International Business Management 10 (8): 1484-1490, 2016
ISSN: 1993-5250
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The Relationship Between Consumer Innovation and New Product Acceptance (Case Study: Smartphone Consumers, Especially Iran)

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Abstract: Today, establishment, maintenance and development of the brand is among the most important issues raised in any business and in this regard, consumers and especially innovative consumers have an important role. Because innovative consumers are the first category of consumers that accept the new product or new or developed brand and take the risk of buying it. In case of acceptance and satisfaction of this group of consumers with the new brand or product that companies can be hoped that other consumers are leaning toward their product or brand. In this study, we tried to identify the relationship between the consumer innovation in acceptance of new products. The research is applied descriptive survey. To collect the data, a questionnaire based on Likert scale the statistical population was the smartphone users in Tehran and the number of sample is considered 384. To determine the normality of data distribution the Kolmogorov-Smirnov test was used. According to the results, it can be said that with regard to the risk accepted by innovative consumers they expect that new products have required standards and prefer to prioritize the acceptance of new products from among known brands with new design and up to date technology. The category of new products in this research may limit the obtained results because the smartphones are just one of these groups and among new products.

Key words: Consumer innovation innovation features, new product acceptance innovation acceptance, appreciate value, population, establishment

INTRODUCTION

In marketing innovation is referred to anything like the brand, product, idea, service, technology, activity and process that is new in terms of population. One of the applications of the theory of innovation in the field of management and specifically in the field of marketing is the field of acceptance and diffusion of innovation in the form of new products and services by people in the community (Citrin *et al*., 2000).

New products are necessary for growth and profitability and supplying the competitive advantages and help companies to achieve a proper strategic position than the competitors (Park *et al*., 2010). Like wise innovation and the supply of new product play an important role in the growth and profitability of the companies. Therefore, companies require to supply their own inventions to market repeatedly at short intervals to meet the needs of their customers and compete with their rivals. The innovative consumers are an important part of the market for marketers and the proceeds of new products that innovative consumers have accepted them are important for companies (Clark and Goldsmith, 2006).

Therefore, success in introducing new products in the market is the underlying theme of the current marketing plan. Better understanding of innovative consumer features help managers to be successful in introducing new products. Consumer innovation creates the interest in him to go to the new and different products, so innovative consumers play an important role in the success of new products and services. The consumer's behavior irritates others to benchmark them and use new products.

In marketing, consumer issues checks how individuals and organizations select and purchase products and services to meet their own needs. Consumer behavior is not a simple issue and understanding consumer behavior is among the most important activities of marketing management. One of these efforts is study on purchasing and post-purchase behavior of consumer, his decision making styles and factors affecting purchasing behavior by companies and

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organizations. Studying the consumers' behavior is one of the important issues that should be studied and the factors affecting this behavior in general is influenced by several factors. One of these factors is the consumer decision making which are necessary for marketing activities. Consumer decision making style is subjective tendency that the consumer takes the shopping and using experience from it.

Acceptance of supplied products by consumers and its prime acceptance by innovative consumers is essential for successful delivery. Selling products to the initial purchasers shows a positive cash flow that can compensate for the cost of new product development. To succeed in the supply and sale of new products, study of innovative consumers' features is important. In this case, achieving a true understanding of the consumer innovation is required. He suggest that consumer innovation is often known as a personality trait that reflects willingness to change.

The purpose of this study is to identify the various features of the innovative consumer. Identifying these features is important for marketers as they can plan for new products or services tailored to the features of the consumers. Also, according to the above the main objective of this research is to identify factors affecting the acceptance of innovation in the context of new products and perceptions of innovative acceptors to achieve the goal is considered in this research to answer the following questions: in this study, this basic question will be answered: how the quality and product features affect the innovation acceptance? Who use the new products in the first stage, men or women? What is the relationship between age, education and experience of using the phone as a new product?

Literature review

The role of consumer innovation: Previous research shows that consumer innovation significantly affect the consumer acceptance and acceptance of new products. However, the definition and evaluation of consumer innovation lacks consensus. There are different standards for measuring consumer innovation. These criteria are divided into three categories. The three levels are: consumer inherent innovation, domain specific innovation, vicarious innovation.

Inherent, domain specific, vicarious innovation of consumer: Bartels and Reinders (2011) consider inherent innovation as a degree to which an individual makes innovation decisions independent of experience to communicate to others. The underlying assumption is that innovators are independent decision makers guided by their character instead of others' comments on the new products. He conceptualized innovation as a desire to learn about new product which is strongly linked to the innovators' behavior. Since, not all innovators are likely to accept new products, he argued that the perceptions and interests of consumers are often different across the product categories and developed criteria of a special range of innovations. Flynn and Clark then presented the distinction between domain-specific innovation and global innovation.

Designing product after advertising and oral notification is considered as the third component in vicarious innovation. Previous studies show that the inherent innovation at the best state has a weak relationship with new products acceptance. While, it is shown that domain-specific innovation has a more important role in the relationship between inherent innovation and new product acceptance.

New product acceptance: New product acceptance remained a major issue among academics and actors that devoted considerable research to better underst and this issue. New product acceptance is often assessed in two main ways: measuring the level of ownership and relative time of acceptance.

New products are essential for the growth and profitability of companies and providing the competitive advantage, help companies in strategic positioning. Due to the fact that nearly 40% of innovations is related to consuming and industrial goods and >60% of innovations in the field of advanced technologies have been faced with failure the successful launch of new products is not always as simple as possible, although many of these failures are ascribed to bad products (Chakrabarti and Baisya, 2009). The reality is not that simple; goods that are rejected by consumers are often better than existing ones. Consumers' features can help effectively to managers in new product supply. Usually, for successful start and marketing of new products innovative consumers are targeted. Early adopters and testers of new brand have an important role in new product life cycle. Sales to the initial buyers indicate positive cash flow that can compensate for the costs of new product development. For success in supply and sale of new products it is important to study the features of innovative consumers.

Due to rapid changes in technology and consumers demand, companies supply new products at a growing speed. To start and a successful marketing of new products innovative consumers are targeting and successful sales to innovators can prevent entry of competitors. Finally, the most importance of primary buyers contribute to the product progress to the next buyers and justifying the product to other consumers.

Consumer purchasing decision styles: As Antonelli (2006) stated, one of the effects of cognitive and emotional innovation separation is that consumers who have these differences may have different purchasing decision-making styles. Based on this argument, we assume that the different features of inner-innovation, cognitive and mental innovation have different effects on styles of decision-making when purchasing.

They proposed model in many studies is considered for identifying the factors influencing purchasing and consumers' decision-making methods. Consumer features on the cognitive and emotional tendencies to buy emphasizes consumer decision making. This approach is based on the assumption that consumers have a mental and emotional tendency to determine their decision making style. Consumer decision-making approach is like a strategic, mental and cognitive tendency to purchase which is constantly dominating on consumer choice. These features are always available, predictable and the main driving force in the decision making. In fact, we speak of a relatively stable personality of the consumer which is similar to the more general concept of the human personality in psychology.

To examine trends to buy and consumer purchasing decisions styles in a wider range, a consumer features-based approach is used. In other words, this approach seeks to divide consumers based on their purchasing behavior which is rooted in their different features. This approach focuses on emotional and cognitive tendencies which is particularly related to consumer decision making (Park *et al*., 2010).

Chaudhuri (1994) combined these with the other features and provided a list of consumer purchasing decision making styles which they called it consumer style list. In this list, eight consumer purchasing decision making styles were designed that were frequently used by other researchers. Chaudhuri, Aeight styles of decision-making model are: perfectionism and sensitivity to product quality, product brand sensitivity, sensitivity to the new and fashionable goods, hedonism and desire to buy as entertainment, sensitivity to exchanged price and value interest-free desires, consumer confusion due to the great selection and habit orientation and loyalty to a brand that can be used to see which of these factors affect greatly the acceptance of new products for innovative consumers.

THEORETICAL FRAME WORK

Appreciate value: At a general level the appreciate value of a judgment or evaluation by a customer is the benefits or synergies resulting from a product, service or relationship and is related to understanding the fair costs. However, the appreciate value is a multi-dimensional structure that contains functional value, social value, quality value and monetary value. The most appropriate aspect for this study is to understand the appreciate value of money with a price a person pays to buy a product. Lee *et al*. (2000) believe that the appreciate value affects the intention of recipient and the risk is due to the risk of losses. As the price for acceptance is crucial for high-tech products, examining the perceived monetary value is particularly important. Keh and Xie (2009) in this regard states that the basis for risk results from perceived uncertainty and negative consequences related to innovation. In fact, it seems that increasing awareness and understanding about the new product or service the level of appreciate value by the potential adopter will be reduced and thus acceptance behavior and buying new products will be facilitated.

Innovation acceptance: Lee and Harrington consider the stage of acceptance as one of the most important steps in the process of diffusion of innovation and they believe that this is the longest step at the same time the most sensitive one in the acceptance and diffusion of innovation. Consumers' tendency to test and buy new products in the market is very specifically related to brand and brand loyalty by the consumers. As a result, the acceptance of the brand name is widely used to introduce the new products. Therefore, the relationship between consumerinnovation and innovation acceptance seems reasonable.

Innovation features: Lee in his study quoted by Tsuwez (2003) suggests that the perceived features of innovation are proper measures for prediction of innovation acceptance and predictability of these factors are beyond the demographic, economic and social features. In respect to innovation, Rogers in 1962, for the first time introduced five main factors of complexity, compatibility, observability, availability and comparative advantage as the 4 main factors influencing the innovations acceptance). More precisely, he claimed that the acceptance of an innovation depends on the recipient's perception about the relative superiority of innovation in comparison with other innovations (comparative advantage) the compliance with current values of a person, previous experiences and needs of potential receptor (compatibility) and the understood ease and use of new products (complexity). Moreover, if the potential recipient has an opportunity to test the new product before its final purchase the testability and consequences of innovation will be visible to others and increases the probability of accepting the innovation.

Consumer innovation: Innovation is a degree to which a person accepts a new belief and independently makes an innovative decision from communication experience with other. Similarly, Tellis *et al.* (2009) defines consumer innovation in terms of a degree to which a person acts in acceptance of innovation than the other members of social system. Innovation can be considered as the initial purchase of a new product.

Previous research suggest that the key to success and profitability of new products of a company is to identify consumers that are considered potentially the primary buyers of products in the market. These people are known in the market as innovative consumers and have an important role in the success of new products in the market. Innovative consumers against consumers who are not innovative have unique consuming behavior. Consumer attitudes to innovation affects learning process and consumer purchase in the market and its stages. They also tend to search for information about new and different products.

Innovation of the desire to purchase products and new and different identities or a degree to which person adapts himself with an innovation sooner than other members of society. Acceptance of products by customers is very essential and at the same time very vital and risky process. Innovative consumers have a significant role in the final acceptance of new products.

Foxall and Goldsmith considers final acceptance of innovation the result of final balance of costs and benefits of innovation and after counting the aspects of costs and benefits of innovation, net profit of innovation is considered as the main factor of innovation acceptance. Based on the above discussion the following hypotheses were tested:

- Hypothesis 1: appreciate value has a significant relationship with consumer innovation
- Hypothesis 2: innovation acceptance has a significant relationship with consumer innovation
- Hypothesis 3: innovation features has a significant relationship with consumer innovation
- Hypothesis 4: consumer innovation has a significant relationship with new product acceptance

RESEARCH METHODOLOGY

In terms of research classification based on the goal, this study is applied and in terms of data collection it is descriptive. In terms of classification of descriptive research based on how to collect data, this research is a survey. To collect data, a questionnaire is used and questionnaires' questions are designed based on Likert scale and the questionnaire was distributed among respondents of the questionnaire in person.

Table 1: Questions related to variables and their reliability

Variables	Questions	No. of questions	Cronbach's alpha
New product acceptance	6-1	6	0.884
Innovation features	12-7	6	0.844
Innovation acceptance	7-13	5	0.833
Consumer innovation	24-18	7	0.867
Appreciate value	27-25	3	0.747

The research population is the users of smart phones in Tehran, according to an unlimited number of statistical population was considered 384 using Morgan table. To determine the normality of data distribution, Kolmogorov-Smirnov test was used. To assess the reliability of Cronbach's alpha for the study hypotheses, Pearson correlation and to study the demographic variables, t-test and Analysis of Variance (ANOVA) were used. It should be noted that the questions in this study were tested in many previous studies and have an acceptable validity.

The results of the questionnaire reliability are shown in Table 1. As the table indicates, given that Cronbach's alpha for all variables is obtained higher than 0.70, so it can be concluded that the questionnaire has an acceptable reliability.

TESTING HYPOTHESES

To determine the research hypotheses, first normality of data distribution was examined using Kolmogorov-Smirnov test. The results of this test are given in Table 2.

Given that the significance level obtained for this test is higher than 0.05 (0.153), thus it can be concluded that statistical data has a normal distribution. To investigate the hypotheses, parametric tests can be used. The Pearson correlation test was used to examine the hypotheses which results for the hypotheses are presented in the following sections.

Hypothesis 1 (appreciate value has a significant relationship with the consumer innovation): In this test, statistical hypothesis was expressed as follows:

$$\begin{cases} H_0: Cor_{x,y} = 0 \\ H_1: Cor_{x,y} \neq 0 \end{cases}$$

To test this hypothesis, first hypothesis states that appreciate value has a significant relationship with consumer innovation and the null hypothesis states that appreciate value has no significant relationship with consumer innovation (Table 3).

Table 2: Kolmogorov-Smirnov test for normality of distribution of statistical data

One-sample Kolmogorov-Smirnov test	Total
N	384
Normal parameters[a]	
Mean	3.5759
SD	0.62768
Most extreme differences	
Absolute	0.058
Positive	0.058
Negative	-0.057
Kolmogorov-Smirnov Z	1.134
Asymp. Sig. (2-tailed)	0.153

[a]Test distribution is normal

Table 3: Correlation coefficient between the appreciate value and consumer innovation

Number	Determination coefficient (R^2)	Correlation coefficient (R)	Significance indicator
384	0.61	0.78	0.000

Table 4: Correlation coefficient between innovation acceptance and consumer innovation

Number	Determination coefficient (R^2)	Correlation coefficient (R)	Significance indicator
384	0.52	0.72	0.000

As can be seen, the correlation coefficient and the coefficient of determination are 0.78 and 0.61, respectively. The correlation between these two variables is high. According to the significance index ($p = 0.000<0.05$), the null hypothesis that there is no relationship between the appreciate value and consumer innovation is rejected and hypothesis one that a relationship exists between appreciate value and consumer innovation is confirmed. This means that there is a significant relationship between appreciate value and consumer innovation (Table 4).

Hypothesis 2 (innovation acceptance has a significant relationship with the consumer innovation): In this test, the statistical hypothesis was expressed as follows:

$$\begin{cases} H_0: Cor_{x,y} = 0 \\ H_1: Cor_{x,y} \neq 0 \end{cases}$$

To test this hypothesis, first hypothesis suggests that a significant relationship exists between innovation acceptance and consumer innovation and the null hypothesis states that the innovation acceptance does not have a significant relationship with the consumer innovation.

As can be seen the correlation coefficient and the coefficient of determination are 0.72 and 0.52, respectively. The correlation between these two variables is high. According to the significance index ($p = 0.000<0.05$) the null hypothesis that there is no relationship between the innovation and consumer innovation is rejected and hypothesis one that a relationship exists between innovation and consumer innovation is confirmed. This means that there is a significant relationship between innovation acceptance and consumer innovation.

Table 5: Correlation coefficient between innovation features and consumer innovation

Number	Determination coefficient (R^2)	Correlation coefficient (R)	Significance indicator
384	0.56	0.75	0.000

Table 6: Correlation coefficient between consumer innovationand product acceptance

Number	Determination coefficient (R^2)	Correlation coefficient (R)	Significance indicator
384	0.48	0.69	0.000

Hypothesis 3 (innovation features have a significant relationship with consumer innovation): In this test, the statistical hypothesis was expressed as follows:

$$\begin{cases} H_0: Cor_{x,y} = 0 \\ H_1: Cor_{x,y} \neq 0 \end{cases}$$

To test this hypothesis, first hypothesis states that innovation features has a significant relationship with consumer innovation and the null hypothesis states that no significant relationship exists innovation features and consumer innovation (Table 5).

As can be seen the correlation coefficient and the coefficient of determination are 0.75 and 0.56, respectively. The correlation between these two variables is high. According to the significance index ($p = 0.000<0.05$), the null hypothesis that there is no relationship between the innovation features and consumer innovation is rejected and hypothesis one that a relationship exists between innovation features and consumer innovation is confirmed. This means that there is a significant relationship between innovation features and consumer innovation.

Hypothesis 4 (consumer innovation has a significant relationship with new product acceptance): In this test, the statistical hypothesis was expressed as follows:

$$\begin{cases} H_0: Cor_{x,y} = 0 \\ H_1: Cor_{x,y} \neq 0 \end{cases}$$

To test this hypothesis, first hypothesis states that consumer innovation has a significant relationship with acceptance of new product and the null hypothesis states that there is no significant relationship between consumer innovation and acceptance of new product (Table 6).

As can be seen the correlation coefficient and coefficient of determination are 0.69 and 0.48, respectively. The correlation between these two

variables is high. According to the obtained significance index ($p = 0.000<0.05$), the null hypothesis that there is no relationship between consumer innovation and product acceptance is rejected and first hypothesis that a relationship exists between consumer innovation and product acceptance is confirmed. This means that consumer innovation has a significant relationship with new product acceptance.

To investigate the role of demographic variables in the main variables according to the normality of the statistical data independent t-test and Analysis of Variance (ANOVA) were used.

Independent t-test results to examine the role of gender showed that gender is involved invariables like innovation features innovation acceptance, consumer innovation and appreciate value and this is in the case that women have a higher appreciate value than men in innovation features innovation acceptance and consumer innovation.

The results of Analysis of Variance (ANOVA) to evaluate the role of age, education and experience of using smartphone also showed that age, education and experience of using a smartphone do not play a role in the main variables.

CONCLUSION

The results of this study can be applied greatly for producers of new products, especially smartphones and for marketers in terms of how the high-tech products are manufactured and marketed. Companies can capitalize on the features that in a product category have the greatest impact on innovative consumer acceptance behavior have made significant progress in the development of high-tech products.

In this study, the relationship between consumer innovation on new product acceptance, especially smartphone consumers in Iran is examined. In this study, innovative consumers are compared with normal consumers in new product acceptanceand due to the reaction of innovative consumers to appreciate value and innovation feature given the data obtained from the hypotheses, it can be said that innovative consumers except high quality for the price they pay for new products and due to the risk accepted by innovative consumers they expect to have a special place to accept innovation in smartphone. Features of new products is of high importance for innovative consumers and they like to have new products with the necessary standards and meet the expectations of innovative consumers to purchase new products and they prefer to accept products that have a lot of different tasks and it can be expressed that consumer innovation influence on acceptance of new products is very important to innovative consumers according to data obtained for acceptance and selection of well-known brands and new design and technology.

LIMITATIONS

Despite the fact that this study has some nice features and can contain information for marketing managers but it has several limitations. First, respondents' data is cross-sectional and related to one of the big cities of Iran. Respondents who live in other cities may have other opportunities to acquire new products and obtain information related to such products therefore, have a different view than those who live in other cities.

Category of new products in this research may limit the results because the category of smart phone is just one of the groups and product ranges which is applied to focus greater in identifying acceptance behavior. So, the results of this research in a particular category may obtain just an over view of new product acceptance. Future research should examine the other groups of truly new products or services to expand the scope of this research. At the end of the study, a fixed result is not presented to assess the consumer innovation and the issue is the lack of consensus about the used criteria and future research should be done to assess more completely to determine the exact parameters of acceptance.

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