

Research on The Influence of Regulatory Focus and Framing Effect on Readers' E-reading Payment Decision

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Abstract: Compared with traditional paper-based reading, e-reading has become more popular due to its convenience, portability, and low price. Based on this, this research considers the influence of framing effect and regulatory focus on readers' e-reading payment decision. The empirical analysis results show that promotion focus subjects will show a higher willingness to pay for reading than those prevention focus subjects; under the positive framing, the level to pay of the promotion focus subjects is higher than the prevention focus subjects; under the negative framing, the level to pay of the prevention focus subjects is higher than the promotion focus subjects.

1. Introduction

At present, people are no longer limited to reading paper books [1], compared with reading paper books, e-books are widely welcomed by readers due to their convenience, portability and low price. According to the “Seventeenth National Reading Survey of National People” released in 2019, the average reading volume of electronic books per capital of Chinese adult citizens in 2019 is 2.84. The survey find that more than half of adult citizens tend to read digitally, the proportion of readers who prefer paper-based reading has declined, while the proportion of readers who prefer mobile phone reading has increased significantly [2]. Therefore, studying readers' decision-making behaviors on electronic payment reading can help reading platform operators perform better operation management.

For readers' E-pay reading, apart from a small number of trial reading chapters, readers can only refer to the comments made by previous readers before making a payment decision. Payment decision results are usually affected by many factors, studies have shown that under different framing, there are differences in payment decision preferences [4], and the most intuitive reference for e-reading payment decision is the comments of the reading platform and information framing of positive comments' rate and negative comments' rate generated by the platform data. At the same time, the regulatory focus theory believes that individuals will adjust themselves to achieve specific goals and then change their attitudes and strategies [5]. Promotion focus Individuals more concerned about their goals and tend to give priority to the positive results. On the contrary, prevention focus Individuals are more cautious and tend to give priority to negative results [6]. Therefore, the paper will introduce regulatory focus to examine its influence on readers' e-reading payment decision-making behavior under different information framing, and provide a theoretical basis for the operation and management of reading platforms.

2. Literature review

2.1 The regulatory focus theory

According to the self-difference theory, Higgins defines the regulatory focus as a specific way or tendency shown by the individual in the process of self-regulation to achieve the goal, which are respectively promotion focus and prevention focus [7]. Promotion focus individuals tend to give priority to whether the positive results appear, their goal pursuit is to strive to realize the individual's

ideals, hopes and desires, and often adopt the desire-approaching promotion strategy [8]. Prevention focus individuals tend to give priority to the appearance of negative results. Their goal is to strive to avoid failures and mistakes, and often adopt avoidance-vigilant prevention strategies [9]. When the regulatory focus type of the user is consistent with the information framing of the goal sought, the persuasiveness of the information will be increased. Cesario et al. proved that when individuals with different characteristics fit the corresponding information framing, the persuasiveness of information is strengthened [10]. That is, when the regulatory focus individual is combined with the positive framing, or the prevention focus individual is combined with the negative framing, the information will be more convincing [11].

According to the theory of regulatory focus, an individual's regulatory focus can be either a long-term or idiosyncratic regulatory focus, which is considered to be a response to a specific experience during childhood by family parenting and life experiences [12]. It can also be a short-term temporary situation regulatory focus, such as through the use of different information presentation methods, including needs and goals to initiate the individual's temporary regulatory focus [13]. The article mainly studies the user's characteristic regulatory focus. That is, referring to the regulatory focus measurement questionnaire to classify the regulatory focus of readers, so as to study the readers' e-reading payment decision-making behavior with different regulatory focus.

2.2 The framing effect Theory

Framing Effect Theory believes that the individual's understanding and evaluation of information does not depend on the data itself, but changes with the presentation of information with different emphasis. That is, when people face the same problems in the same decision-making environment, the decision-making results will be changed due to the change of the way of presentation [14].

There are many types of framing effects, the most concerned among them is the impact of the positive and negative framing of decision-making problems on decision makers [15]. Regarding the classification of such framing effects, the current academic circles generally agree that Levin proposed in 1998 to distinguish the framing effects into risk framing effects, attribute framing effects, and target framing effects [16]. According to the characteristics of e-reading payment that the reference of payment is the rate of good and negative reviews, this article mainly conducts research from the perspective of attribute framing effects. Jin et al. believe that the attribute framing effect means that when a certain key feature of an event or an item is described in a positive framing or a negative framing, it will affect the degree of people's preference for the event or item [17]. Therefore, the paper will be combined with regulatory focus to examine readers' e-reading payment decision-making behavior under the information framework of different attributes.

3. Hypotheses and research design

3.1 The Impact of Consumer Adjustment Orientation on The E-reading Payment Decision

If users have different regulatory focus, their cognition, demand and behavioral intention will also differ to some extent. When the type of regulatory focus matches the strategy, the regulatory focus will have an impact on users' decision-making behavior [18]. Promotion focus consumers pay more attention to the positive results and gains in decision-making, and pay more attention to the enjoyment brought by the decision itself. However, in order to avoid harm and ensure no loss, the prevention focus users tend to pay more attention to the value of its actual utility [19]. Through research, Kwon found that when product reviews match the users' regulatory focus, users will show greater purchase intentions [20]. Micu found that for hedonistic products, the promotion focus users are willing to pay a higher price than the prevention focus users, while for practical products, the prevention focus users will have a more positive attitude towards products [21]. Therefore, this article first examines the e-reading payment decision-making behaviors of subjects with different regulatory focus after reading the same online e-book reviews for further research. On this basis, this article proposes the following research hypotheses:

H1: The two groups of promotion focus and prevention focus subjects after reading the same online comments, the results of the e-reading payment decision are significantly different.

H2: After reading the same online comments, the decision-making level of the e-reading payment for promotion focus subjects is significantly higher than that of prevention focus subjects.

3.2 The Impact of Regulatory Focus and Framing Effect on The E-reading Payment Decision

Users are affected by many factors when making payment decisions, and payment decisions are often made in the interactive influence of these factors. Among them, regulatory focus has been proven by many studies to influence users' payment decisions, and some studies have combined other variables to examine the influence of framing effects on decision-making [22]. Shen found in his research that the regulatory focus and framing effects have a significant interaction effect on the individual's payment intention, that is, under the positive framing, it is easier for promotion focus individuals to generate payment behavior than prevention focus individuals, under the negative framing, it is easier for prevention focus individuals to generate payment behavior than promotion focus individuals [23]. Zhao found that the negative information framing of smoking advertising content would affect the smoking cessation behaviors of prevention focus users, on the contrary, positive anti-smoking messages should be adopted for promotion focus users, that is, the benefits of non-smoking should be emphasized [24]. On this basis, this paper proposes the following research hypotheses:

H3: The frame effect has a main effect on the users' e-reading payment decision, the positive framing shows a higher level of e-reading payment decision than the negative framing.

H4: The regulatory focus has a main effect on users' e-reading payment decision, and the level of e-reading payment decision of promotion focus subjects is significantly higher than that of prevention focus subjects.

H5: There is an interaction between the regulatory focus and the framing effect on users' e-reading payment decision.

3.3 Research Design

Compared with traditional paper reading, e-reading has quickly been widely accepted and applied because of its convenience and lower price. Because it is difficult to directly issue questionnaires and investigate the research subjects in the e-reading platform, this study collect data through Sojump, a well-known online survey platform in China and this platform has been widely adopted by scholars. It uses the author's social network to conduct surveys using a simple snowball sampling method, and randomly select a predetermined number of samples from the database to ensure unbiased distribution [25].

Based on the actual situation and designed with reference to previous scholars' research [26, 27], a regulatory focus questionnaire is designed to measure the trait regulatory focus of the subjects. The questionnaire has 10 questions, of which 6 questions are used to measure promotion focus, and 4 questions are used to measure prevention focus. Each question is scored with 5 points. Among the questions 1 to 8, 1 means "never", 5 means "always", and questions 9 and 10 are 1 means "completely wrong" and 5 means "completely correct". The questionnaire has good adaptability in Chinese culture and has good internal consistency reliability. The internal consistency reliability coefficient α of the promotion scale is 0.658 respectively, and the internal consistency reliability coefficient α of the prevention scale is 0.608.

The division of the subject's regulatory focus type is to first calculate the average score of the subjects' promotion focus and prevention focus dimensions, and then subtract the average score of the promotion focus dimension from the average score of the prevention focus dimension, and the resulting difference is sorted in descending order, Choose the top 33% of the score results to promotion focus subjects and the last 33% to prevention focus subjects.

This experiment is divided into two parts. The first part adopts a single-factor experimental design. It only tests the payment decision of the promotion focus subjects and prevention focus subjects after

reading the same e-book online comments (10 articles each). The final number of subjects is 117, 29 boys and 31 girls.

The second part adopts 2 (information framing: only presenting the positive reviews rate, only presenting the negative reviews rate) ** 2 (regulatory focus: promotion focus, prevention focus) experimental research design to explore the influence of different regulatory focus and information framework effects on readers' e-reading payment decisions. Therefore, a scenario framework is added on the basis of Experiment 1. The positive reviews rate of the e-book was 80% as the representative of the positive framework, and the negative reviews rate of 20% was selected as the representative of the negative framework. And in the experiment, each subject only accepted one situation. The final number of subjects is 117, 58 boys and 59 girls.

4. Data analysis

4.1 Descriptive Statistical Analysis of Regulatory Focus on E-Reading Payment Decision

Descriptive statistical analysis was performed on the scores of the participants' e-reading payment decision. The data processing results are shown in Table 1. After reading the same online comments, t-tests were performed on the scores of the two groups of regulatory focus subjects. The results showed that the difference between the two groups of subjects is very significant ($t=3.970$, $p<0.01$), therefore, H1 is supported. At the same time, readers of different types of regulatory focus also have differences in their decision-making preferences for e-book payment. Promotion focus individuals are vulnerable to positive information, while prevention focus individuals are vulnerable to negative information. We can see that The M of the promotion focus subjects is 3.21, the SD is 0.88, the M of the prevention focus subjects is 2.33, and the SD is 0.81. The score of promotion focus is higher than the score of prevention focus, which means that the payment decision level of promotion focus subjects was significantly higher than that of prevention focus subjects. Hence, H2 is supported.

Table 1. The descriptive statistical table of regulatory focus on e-reading payment decision.

Regulatory focus	M	SD	t	df	p
Promotion focus	3.21	0.88	3.968	58	0.000
Prevention focus	2.33	0.81			

4.2 Descriptive Statistical Analysis of Regulatory Focus and Framing Effect on E-reading Payment Decision

We conducted descriptive statistical analysis of participants' e-reading payment decision scores. The data processing results are shown in Table 2. The mean score of all subjects willing to pay for e-reading is 3.955 and the standard deviation is 1.396. Under the positive framing, the mean value of the promotion focus subjects willing to pay for e-reading is 4.345 and the standard deviation is 1.326, while the mean value of the prevention focus subjects willing to pay for e-reading is 3.518, and the standard deviation is 1.396. Under the negative framing, the mean value of the promotion focus subjects willing to pay for e-reading is 3.501 and the standard deviation was 1.307 while the mean value of the prevention focus subjects willing to pay for e-reading is 4.453, and the standard deviation is 1.336. From the above data, we can see that under the positive framing, the level of e-reading payment of promotion focus subjects is higher than prevention focus subjects, while under the negative framing, the level of e-reading payment of prevention focus subjects is higher than promotion focus subjects.

Table 2. The descriptive statistical table of regulatory focus and framing effect on e-reading payment decision.

Information framing	Regulatory focus	N	M	S
The positive framing	Promotion focus	28	4.345	1.326
	Prevention focus	29	3.518	1.396
	Total	57	3.916	1.411
The negative framing	Promotion focus	29	3.501	1.307
	Prevention focus	31	4.453	1.336
	Total	60	3.990	1.397
Total	Promotion focus	57	3.896	1.370
	Prevention focus	60	4.018	1.423
	Total	117	3.955	1.396

4.3 Variance Analysis of Regulatory Focus and Framing Effect on E-reading Payment Decision

In order to study whether there are differences in the e-reading payment decision made by the different regulatory focus subjects in different information framing, this experiment uses two-factor analysis of variance to statistically process the data. Before data processing, we conducted homogeneity test of variance { $F(3,125) = 0.506, P > 0.05$ }, the homogeneity of variance is established, and the difference between the data of each group was caused by the processing method of each group. The data in Table 3 and Figure 1 show that the main effect of the information framework is: $F = 2.051, p < 0.05$. This data indicates that the main effect of the information framing is significant, and the level of e-reading payment of the subjects under the positive framing is significantly higher than that under the negative framing, so H3 is supported. The main effect of adjusting orientation was: $F = 0.960, p > 0.05$, which indicated that the main effect of adjusting orientation was not significant, and the level of e-reading payment of promotion focus subjects is slightly higher than prevention focus subjects, so H4 was not valid. In addition, we also found that the interaction effect between regulatory focus and framing effect was very significant ($F = 30.273, P < 0.05$). Hence, H5 is supported.

Table 3. Analysis of variance of regulatory focus and framing effect on e-reading payment decision.

Variation source	SS	df	MS	F	p
Regulatory focus	0.692	1	0.692	0.960	0.331
Information framing	1.478	1	1.478	2.051	0.048
Regulatory focus * Information framing	21.815	1	21.815	30.273	0.006
Error	39.633	55	0.721		

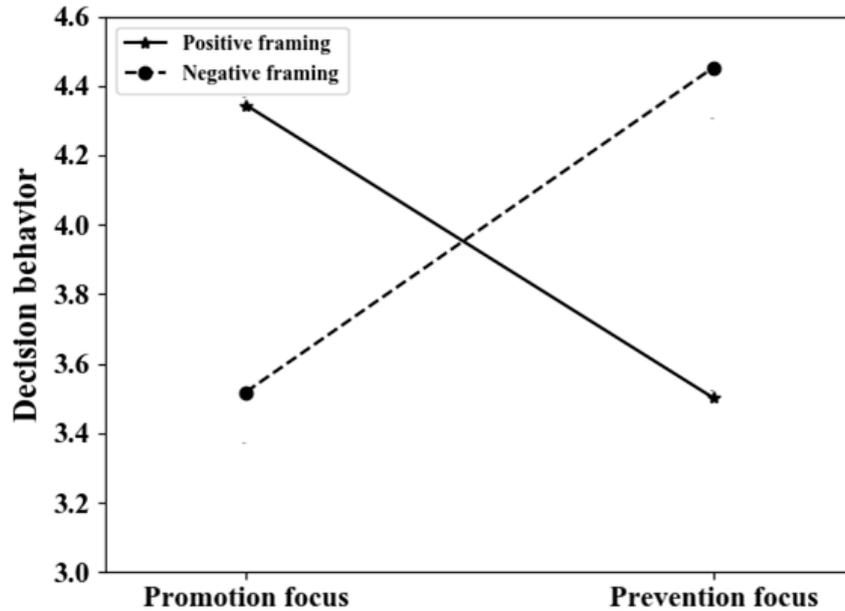


Fig 1. Interaction between the regulatory focus and the framing effect.

5. Conclusions

5.1 Conclusions

This empirical study examines the influence of regulatory focus and framing effect on readers' e-reading payment decision-making behaviors. Specifically, the regulatory focus has a certain impact on the payment decision. After reading the same online comments, the promotion focus subjects made a higher probability of making a payment decision than the prevention focus subjects. This finding is consistent with the results of Westjohn et al [28]. In previous studies, many scholars have used experiments to prove that the regulatory focus or framing effect has a significant impact on payment behavior [29, 30]. We also use experiments to prove the interaction between the regulatory focus and the framing effect in the field of e-reading payment. This shows that the regulatory focus and framing effect have a certain incentive effect on readers' e-reading payment decision. When the promotion focus readers match the positive framing, the level of reader's payment will be relatively higher. Conversely, when the prevention focus readers match the negative framing, the readers will take these unfavorable factors more into consideration, and the level of payment will be relatively low. Therefore, we can conclude that there is also a regulatory match effect in the field of e-reading payment.

5.2 Managerial Implications

The results of this study have some implications for e-reading platform operators. For example, reading platforms should manage e-book reviews by different regulatory focus readers differently. When the content of comments is positive relatively, the level of promotion focus readers' e-reading payment decision is relatively high, while the prevention focus readers are easily influenced by its characteristics, they will be more care about the content of the negative reviews and make a payment decision of hesitation, so e-reading platform operators should monitor and manage the content of negative comments. At the same time, the presentation of only positive reviews rate instead of all reviews rate is more likely to affect readers' e-reading payment behaviors, therefore we recommend that the platform only display the positive reviews rate of e-books.

5.3 Limitations and Further research

This article also has some research limitations. First, the subjects in this study involve grouping and need to be screened through questionnaires, but the inability of the test subjects to communicate face-to-face with the subjects will lead to some omissions in the personal information filling of some

subjects, which makes the number of sample relatively small. Second, the empirical study examines the influence of regulatory focus and framing effect on readers' e-reading payment decision. However, other factors were not considered during the experiment, such as readers' transaction tendency and psychological distance, etc. In the future, we can continue to investigate more variable on research.

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