The Effects of Product Innovation Locus on Consumers Adoption of New Products—Based on Regulatory Focus and Information Processing Fluency

Yong Zhang, Peipei Tang

School of Management, Jinan University, Guangzhou, China
Email: 1556686755@qq.com

Abstract

With increasingly fierce market competition, enterprise’s products are also constantly upgrading in order to get the favor of consumers. However, different enterprises have different innovative products’ design ways. Some companies apply innovative technology in the products’ built-in system, while other enterprises will make innovative technology as plug-in peripheral products. Then, will the different locus of products eventually affect consumers purchasing behavior? What is the influence mechanism? This study researches on that product innovation locus matching with regulatory focus of consumers can affect the final purchase intention and explore the mediator role of information processing fluency. The conclusion of study is that product innovation locus matching with regulatory focus of consumers will influence purchase intention, and information processing fluency plays a partial mediator role.

Keywords

Innovation Locus of Products, Regulatory Focus, Information-Processing Fluency, Purchase Attention

1. Research Background

The competitions among different technology standards increasingly have significant impacts on the economy. And the competitions extend from the information technology industry to other industries [1]. The competitions among incompatible technologies for achieving dominant position are referred to as “standard competition” [2]. Not only does the standard competition include the competition among different technologies, but also it includes the consumer market competition. The winners will be able to obtain a significant market share, but
the failures will lost market share or even disappear. Therefore, standard competitions have important strategic significance in the market. And exploring influence factors of consumer decision-making will help companies to win market share in the standard competition.

In the consumer decision-making research of standard competitive market, mostly literatures discussed the influences of network externalities, users install base, compatibility and digital conversion technology on the consumer market [3]. There are many researchers focusing on information communication and advertising type’s influence on the consumer purchase behavior from the perspective of the information transmission. Recent studies have discussed the push, pull and retention factors that influence consumer conversion in standard competition market [4]. However, the existing research hardly pays attention to product innovation locus. In the standard competitive market, in order to increase the attraction of the product and get more users, enterprises have different product innovation design plans. For example, Nintendo built somatosensory system in the base products. That is to say, the game machines are core innovative locus products. However, somatosensory system of SONY game machines is only regarded as the peripheral parts, that is to say, the game machines are the peripheral innovation locus products.

In addition, product innovation plays an important role in the process of consumer purchase decisions-making. The purpose of enterprises is improving consumer adoption intention of new products. However, the study of product innovation locus is relatively limited. After summarizing the research, we found that consumers purchase intention of different innovative products had significant differences effect on consumer adoption intention. Thus, this study will explore the product innovation locus and consumer regulatory focus’ influence on purchase intention. And it will verify the moderator role of consumer regulatory focus and mediator role of information processing fluency. Specifically, this study intends to solve the following questions: 1) How does the product innovation locus affect the consumers purchase intention? 2) How does the consumer regulatory focus play moderator role? 3) How does information processing fluency play mediator role?

Therefore, this study will explore how two different kinds of innovation locus affect consumers’ willingness to purchase. And we will also focus on consumer personality traits, such as: regulatory focus how to influence consumer decision-making. Based on the matching effect between consumers’ personality traits and innovative product locus, this study will also verify information processing fluency intermediary role. Not only will these studies enrich consumer decision-making research, but also it will help enterprises to make targeted and effective marketing strategy.

2. Literature Review
2.1. Innovation Locus: Core and Peripheral

It is crucial to identify the factors that influence consumer adoption of innova-
tion products for the successfully managing the new products [5]. Prior research has shown that product characteristics such as innovation newness, compatibility, feature richness, perceived risk, and network externality can affect consumers’ adoption decisions [6] [7] [8] (Gatignon and Robertson 1985; Hoeffler 2003; Meyer, Zhao, and Han 2008). Recent studies have also shown that innovations can be divided two different innovation locus. That is, innovations system can be situated in the core components of a product or in the peripheral components [9]. In the design process of new products, different companies can use different innovation locus. For example, motion-sensing technology can be applied in game machines (e.g., Nintendo Wii, Microsoft Xbox 360, and Sony PlayStation 3). However, Nintendo built the new motion-sensing system in the core component of Wii game console, while Sony and Microsoft put the same innovation system as a peripheral component that is physically separated from the core consoles (i.e., Sony’s PlayStation Move and Microsoft’s Kinect). In addition, product design literatures have recognized the distinction between innovations in the core and those in the peripheral [9]. Gatignon et al. (2002) consider that innovation systems of core innovation products tightly coupled with base products, while innovation systems of peripheral innovation products weakly coupled with base products [9] (e.g., the microprocessor VS disk drive in a computer).

2.2. The Regulatory Focus

The regulatory focus represents a personality feature. The regulatory focus theory suggests that different regulatory focus individuals will appear deferent in way of thinking and use different behavior strategy in the pursuit process of individual goals. According to the researches of Higgins (1997) [10], motivation system is divided into promotion focus and prevention focus. The promotion focus people are related to the growth and development, they pay more attention to promote positive consequences and regard the hope and ideals as goals, and they hope to achieve higher goals. However, prevention focus individuals are related to security needs, they pay more attention to avoid negative consequences, and they regard the responsibilities and obligations as goals. Crowe (1997) pointed out that when the individuals are engaged in difficult tasks, the promotion focus people will have a better performance [11]. They love adventure and have more clear goals in the face of a large number of decision-making. Instead, prevention focus individuals are relatively conservative and generally make conservative and repetitive choices.

According to regulatory focus theory, promotion focus people strive to realize their ideals and aspirations for meeting their needs for growth and advancements. Thus, they are sensitive to gain unique benefits. In contrast, prevention focus people strive to fulfill their duties and obligations for meeting their needs for safety and security; they are sensitive to losses [10]. In recent years, many scholars use regulatory focus theory in the research field of social interaction, organization, management and marketing. The existing researches on regulatory focus are mostly use experimental research ways. Such as, Werth and Foerster (2007)
studied that regulatory focus how to influence consumer evaluations on advertisements and products [12].

2.3. Information Processing Fluency

Information processing fluency is defined as: in the treatment process of the object information, the individual subjectively perceived the degree of difficulty [13] [14]. Information processing fluency can be divided into conceptual fluency and the perceived fluency [15] [16]. The conceptual fluency refer to that individuals analyze goals according to physical characteristics such as size, shape and color, while the perceived fluency analyze goals according to the semantic [17].

In the process of exploration of consumer behavior, Janiszewski (1993) points out that unintentionally showing brand symbol, logo and other information to consumers can improve products evaluation and purchase attention [18]. In addition, the person’s subjective discrimination can affect the perception of fluency, in other words, individuals tend to handle more smooth fluency [19]. At the same time, the research has proved that the perception of fluency plays positive role in emotional evaluations, and any scholars point out that the object of repeated exposure can promote individual perception of fluency and form a favorable impression [15]. Some scholars also put forward that the cognitive fluency have a positive impact on emotional judgment mechanism [17]. In the process of combing the literature, we found that there are a lot of scholars proving the positive impact of perceived fluency on brand evaluation and purchase behaviors. And they pointed out that repeatedly exposure advertising helps customers recognize brand and deal information, and it finally will create brand preference [16]. By analyzing existing literature, many scholars pay attention to the research of conceptual fluency. Lee and Labroo (2004) pointed out that perceived fluency differs from conception fluency in the study. Not only consumers will be affected by the product or brand itself, but also they will be affected by information processing fluency in the process of purchasing the products [16].

3. Hypothesis

Previous researches proved that the differences of consumer orientation regulatory focus will lead to differences in the way of thinking, and this will influence consumer evaluation on products. Promotion focus consumers have more attention to accept the new product, while prevention focus consumers hate to accept the new product [20]. Therefore, the regulatory focus is like a filter, the different regulatory focus consumers can use different ways to process information [21].

This paper argues that consumers’ perceived risk and uncertainty will increase in the competitive market, and the adoption of new products will induce. Therefore, the new product related information resources can help consumers to make the purchase decision. However, consumers are influenced by their own psychological activities. It can be seen that purchase products attentions of consumers are influenced by different innovation locus due to the different regulation focus. The different locus new product will lead to different understanding degree of
the consumers, and consumers will feel different degree of risk. The innovative systems of locus innovative products built on base products, it cannot be seen directly, so consumers have a higher degree of inconsistencies in the picture, thus consumers have the lower understanding degree on product benefits. The innovation systems of peripheral innovation products are separated with base products, and it is optional and detachable, so the consumers have higher understanding degree on product benefits [22]. In the standard competition environment, prevention focus consumers pay more attention to the risk of new products. In order to avoid making the wrong purchase decision, they are more willing to make a relatively conservative and prudent decision. The peripheral innovative products have lower risk than locus innovative products. Therefore, in order to reduce losses and risk, prevention focus consumers are more willing to try to peripheral innovative products. The promotion focus consumers pay more attention to the unique benefits of new products. The locus innovative products are more convenient than peripheral innovative products. Therefore, in order to get unique benefits, promotion focus consumers are more willing to try to locus innovative products. Therefore, we put forward the following hypothesis:

H1: The promotion focus consumers have significantly higher intention to purchase locus innovation product than peripheral innovation products; on the contrary, the prevention focus consumers have significantly higher intention to purchase peripheral innovation product than locus innovation products.

With the deepening of the research and development, regulatory fit theory arises at the historic moment [23]. The theory considered that when the individuals’ regulatory focus is consistent with their behaviors, the regulatory fit effect will work. The different individuals tend to use different behavior strategy in the process of pursuing goals, when promotion focus individuals use preference desire-close strategy, or when the prevention focus individuals use their preference alert-avoidance strategy, these are regulatory fit. Existing studies have found that people’s behaviors are affected by the regulatory fit. The regulatory fit will change the individual behaviors, including the risk decision, persuade attention and business decisions [24] [25] [26] Regulatory fit will also make individual generate a sense of right and enhance the individual behavior motivation. It has positive influence on decision-making behavior and products evaluation attitude. That is to say, when the interests of the product and adjust goals match, the consumer attitude toward the product is positive. When people face the products that accords with their behavior or value orientation, it is easier to improve information processing fluency. This has important effect on people’s cognition, attitude and behavior [27] [28].

So, we put forward the following hypothesis:

H2: Information processing fluency plays a mediator role on the influence process of H1.

4. Research Methodology

The purpose of the study is exploring product innovation locus’ influence on customer purchase intention and verifying the moderate role of regulatory focus
and the mediator role of information processing fluency.

The measuring scale of variables quoted famous foreign literature. Such as, information processing fluency scale use previous questionnaire compiled by several scholars [29] [30], the questionnaire includes two projects: 1) It is difficult to understand these information (7 point scale). 2) When you choose to buy, how difficult to make decision (7 point scale)? Measurement of purchase intention referenced the literature of [31]. It includes three item (1 = completely disagree; 7 = “strongly agree”): a) Would you like to try the washing machine? b) Would you like to buy the washing machine? c) Would you like to recommend this washing machine to friends? This research adopts regulatory focus questionnaire of Yao (2008) [32], it includes 11 items.

This study invited 140 college students as participants. There are 89 female (64%) and 51 male (36%). These participants were randomly assigned to two groups A and B. There are 70 participants in group A (60% female, 40% male), and the rest of 70 participants are in group B (68% female, 32% male). The products in group A is peripheral innovation products, while the products in group B is core innovation products. The design of the experimental materials references the previous literature (Table 1). The study is adopted in the experiment scene simulation method to study consumer buying behavior in a particular situation. First of all, we asked participants to fill out a questionnaire to measure participants’ regulatory focus type. Then, we asked participants read material and integrate themselves into shopping situation. Finally, we also use questionnaire to measure consumers’ purchase attention and information processing fluency. In the part of data analysis, we use analysis of variance of SPSS19.0 statistical software to analyze data.

5. Data Analysis

For testing H1, we use SPSS19.0 statistical software to analyze data. After using analysis of variance, we get the results. The experimental results are showed in

<table>
<thead>
<tr>
<th>Table 1. The classify of innovation locus.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group A: peripheral innovation products</strong></td>
</tr>
<tr>
<td>The new washing machine A is a new product produced by an electrical manufacturer. This washing machine is fully functional. It has a stainless steel drum, liquid crystal display and good load ability. And it can satisfy the need of daily family laundry. This washing machine is the first washing products which can wash clothes no water and detergent in the world. Its air cleaning system is composed of intelligent air jet and electrostatic ionization filter as a separate part. Air jet function can release containing anion and nanoparticles of high-pressure air. It can remove dirt and grease and kill the harmful bacteria. The system doesn’t need water and detergent. The air cleaning system is separated with base products. It is convenient and lightweight, and it can be easily inserted into the washing machine detergent tank next to a cubicle. Not only can users use traditional cleaning system, but also they can insert the air cleaning system accessories and press the switch button to use air cleaning system.</td>
</tr>
<tr>
<td>The new washing machine B is a new product produced by an electrical manufacturer. This washing machine is fully functional. It has a stainless steel drum, liquid crystal display and good load ability. And it can satisfy the need of daily family laundry. This washing machine is the first washing products which can wash clothes no water and detergent in the world. It has a built-in air cleaning system which is composed of intelligent air jet and electrostatic ionization filter as a separate part. Air jet function can release containing anion and nanoparticles of high-pressure air. It can remove dirt and grease and kill the harmful bacteria. The system doesn’t need water and detergent. The air cleaning system is integrated into the washing machine. It can’t be easily removed. Not only can users use traditional cleaning system, but also they can press the switch button to use air cleaning system.</td>
</tr>
</tbody>
</table>
According to results of variance analysis, we found that the main effect of innovative locus was not significant, $F(1126) = 1.164, P = 0.283$; And the main effect of regulatory focus was not significant, $F(1126) = 1.572, P = 0.212$; The interactions effect between innovative locus and regulatory focus was significant, $F(1126) = 26.950, P = 0.000$.

Then, we made further analysis of simple effect because of the significantly interaction effect. The results of the analysis are as shown in Table 2. The center of consumers, to promote the directional innovation product purchase intention ($M = 5.538$) were significantly higher than outer point of innovative products purchase intention ($M = 4.724$), $P = 0.006 < 0.05$. To prevent targeted consumers, purchase intention for peripheral point innovation product innovation center ($M = 5.574$) were significantly higher than product purchase intention ($M = 4.242, P = 0.000$). As shown in Table 2. So the H1 is founded.

The promotion focus consumers have significantly higher intention to purchase locus innovation products ($M = 5.538$) than peripheral innovation products ($M = 4.724$), $P = 0.006 < 0.05$; on the contrary, the prevention focus consumers have significantly higher intention to purchase peripheral innovation products ($M = 5.574$) than locus innovation products ($M = 4.242, P = 0.000$). As shown in Table 3. Thus, H1 was verified.

Bootstrapping analysis (repeat extraction of sample set to 5000, the confidence level is set to 95%, Hayes, 2009) shows that the mediator role of the information processing fluency is significantly deviate from 0 (1711.95%, LLCI = ULCI =

### Table 2. Analysis of variance between groups.

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>41.339a</td>
<td>3</td>
<td>13.780</td>
<td>10.280</td>
<td>0.000</td>
</tr>
<tr>
<td>Intercept</td>
<td>3164.522</td>
<td>1</td>
<td>3164.522</td>
<td>2360.765</td>
<td>0.000</td>
</tr>
<tr>
<td>IL</td>
<td>1.561</td>
<td>1</td>
<td>1.561</td>
<td>1.164</td>
<td>0.283</td>
</tr>
<tr>
<td>RF</td>
<td>2.107</td>
<td>1</td>
<td>2.107</td>
<td>1.572</td>
<td>0.212</td>
</tr>
<tr>
<td>IL*RF</td>
<td>36.125</td>
<td>1</td>
<td>36.125</td>
<td>26.950</td>
<td>0.000</td>
</tr>
<tr>
<td>Error</td>
<td>164.877</td>
<td>123</td>
<td>1.340</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3397.805</td>
<td>127</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>206.216</td>
<td>126</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. R Squared = 0.200 (Adjusted R Squared = 0.181).

### Table 3. The simple effect analysis of IL*RF.

<table>
<thead>
<tr>
<th>RF IL</th>
<th>Mean</th>
<th>Standard Error</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promotion Core</td>
<td>5.538</td>
<td>0.193</td>
<td>0.006</td>
</tr>
<tr>
<td>Peripheral</td>
<td>4.724</td>
<td>0.215</td>
<td></td>
</tr>
<tr>
<td>Prevention Core</td>
<td>4.242</td>
<td>0.199</td>
<td></td>
</tr>
<tr>
<td>Peripheral</td>
<td>5.574</td>
<td>0.219</td>
<td>0.000</td>
</tr>
</tbody>
</table>
1.0030). Thus, information processing fluency plays a mediator role in the process of consumption decision. Thus, H2 hypothesis is verified.

6. Conclusions

6.1. Theoretical Contributions

Previous consumer decision-making researches are mainly involved in product, price, promotion, channels and other marketing fields. Many scholars also attach great importance to exploring the influence factors of consumer purchase decision from the perspective of product. After reviewing the previous literatures, we found studies had shown that the product characteristics, such as product novelty, compatibility, characteristics of richness, perceived risk, product attributes, comparability and network externalities could affect consumer adoption intention of new products. However, there are few researches discussing the influence of product innovation locus on adoption attention. Therefore, this study explored how two different kinds of innovation locus products affected consumers’ willingness to purchase. And we also focused on consumer personality traits, such as: regulatory focus how to influence consumer decision-making. Based on the matching effect between consumers’ personality traits and innovative product locus, this study also verified the mediator role of information processing fluency. Not only did these studies enrich consumer decision-making research, but also it could help enterprises to make targeted marketing strategy. Thus, one of the contributions of this study is trying to do empirical research from the aspect of product innovation locus. Not only did the study discuss how product innovation locus to affect the customer’s purchase intention, but also it verified the moderator role of regulatory focus and mediator role of information processing fluency in this process. This study enriched the domestic research content of consumer decision-making behavior from the aspect of innovation locus. And it can promote the transformation of theory to practice and help enterprises to make effective marketing strategy which can enhance the new products purchase intention of customers.

6.2. Practical Contributions

According to the conclusions of this study, on the one hand, the enterprise can pay more attention to the regulatory focus of the consumers and use different marketing environment or advertising information to stimulate the regulatory focus of consumers. For example, when the enterprise wants to sell core innovation locus products, it can use some information which express hopes, wishes and achieve the goals to stimulate the promotion focus of consumer; when enterprise wants to sell peripheral innovation locus products, it can use some information which express obligation and responsibility to stimulate the prevention focus of consumers in order to achieve matching effect between product innovation locus and consumers regulatory focus. The matching effect can improve the information processing fluency and consumers purchase intention. On the other hand, the enterprise can design their new products according to dif-
ferent target customers. For example, if the investigation shows that the target
customers of enterprise are promotion focus people, the enterprise can design
core innovative locus products, on the contrary, if the target customers of com-
panies are prevention focus people, enterprises can design peripheral innovation
locus production.

6.3. Research Innovation Points and Limitations

The previous research didn’t explore the mediator mechanism and moderator
mechanism in the process of innovation locus affecting the purchase attention.
Thus, this study verified the mediator role of information processing fluency and
moderator regulatory locus.

However, there are some limitations of the study in the discussion section.
Firstly, the all participants are students; this will result in sample limitations.
Secondly, this study only selected washing machine as test items. It will result in
test items limitations. Finally, the study is finished in the laboratory. Thus, there
is no real shopping environment and product display; it maybe results in the
lack of experiment validity.

Acknowledgements

The National Natural Science Fund Project (71002085); Guangdong Science and
Technology Plan Projects (2014 a070703025).

References


of Economic Perspectives, 8, 93-115. https://doi.org/10.1257/jep.8.2.93

Effectiveness of Product Information and Advertising Formats. Journal of
Marketing Research, 43, 224-236. https://doi.org/10.1509/jmkr.43.2.224

derers: Toward a Unifying Framework of Consumers’ Switching Behaviors. Journal of
the Academy of Marketing Science, 33, 96-115.
https://doi.org/10.1177/00920700207304267928

https://doi.org/10.1287/mksc.1050.0144


https://doi.org/10.1287/mksc.1080.0367

struct Development of Innovation Locus, Type, and Characteristics. Management


