THE RELATIONSHIP BETWEEN PRODUCT INNOVATION AND EASE OF USE TOWARDS PRODUCT ACCEPTANCE AMONG MALAYSIAN CUSTOMERS

Noraslinda Fauzi
as_naf84@yahoo.com

Kamal Imran Mohd Sharif
kamalimran@uum.edu.my

Universiti Utara Malaysia, Kedah
School of Technology Management and Logistics

Abstract: The acceptance of products/services by consumers is affected by how closely the product’s concept conforms to the customs, values, and behavioral patterns based on the physical or mechanical attributes of products. Companies aware that, customers are satisfied only when they are offered with new products that have high degree of quality and reliability. World market today leaded by new products that have high quality and reliability. Product Development Management Association Best Practices Study found that firms deemed only about 59% of new products commercialized to be “successful” (in general terms), while 54% of commercialized new products were considered successful specifically in terms of a profit perspective. Meta-analyses found strong support for many firm-level antecedents such as extent to which product is perceived as satisfying customer needs, superiority over competitive offerings and focused commitment of personnel and R&D resources to the new product development initiative. Two variables innovation capability and ease of use being analyze in relationship with customer acceptance In the context of this study, researcher use random sampling in choosing the respondents.. Considered that this data can be used to determine population of consumer in Malaysia, a sample size of 384 respondents will be used in this study when population is 1,000,000 based on sample size proposed by Krejcie and Morgan (1970). Therefore the sample size used in this study is more than 384. Hypothesis developed and tested and found that it has positive relationship towards customer product acceptance. This result will be contribute to body of knowledge and is useful to manufacturer, product designer and decision maker in industry

Keyword: Ease of Use, Innovation, Product Acceptance, Product Design, Customer Acceptance
Introduction

New product acceptance behavior is related to the duration an individual takes to adopt innovative and novel products/services compared to other members of the society (Rogers, 2003). New product ownership (service usage) was measured using a cross-sectional method (Foxall, 1995) which calculated the level of acceptance across a set of products/services. The relative time of acceptance for new products/services was measured based on ownership and duration of ownership (Im at el., 2007). The measured relative time of acceptance was a weighted average of the length of ownership of new products/services and the square root transformation was used to lessen the effect of outlier samples (Im et al., 2007). The negative effect of conservation on innovativeness and product acceptance can be reduced by firms through promoting products/services to get social acceptance and receive the social support by adjusting their market offers toward less sophisticated, closer to existing products/services and distribute products through visible marketing channels (Mansori et al., 2015). Two variables will be explore in relationship with product acceptance that is innovation capability and ease of use.

The acceptance of products/services by consumers is affected by how closely the product’s concept conforms to the customs, values, and behavioral patterns based on the physical or mechanical attributes of products/services (Kardes et al., 2008). Companies aware that, customers are satisfied only when they are offered with new products that have high degree of quality and reliability (Murthy et al., 2009). World market today leaded by new products that have high quality and reliability (Chung and Hsu, 2010). Product Development Management Association Best Practices Study (Barczak, Griffin, and Kahn, 2009) found that firms deemed only about 59% of new products commercialized to be “successful” (in general terms), while 54% of commercialized new products were considered successful specifically in terms of a profit perspective. Meta-analyses (e.g. van der Panne, van Beers, and Kleinknecht, 2003) have found strong support for many firm-level antecedents such as extent to which product is perceived as satisfying customer needs, superiority over competitive offerings and focused commitment of personnel and R&D resources to the new product development initiative.

Ease of Use
The characteristics or attributes of a product can distinguish it from other similar products. These attributes include visual appeal, functionality, and the components and features that affect the product’s attractiveness or acceptance in the market (Moslehpour, 2015). They also provide the consumers with symbolic value, as well as communicating functional features, emphasizing ease of use, and influencing the basis of product categorization (Akpoyomare et al., 2012). In subjective evaluations of patient preferences, ease of use and lack of pain during injections are found to rank among the top five device attributes of delivery devices for administering growth hormone (GH) (Ahmed, Smith and Blamires, 2008). Ease of use is recognized as a key factor in device acceptance (Dumas et al, 2006) and is especially important when the device is to be used by a child or adolescent (Hokken-Koelega, Keller, Rakov, Kipper, & Dahlgren, 2011). Key factors in ease of use are the number of steps in device preparation (the fewer the better) and ease of dose setting (Hokken-Koelega et al., 2011). Ease of use might also increase the number of patients who self-inject, which has been found to have a positive effect on treatment adherence (Oyarzabal, Aliaga, Chueca, G. Echarte, and Ulied, 1998). The high patient acceptance of the device, as well as ease of use, were aligned with a favorable safety profile and low reporting of technical complaints.
(Hokken-Koelega et al., 2011). High patient acceptance may facilitate treatment adherence optimizing treatment outcomes (Hokken-Koelega et al., 2011).

In a study of patients receiving human growth hormone injections, the five key delivery device attributes identified by patients were reliability, ease of use, lack of pain, safety in use and a small number of steps required for preparation (Dumas et al, 2006). Additionally, patients stated that the ease of use, dosing mechanism and reduced potential for dosing errors were the factors that they found most important (Weiss N, 2007). When customers buy products, they expect them to function well, to meet their needs, and be easy to use. Many commonly used products, however, are difficult and confusing to operate (Norman, 1988) and lead to user frustration (Nussbaum and Neff, 1991). Despite the best efforts of everyone involved, the design process often leads to products that fail to meet the expectations of customers (Bailetti and Litva, 1995). It is no longer sufficient for firms to deliver products that have technical excellence and products are created to satisfy human needs (Babbar, Behara, White, 2002). Products must also be easy to use and fit in with the work practices, activities and context of the consumer (Bevan, 1999).

Innovation Capability

Product innovation is a key to organizational renewal and success. Relative to other forms of innovation, radical product innovations offer unprecedented customer benefits, substantial cost reductions, or the ability to create new businesses, any of which should lead to superior organizational performance. In other words, a radical product innovation capability is a dynamic capability, one that enables the organization to maintain alignment with rapidly evolving customer needs in high-velocity environments. Extensive research has been conducted on the antecedents to an incremental/general product innovation capability, and meta-analyses have been conducted to integrate the results from the various studies. However, whether and how a radical product innovation capability differs from an incremental product innovation capability is also critical.

Based on an extensive literature review, a comprehensive set of organizational components that comprise a firm’s radical product innovation capability is identified. These organizational components include senior leadership, organizational culture, organizational architecture, the radical product innovation development process, and the product launch strategy. Of course, each of these components has subcomponents that provide even more texture. This review highlights how the components of a radical innovation capability function differently from those for an incremental capability. In addition, this review strongly suggests that the direct effects models that dominate this literature underestimate the complexity of the interplay of components that comprise a radical product innovation capability. Thus, a model to demonstrate this interplay of these organizational components is provided. Illustrative research propositions are offered to provide guidance to researchers. Suggestions for executives and managers who are involved in the product development process and for scholars who seek to advance the state of knowledge in this area are offered in the conclusion (Stanley, Jakki & Sanjit; 2014).

A radical product innovation capability provides for the development and commercialization of products/services that offer unprecedented performance benefits, substantial cost reductions, or the ability to create new businesses (e.g., Leifer, O’Connor, and Rice, 2001; Simon, McKeough, Ayers, Rinehart, and Alexia, 2003). Finally, radical product innovation (RPI) performance refers to the
success of the radical product innovation in the marketplace, most typically captured in terms of revenue and profit growth due to new products or services, customer satisfaction with new products or services, and number of ideas or concepts in the pipeline (Chan, Musso, and Shankar, 2008). In addition, senior leadership has a profound effect on the organization’s characteristics that affect the radical product innovation capability (such as organizational structure and performance metrics) as well as the radical product innovation process itself (say, by empowering product champions, etc.). Therefore product innovation can give positive effect to product acceptance as product innovation can lead to customer satisfaction which is important to customer to accept the products.

Innovation capability is the degree of firm innovativeness (Calantone et al., 2002) whilst being a multidimensional concept (Wonglimpiyarat, 2010; Forsman, 2011). Literature distinguishes different types of innovation and researchers have explored its classification in different ways (Jiménez-Jiménez and Sanz-Valle, 2011; Kim et al., 2012). Some studies examined a single type of innovation such as process innovation (Abrunhosa and Moura E Sá, 2008) or product innovation (Prajogo and Sohal, 2004), whereas others explored both process and product innovation (Feng et al., 2008; Martinez-Costa and Martinez-Lorente, 2008). Many studies conceptualize innovation related to marketing and organizational innovation (Wang and Ahmed, 2004; Evangelista and Vezzani, 2010; Wonglimpiyarat, 2010; Gunday et al., 2011; Chang et al., 2012). Avermaete et al. (2003) claimed that product, process, organizational and market innovation were all domains of innovation.

**Customer Product Acceptance**

Acceptance is adoption and continuing use of the product, service or idea. According to Rogers and Shoemaker (1971), consumers go through “a process of knowledge, persuasion, decision and confirmation” before they are ready to accept a product or service. Any attempt for drawing a conclusion from the perspective of customer as well as the service institution should always considered a clear operational definition of customer acceptance (Naylor & Greco, 2002). Understanding the motivations, expectations and desires of both provide a foundation on how to provide best services to the customer by most businesses (Mansor, Ahmad, Bakar & Ismail, 2014). The acceptance of the clients could also be observed when they are willing to participate in anything that is related to the product or services offered (Mansor, Hamid, & Muda, 2011). It is agreeable that with the increasing overall satisfaction it will leads to greater repurchase intentions (Martin et al., 2008) as well as actual repurchase behavior. Customer acceptance on products or services offered is always been associated with the familiarity and the degree of awareness and use of any given tool whereby the more people using them, the more valuable they become (Mansor et al., 2014). As such, the relevancy towards understanding customer acceptance is vital as it act as a motivational drive for repeated selection (Holetzky, 2008) and will be favorably reflected by the satisfaction indicated by the customers (Mansor, Daud, Zakaria, & Daud, 2011). In addition, as mentioned by Anderson and Sullivan (1993), high customer satisfaction may lead to greater customer loyalty which in turn leads to future revenue to the business operators.

In many cases, innovative products/services have been rejected by the market because consumers feel the products/services are against their traditions and their cultural norms (Mansori, Sambasivan, & Md-Sidin, 2015). The acceptance of products/services by consumers is affected by
how closely the product’s concept conforms to the customs, values, and behavioral patterns based on the physical or mechanical attributes of products/services (Kardes et al., 2008). Among the companies in UK and USA, 40 to 50 percent of revenue and profit are generated by new products launched in the market within the previous five years (Hultink and Schoormans, 2004). However, even though novel (innovative and unique) products/services play a vital role in a company’s success, the failure rate of new products is very high (ranging from 33 percent to over 60 percent) (Sivadas and Dwyer, 2000). Each failure can be very costly (Mansori et al., 2015). Product failures in the shipbuilding industry have the potential to cause significant financial loss, imperil human lives and create environmental disaster (Primo, André, & DuBois, 2012). Therefore, it is important to assess the chances of success of a new product while it is still at the design stage (Tsafarakis et al., 2010). In this research, the terms novel product and new product are used interchangeably. Novel (new) product or service refers to a product or service that is new to the market and that differs significantly from the existing products or services in terms of innovativeness and uniqueness (Stanton and Miller, 1985).

Result

Table 1. Summary of Cronbach’s Alphas, rho_A, Composite Reliability and Average Variance Extracted (AVE) in the main survey

<table>
<thead>
<tr>
<th>Measurement Items</th>
<th>Cronbach’s Alpha</th>
<th>rho_A</th>
<th>Composite Reliability</th>
<th>Average Variance Extracted (AVE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Innovation</td>
<td>0.879</td>
<td>0.881</td>
<td>0.904</td>
<td>0.542</td>
</tr>
<tr>
<td>Product Ease of Use</td>
<td>0.899</td>
<td>0.899</td>
<td>0.92</td>
<td>0.589</td>
</tr>
<tr>
<td>Product Acceptance</td>
<td>0.914</td>
<td>0.917</td>
<td>0.93</td>
<td>0.626</td>
</tr>
</tbody>
</table>
Table 2
**Bootstrapping Result: Hypothesis Testing**

<table>
<thead>
<tr>
<th>Relationship</th>
<th>Standard Beta</th>
<th>Standard Deviation (STDEV)</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRODUCT INNOVATION -&gt; Product Acceptance</td>
<td>0.150</td>
<td>0.054</td>
<td>Supported</td>
</tr>
<tr>
<td>PRODUCT EASE OF USE -&gt; Product Acceptance</td>
<td>0.095</td>
<td>0.049</td>
<td>Supported</td>
</tr>
</tbody>
</table>

Note: *p < 0.05

Table 3
**Summary of the Result hypothesis testing**

<table>
<thead>
<tr>
<th>Hypothesis Path</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is a positive relationship between product innovation and product acceptance</td>
<td>Supported</td>
</tr>
<tr>
<td>There is a positive relationship between product ease of use and product acceptance</td>
<td>Supported</td>
</tr>
</tbody>
</table>

**Conclusion**

From above table analysis, researcher outlines the conclusion from the data of 384 respondents. For the multi item scale, the set of items that match up to each theoretical construct was initially subjected to the result of PLS analysis. In general, this study has investigated two important factors product innovation, ease of use product acceptance, which influence users’ continuance intention to use in Malaysia study context. Findings revealed that product innovation and ease of use has a strong positive correlation with product acceptance, which support hypothesis for this study. These findings are in accordance with (Chen & Yen, 2004), who claimed that this two have strong relationship towards product acceptance. However, result from PLS analysis claimed that these two variables should be in a combination in order to gain a significant effect on product acceptance.

Hence, this has providing the initial proved and supported to the previously developed research hypothesis. This study also deliberates on the findings congregated from the data analyses. The validation of instruments was conducted through factor loading. After testing the reliability and normality of data, descriptive test was prepared. The outcome of this study contribute to the extent of strong relationship between the firms that make the manufacturing of new products development with external support organizations to enhance product acceptance. It will further enhance the
policy maker to formulate standard operation for manufacturing in new product development and acceptance by customer.

References


