
Research on Feature Frame Effect in Evaluation of Enterprise Service

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Abstract

From the perspective of consumer behavior psychology, through the eye movement experiment and the questionnaire survey of the four kinds of goods such as the insulation cup, the smart phone, the digital SLR camera and the notebook computer, this paper analyzes the characteristic frame effect of service evaluation in electric business enterprises: the difference of the purchase intention of the different service information frame to the consumers. It is found that there are characteristic frame effects in the electric service business enterprises evaluation, and compared with the active framework, the negative framework can produce more effective and cautious information processing. The purchase intention provides an important reference value that the electric business enterprises can change their product information presentation way to improve the consumption according to the consumer's preference.

Keywords

Consumer, eye movement experiment, service evaluation, the characteristic frame effect.

1. Introduction

With the popularity of the Internet in our country, but also led to the development of China's e-commerce industry, online shopping by more and more recognition of consumers and consumers, consumers from the original tentative contact with the development of online shopping now for the habit of online shopping. Nowadays, there are a large number of large-scale e-commerce enterprises in our country. The competitors of the e-commerce industry have shifted from the competition between the traditional retail industries to the competition among the same industries. The competition among the industries is also from the initial price competition into service competition [1]. Consumers often need to deal with a large amount of information when making online shopping, and then make a decision to buy goods from a large amount of web page information. While consumers in the process of online shopping will be affected by a variety of information, service evaluation information will directly affect the consumer's purchase intention and purchase decision-making to a large extent [2]. The characteristic framework is a typical framework effect, which has a significant impact on the decision-making behavior of consumers in the evaluation of enterprise services. The decision-making preference of consumers is the inherent manifestation of consumer behavior, and the characteristic framework effect is also an important discovery in the field of cognitive psychology. Therefore, it is of great theoretical significance to study consumer preferences. At the same time, it has important practical significance to study the characteristic framework effect in the evaluation of e-commerce business services.

2. Related research reviews

2.1 Service evaluation and service quality perception

Network online shopping is often filled with information asymmetry caused by the separation of time and space and the virtual nature of the network, leading consumers to perceive the service and product

quality only through user evaluation and other information before the transaction [3]. During O2O e-commerce transactions, the process of information exchange between customers, O2O platforms and merchants is complicated and sensitive. The perception and evaluation of service quality are easily affected by the interaction process and have a significant impact [4]. The quality of service is a kind of perception and evaluated by the customer. The service's success is inseparable from the customer's perceived quality of service. The essence of the service quality is the customer's perception of the service, which is determined by the comparison between the expectation of the customer service and the actual service experience, Customer perceived service is good when the actual service is greater than the service's expectation [5]. An important factor restricting the development of e-commerce is the inconsistency between the quality of service provided by enterprises and the expectation of customers. When the customer affirms the service of the merchant, it will make a positive evaluation to show the satisfaction of the transaction. However, compared with negative service evaluation, its impact is far less than negative evaluation, and consumers often have a great preference for negative service evaluation [6]. According to Oiveira et al., The competitive advantage that businesses establish in service is a key factor in attracting and retaining consumers [7].

2.2 Framework Effects and Cognitive Processing

In life, changes in the way the description of the same problem changes individual decision preferences, and Tversky and Kahneman call this phenomenon psychologically a framework effect [8]. Prospect theory [9] is the theoretical basis of the framing effect, which states that in the face of income, people behave as a scheme of choosing the exact benefit, and abandonment is equal to or higher than the expected but There is another option for risk (risk aversion); but in the face of loss, people behave just as opposed to when they face gains (risk of preference). Due to the same amount of income or loss, people will show different psychological effects, emphasizing that different aspects of things will lead to the reversal of individual decision-making [10], and the framing effect will arise. The characteristic framework is an irrational decision-making situation, which is widely used in e-commerce marketing. Use a more reasonable framework to market product attributes and performance to guide consumer behavior. When describing the product-related information in different ways of description, that is, when the property information of the goods is described in a positive way, the way consumers process the information is heuristic, and the information processing method does not sufficiently process the information, Consumers are largely influenced by the information framework. Consumers are more cautious about how information is processed when describing attribute information of goods in a negative way, so consumers are affected by less informational framework.

2.3 Experimental Assumptions

The characteristic framework is an irrational decision situation. It is widely used in e-commerce marketing and uses a more reasonable framework to promote the attributes and performance of products in order to guide consumers' consumption behavior. Services and physical products are different, the intangible service to consumers uncertainty, so that consumers and businesses are greatly dependent on the communication of information. Introduction to information is an important part of online shopping. Internet merchants usually focus on attracting users' attention by perceiving features such as color and size of the product and animations, but some scholars have shown that the cognitive process involved in the purchase intention is highly sensitive to the information frame[11]. Therefore, online merchants should pay more attention to the way information is presented. Some studies have found that when the description of the product-related information in different ways of description, that is, the description of the attribute information of the goods in a positive way, the way consumers process the information is heuristic, and the way of information processing Is not fully processed, consumers are more likely to be affected by the information framework. Consumers are more cautious about how information is processed when describing attribute information of goods in a negative way, so consumers are less affected by the information framework [12]. This shows that

the information presented in different ways when the characteristics of the framework of differences in consumer influence. Therefore, it is proposed that:

H1: The characteristics of the framework effect exists in E-commerce service evaluation.

Some studies have shown that the information generated by the positive frame of events or objects is more favorable than the negative frame [13]. However, under certain conditions, the framing effect may diminish or disappear. As Levin and Gaeth (1988) state, the frame effect decreases as consumers experience the product [14]. Cheng and Wu (2010) show that the framework effect will be eliminated with a strong warning [15]. The characteristic frame affects the evaluation of the target or characteristic, and in the characteristic frame effect, people tend to use a more positive framework to describe things. Therefore, it is proposed that:

H2: Consumers are more likely to choose products with a positive messaging framework in the context of service evaluation.

3. Experimental design and process

In the evaluation of products when shopping online, the description of certain product information is easier to influence consumers' behavior decision-making, but there are some ways to describe the product information is not easy to affect consumer behavior decision-making. Does the description of different information frames have a certain impact on consumer service evaluation decisions? Does the consumer value the service in the active frame more than the negative frame? Through the experimental study of eye movement, this paper records the subjects' perceived process from the subject's scanning path and fixation time, and analyzes the perception and treatment of the service evaluation information under the framework effect.

3.1 Experimental subjects

Participants were 20 online shoppers who had an online shopping experience and numbered participants: 01-20. In the choice of groups to be tested, the experimental choice of college students aged 18 and above (undergraduate, master-based). College students have greater purchasing power, can accept new things more easily, have a higher degree of familiarity with experimental goods, and also have rich experience in online shopping. All subjects had normal vision or corrected visual acuity, no color blindness and had never done a similar experiment before. Before the experiment guide the subjects to read the experimental guidance. After the experiment is given a certain reward.

3.2 Experimental equipment

The experimental apparatus used in this study is the Tobii T120 desktop eye tracker, which integrates with a 17-inch TFT display. The resolution is set to pixels (1024 × 768). Tobii T120120HZ sampling frequency, can be tracked in an accurate way to track the status of participants were recorded.

3.3 Experimental Materials

In this study, 2 (group: group A, group B) × 2 (comment presentation: positive evaluation, negative evaluation) × 4 (product type: thermos cup, smart phone, digital SLR camera, laptop) × 20 (Test number), a total of 320 sets of experimental data. During the experiment, the products were randomly combined, and each participant randomly observed two different products among the four products. Each product contains five product names, product images, non-functional attributes, functional attributes and a framework of information quickly, the use of information to further analyze the consumer's AOI. Service evaluation information comes from Jingdong, Tmall, and Taobao three large-scale e-commerce service website, each product service evaluation information packaging services, logistics services, product information introduction service, after-sales service, and customer service, And from a large number of services to filter out a service as a framework for information, see Table 1.

Table 1 target product information table

Product	Related measures	Framework information
Thermos	Thermos evaluation: the comparison of Web Information and good	Property Information: Webpage information and physical view.
		Positive framework: 90% of users think that the thermal insulation performance matches the introduction of the webpage information. Negative frame: 10% of users think the insulation performance does not match with the introduction of webpage information.
Smart phone	Smart phone evaluation: the difference of commitment to delivery time and the actual distribution of the time.	Property information: the satisfaction of logistics and distribution speed
		Positive Framework: 85% of users think delivery is timely and fast. Negative frame: 15% of users think delivery delays are slow.
SLR camera	SLR evaluation: price changes in the short term	Attribute information: commodity price fluctuations and shopping experience
		Positive Framework: 80% of users said the price fluctuations are small, does not affect the shopping experience. Negative framework: 20% of users said the price fluctuations larger, seriously affecting the shopping experience.
Laptop	Laptop evaluation: Service attitude and problem solving ability	Attribute information: Service attitude and problem solving ability Positive Framework: 75% of users said good after-sales service, consulting issues have been well resolved. Negative frame: 25% of users said poor after-sales service attitude, not a good solution to the problem.

3.4 Experimental process

During the experiment, try to keep the head part of participants is not shaking and in more comfortable state to complete the experiment. Excluding the external environment: sound, light and other factors. The experiments were presented as pictures. According to the subjects' needs, the subjects could operate the "space bar" to switch to the next one, until the "Experiment End" banner pops up, that is, the eye movement experiment is over. Afterwards, participants were asked to fill in the questionnaire carefully according to the contents of the questionnaire.

3.5 Pre-experiment

Preexperimental subjects were 10, the smart phone as the experimental target product, product information presentation diagram using two different layouts, the purpose: First, in order to verify the process of experiment product display and eye-screen size adaptability ; Second is to observe the preferences of subjects. The entire experiment takes about 3 to 5 minutes to complete.

After the end of the lab, after talking with 10 subjects, 8 subjects were found to prefer the uniform distribution of basic information, positive evaluation, negative evaluation and other information, and the number of positive evaluation and negative evaluation were the same. At the same time, the product information is divided into areas of interest map, and the same interest area.

3.6 Formal experiment

According to the pre-experimental problems, the formal experiment scheme is improved and optimized. Formal experiments in the form of pictures on the four kinds of practical goods eye movement experiment. At the same time, in order to better verify the hypothesis of H1 and H2, the experiment contents are differently combined, the different types of service evaluation information are reorganized and divided, and group experiments are conducted. The experimental population was 20, including 8 males and 12 females. Taking one of the representative experimental contents as an example, its integration and grouping are as follows:

Experiment group A: Insulated cup + SLR camera (positive evaluation) + laptop (negative evaluation)

Experiment Group B: Smart phone + SLR Camera (Negative Evaluation) + Laptop (Positive Rating)

In the process of arranging the experiment participants, in order to distribute the samples uniformly, this experiment divided the subjects into 4 males and 6 females. After completing the experiment, conduct a simple questionnaire.

4. Data analysis

The main types of data collected by this eye movement experiment are: AOI fixation time, eye movement path data, eye movement hot-spot graphs and questionnaire statistics. Of the 20 subjects in this group of experiments, one of the subjects was 0.000 seconds due to ocular AOI fixation, which was invalid data, so the effective data were 19 groups, that is, 19 groups of sample data, of which 8 men, 11 women.

4.1 AOI fixation time analysis

Eye movement test The AOI area focuses on time data and records the degree of attention of each subject to each module during the experiment. The longer the focus is, the longer the recorded value (time) is. This article analyzes AOI fixation time data (in seconds) from two sets of experiments.

Table 2 Group A AOI region fixation time (in seconds)

		1	2	3	4	5	6	7	8	9	10	mean
Ther- mos	AOI-1 Praise	0.33	1.86	1.63	2.25	0.79	1.24	0.97	1.31	0.66	0.21	1.23
	AOI-2 Com- Plain	0.25	1.65	5.69	6.22	4.33	5.40	1.10	3.88	5.30	3.54	4.16
Came- ra	AOI-2 Com- Plain	0.63	2.31	4.43	1.43	1.21	3.28	2.67	4.62	4.72	4.28	3.28
Com- puter	AOI-1 Praise	0.65	0.65	2.04	1.67	3.72	2.11	2.00	2.03	2.61	1.74	2.12

Table 3 Group B AOI region fixation time (in seconds)

		11	12	13	14	16	17	18	19	20	mean
Phone	AOI-1 Praise	1.19	2.15	0.68	3.51	1.55	2.10	1.35	0.98	0.76	1.19
	AOI-2 Com- Plain	4.11	8.28	3.63	6.81	2.62	4.84	5.72	7.21	6.98	5.58
Came- ra Com- puter	AOI-1 Praise	1.93	1.37	0.58	0.00	1.58	0.72	1.02	0.87	2.13	1.13
	AOI-2 Com- Plain	4.89	6.03	1.32	9.19	1.68	4.86	6.32	9.89	7.76	5.77

It can be seen from the average data of the experimental AOI region that the subjects spent significantly more time on understanding negative evaluations (bad reviews) than the positive ones (favorable comments), and even some extreme cases. For example, in experiment A, patient 04 in the AOI area of the SLR camera rated 0.00 seconds and in the AOI area of the notebook computer (bad review) time was 9.19 seconds. This extreme case shows that subject 04 neglected the positive evaluation of information, but directly to negative information more directly and cautiously. AOI regional gaze time in the negative evaluation of eye movement experiment shows that consumers pay more attention to negative information, and such behavior is the concrete manifestation under the influence of the frame effect.

4.2 The analysis of path map, hot-spot characteristic framework effect

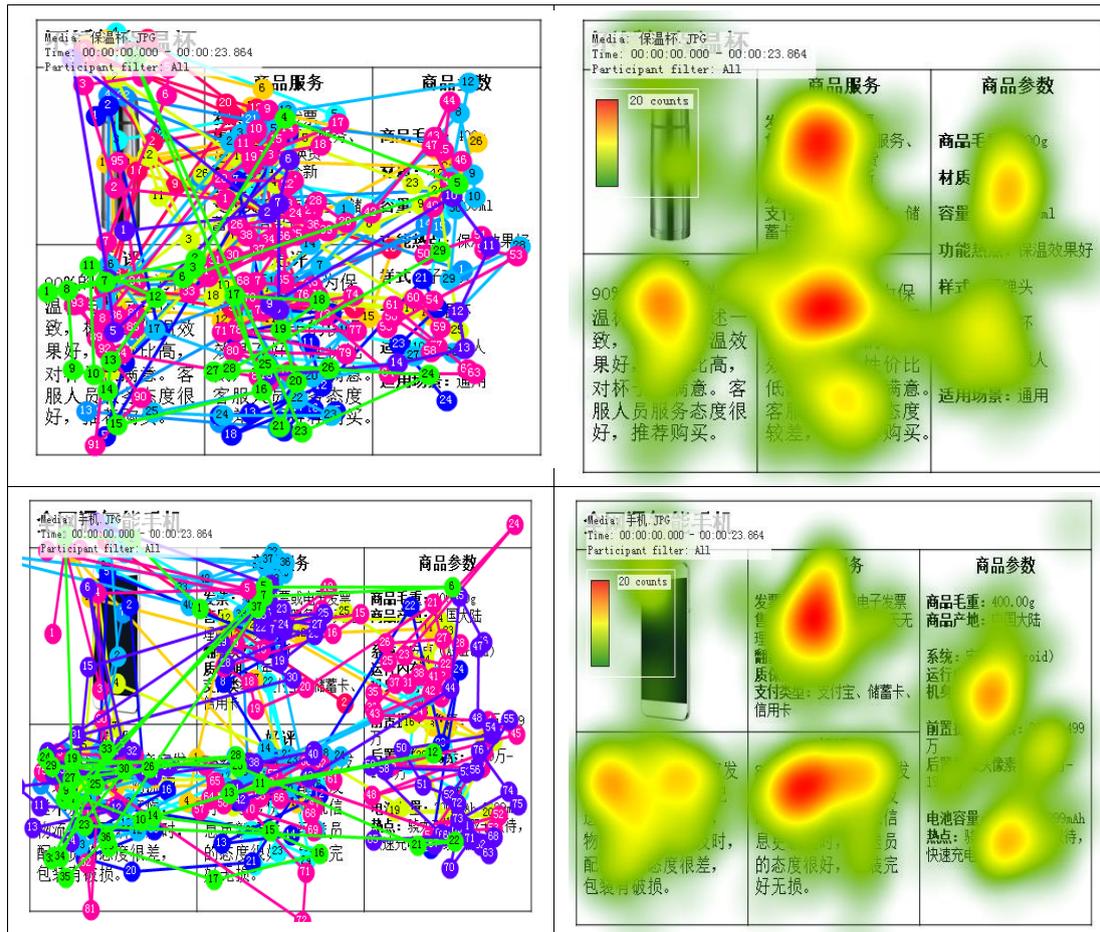


Fig. 1 Path map and hot-spot map of thermos and phone

From the above path map can be drawn, the subjects in the overall page eye movement path are different. Insulating cup of the eye movement path less and more simple, and the smart phone path map is more complex, the subjects are mainly concerned with the focus on product services, product parameters, and service evaluation of these aspects. However, from the AOI area of these two kinds of products, in service evaluation area, there is a clear difference between participants' attention on negative evaluation (negative feedback) and positive evaluation (high praise).

The hot cup of the thermos can be drawn, and the passive evaluation information module takes a longer time to pay attention, which is the same as the analysis of the focus of the eye path map. The hot spots in the smart phone can be drawn, the participants on the product images, product services, product parameters and service evaluation module have attention, which is of higher concern is the product images, product services and service evaluation of these modules. That is, positive evaluation (favorable comment) and negative evaluation (negative feedback) in the service evaluation module in the AOI area of the eye movement. There are also significant differences between the two service evaluation information: negative evaluation (poor evaluation) regional color deeper, more red, and

positive evaluation (praise) relatively shallow regional color, which further illustrates the subjects of negative evaluation (bad review) More attention, the analysis of hot spots and smart phones eye movement path map the same. Combined with the path map and the hot-spot map, it can be concluded that the more the subjects are focused on the path-map, the darker the color of the hot-spot map is, indicating that the subjects' attention time is longer.

At the same time, the analysis of experimental data from the eye path map and hot-spot can be found in the purchase of familiar goods consumers, the framework will be weakened or disappeared, that is, consumers are familiar with their own products to pay more attention to understand the goods Its own performance parameters. As can be seen from the experimental path map, subjects in the mug and smart phone experiment page on the various modules of the degree of concern is not obvious. In the thermos cup experiment page, the test road map lines are more evenly distributed; while in the smart phone experiment page, the subjects are paying more attention to the product parameters than other modules. So when the subjects face their familiar products, the framework effect will be weakened or disappeared, making the participants to buy more rational or make the appropriate decisions.

4.3 Service evaluation questionnaire statistical analysis

The questionnaire was mainly designed to measure and observe participants' willingness to purchase experimental products after the eye movement experiment ended. Through collecting the statistical data of the questionnaire, the valid data is 19 groups, of which the effective date of the experimental group A is 10 groups and the effective date of the experimental group B is 9 groups.

This article will analyze the service evaluation questionnaire statistics from the perspective of purchase intention, service evaluation attention and service evaluation impact on purchase intention.

Table 4. The table of purchase intention

	Thermos	Phone	Camera	Computer	No-buy	Total
Group A	2 (20. 00%)	/	8 (80. 00%)	0	0	10
Group B	/	1 (11. 11%)	0	8 (88. 89%)	0	9

Through the study on the purchase intention questionnaire in the questionnaire, it is found that in the experiment A group of 10 subjects, 2 subjects are more willing to choose to buy mug, 8 subjects are more willing to choose to buy SLR camera, but not the subjects to choose Buy a laptop; in the experimental group B 9 participants, one of the subjects are more willing to buy a smart phone, the remaining eight subjects are more willing to buy a laptop. Through the purchase intention statistics and histograms can be analyzed, consumers are more inclined to buy goods with positive evaluation (praise).

Table 5. The statistics table of service evaluation attention

	0	Positive evaluation	Negative evaluation	Subtotal
Group A		0	10 (100. 00%)	10
Group B		0	8 (100. 00%)	8

By analyzing the degree of concern about the service evaluation, both the experimental subjects in the positive evaluation (Praise) and the negative evaluation (complain) tend to negative evaluation, and concluded that the negative evaluation was more affected by the subject's attention.

Table 6. The list of service evaluation of the impact of the same price

	Very small	smaller	General	Bigger	Very big	Subtotal
Yes	0	0	3 (15.79%)	16 (84.21%)	0	19
No	0	0	0	0	0	0

From the scale of the service evaluation on the impact of the purchase decision, it can be concluded that the service evaluation has an impact on the purchase decision of the participants, and the impact is generally greater. Through the analysis of the watching time of the experimental AOI region and the purchase intention statistic table of two groups of experiments, it is concluded that under the two

different expressions of positive evaluation (bad rating) and negative evaluation (bad rating) Purchase decision is also different, consistent with the experimental hypothesis H1. After analyzing the results of questionnaire survey, we find that when individuals face two (or more) choices, there is a difference between choices, that is, the difference of choice of information presented by negative information frame (negative frame) is greater than the positive information frame (positive frame) approach to the choice of differences. This also shows that consumers are more willing to choose the commodity with positive information frame in the service evaluation feature frame, so the experimental hypothesis H2 is verified.

5. Conclusion and Recommendation

This article mainly discusses the characteristic framework effect of e-commerce service evaluation and its effect on consumer purchase decision intention. Through experimental analysis, the following conclusions are drawn: First, there is a characteristic framework effect in the evaluation of service providers. Consumers pay more attention to passive assessment (negative assessment) than positive assessment (negative assessment) in the evaluation of target goods and services, and make more careful processing of passive framework information (differential assessment), thus showing different decision-making behaviors. Second, In the framework of service evaluation, consumers tend to choose products that have a positive information framework. In the face of different logic description of goods, consumers pay more attention to negative information in AOI than in active information. There are also significant differences in the length of reading of service information for different products. At the same time, most consumers tend to choose products with positive service evaluation information on the choice of consumers' willingness to buy.

According to the experimental conclusion to the electricity supplier companies and businesses made the following recommendations: First, the introduction of information is an important part of online shopping. E-commerce businesses and businesses often focus on attracting consumers' attention by perceiving features such as (color and size of the product and animation), and the validation of this study shows that the cognitive process involved in the purchase intention is highly sensitive to the information framework. Therefore, e-commerce companies and businesses should pay more attention to the presentation of product information. Second, most of the product information is mainly based on the positive framework information to increase the customer's purchase intention. Then clever use of the negative information of the product is another way to attract the attention of the customer. Negative messages can lead to more customer focus and enable consumers to engage in more thorough product information analysis. At the same time, brands that emphasize product features can also use negative frame information to capture the attention of their customers. Finally, the eye movement intensity of AOI reflects the consumer's interest and the scan path reveals consumer thinking and search strategies. This conclusion provides the merchants with a clue of the layout design of product information, which makes the location and regional setting of the product information AOI more in line with the interests of consumers. Finally, e-commerce enterprises and businesses should also pay attention to customer relationship management. According to the preference of consumers To provide different services to enhance the consumer shopping experience by providing high quality after sales service. And after-sales proactive communication with consumers, timely provision of logistics information to consumers and after-sale related protection, help to enhance consumer satisfaction and corporate loyalty.

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