1111/joms.12890
7. Kim, Y.-J. (2006). THE ROLE OF REGULATORY FOCUS IN MESSAGE FRAMING IN ANTISMOKING ADVERTISEMENTS FOR ADOLESCENTS. *Journal of Advertising*. https://doi.org/10.2753/JOA0091-3367350109
8. DU Wanting. (2023). Research on Network Behavioral Targeted Advertising Based on User Privacy Boundary. PR World, (24), 52-54. https://kns.cnki.net/KCMS/detail/detail

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