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The Relationship between Organizational Culture and Product Innovativeness

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Abstract

SMEs are a key source of innovation in many developed and developing countries including Malaysia. However, innovation activities among SMEs in Malaysia are still not encouraging. Recent studies indicated a range of structural, external and internal determinants of innovation among SMEs. Among these determinants, organizational culture is claimed to have a more significant influence. However, there are only a few studies examining the relationship between organizational culture and product innovation among SMEs in Malaysia. This study is aimed to bridge the gap by examining the relationship between organizational culture and product innovation among SMEs in the Southern Region of Malaysia. Thirty-six small businesses participated in this research by responding to an established instrument of Denison’s Organizational Culture Survey (OCS) and self-developed product innovativeness items. The results showed that three out of four dimensions of organizational culture (Mission, Consistency, Involvement) have significant relationship with product innovativeness. This finding substantiates the importance of establishing competitive organizational culture among SMEs by focusing on these dimensions. Thus, leadership development programmes for entrepreneurs need to incorporate culture building competencies to ensure SMEs sustainability.

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1. Introduction

The importance of innovation at various levels (national, industrial, organizational and individual) has been firmly established. Organizations which fail to innovate are at risk losing their competitiveness and sustainability (Tidd et al., 2001). In Malaysia, level of innovation among SMEs is still not encouraging.
Lee & Lee (2007), in their analyses of two cycles of National Survey of Innovation (NSI) carried out by the Ministry of Science, Technology and Innovation, Malaysia (MOSTI), found that majority of small and medium enterprises are non-innovating firms. In the NSI-1 (covering the period 1990-1994), 88.8% from 233 small enterprises and 81.2% from 526 of medium-sized enterprises are non-innovating. In the NSI-2 (covering 1997-1999), the percentage of non-innovating small enterprises remain high at 74.1% from 482 small enterprises and 48.9% from 141 medium-sized enterprises. Similarly, a study among public listed housing developers by Yusof and Abu-Jarad (2011) also found that innovativeness among them is low.

These statistics indicate a grave need to identify what make innovative SMEs especially when it continues to be the driving force of Malaysian economic growth. Innovative SMEs are more flexible, adaptable and responsive to market changes. Such capabilities would render them higher competitive advantages compared to their larger counterparts. Since the significant link between innovation and organizational performance has been substantiated in various studies (Ilker Murad, 2012; Bowen et al., 2010), more researchers and practitioners continue to dwell on factors affecting company to innovate. Present studies have investigated plethora of determinants ranging from firm-specific characteristics (Tidd et al., 2001) to the effects of external environment (Damanpour, 1992). Others highlight the significant role of internal process such as organizational culture in influencing innovation (A. Zafer Acar and Pinar Acar, 2012; Valencia et al., 2012). McMillan, in particular, (2010) claimed that “constant innovation stems from an organizational culture where experimentation, playfulness, and a sense of achievement are constantly rewarded”.

Studies on innovation among SMEs in Malaysia are still limited. Abdul Kohar et al. (2012) studied cultivation of organizational innovation among Malaysian Bumiputera ICT-based Small firms while Hilmi et al. (2010a, 2010b) studied different types of innovativeness among Malaysian SMEs. Keyword literature scan using Emerald and Science Direct revealed a very small number of studies on organizational culture and innovation and none in the context of SMEs. Thus, this paper aimed to fill in the empirical gap by examining the relationship between organizational culture and product innovation among SMEs.

The outline of this paper is as follows. Section 2 presents literatures on organizational culture and innovation which eventually lead to the formulation of research hypotheses. Section 3 presents the methodology while Section 4 reports the results. Section 5 continues with conclusion and discussions.

2. Literature Review

2.1. Innovation

Innovation has diverse definitions from various schools of thoughts. OECD (2005) defines innovation as “transforming an idea to a marketable product or service, new or improved manufacturing/distribution method or new social service method” or commonly referred to as technical innovations. It is a widely accepted definition of organizational innovation and largely used in most innovation studies. This technical definition of innovation, however, delineate behavioral or employee innovativeness. Wang and Ahmed (2004), on the other hand, claimed that there are facets of innovativeness which include product, process, marketing, strategic and behavioral innovation. These diverse definitions of innovation indicate varied theoretical framework underpinning the concept (Lam, 2004). According to Lam (2004), there are three major approaches in studying innovation. Organizational design theories focus on the influence of structural forms and the propensity of an organization to innovation while organizational cognition and learning theories tend to focus on the micro level process of how organizations develop new ideas for problem solving. A third approach is organizational change theories which consider innovation as a capacity to respond to changes in the external environment. Consequently, this study draws from the organizational cognition and learning theories by arguing that innovation of SMEs is significantly influenced by organizational shared beliefs and understanding to continuously innovate (Lam, 2004).

Similar with its definition, research on antecedents of innovation has been copious and diverse. The antecedents of organizational innovativeness ranged from knowledge management (Günsel et al., 2011; Storey and Kelly, 2002), learning orientation (Pesämaa et al., 2013), leadership (Khan et al., 2009; Jung et al., 2003) and organizational and environmental factors (Özsomer et al., 1997)
2.2. Organizational Culture

Organizational culture is an important tool for organizations to reside in the ideas, values, norms, rituals and beliefs in order to secure organization sustainability (Sackmann, 1991). It is also an important mechanism to channel messages and information that will differentiate between permissible and non-permissible patterns of behaviour through the company's policies, decisions and activities. A strong organizational culture plays a role as a reliable compass and as a powerful lever to guide and balance member's behaviour (Wilson and Bates, 2003). According to Sackmann (1991), organizational culture will act as a control mechanism to create organizational commitment, achieve integration within organizations and help the organization adapt to the external changes. However, the effectiveness of organizational culture depends on its strength (Deals & Kennedy, 1982). By default, SMEs are claimed to have stronger organizational culture by virtue of their size and visibility of the owner-managers (Wilson and Bates, 2003).

There are many models and theories of organizational culture. However, many of these theories and models are using etic approaches that assume that organizational culture cannot be measured (Alvesson, 2002; Schein, 2004). However, there are others who argued that despite complexity and multilevel nature of the organizational culture, the levels of organizational culture are unified and thus assessing the overt layers would means tapping the deeper levels of the organizational culture (Cooke & Lafferty, 1986; Denison, 1990; O’Reilly & Chatman, 1991). This study would adopt the latter view of organizational culture and used Denison’s model of organizational culture which is not only an observable behavioural-based model but has been validated within in business environment (Denison, et al., 2005).

The Denison’s model of Organizational Culture is a performance-based organizational culture framework which is developed based on a series of studies conducted over a 15-year period on over 1,000 organizations and 40,000 respondents (Denison, 2000; Denison & Mishra, 1995). Denison (1990) developed the model based on the Quinn’s Competing Values Framework and uses ‘values’ level of analysis, the middle layer of Schein’s model of organizational culture, as a basis for comparison. The use of values is consistent with theories set forth by Abdullah (1996), Hofstede (1980) and Trompenaars (1994). Based on his extensive studies across industries, he identified four major traits of competitive organizational culture which are Involvement, Consistency, Adaptability and Mission.

Involvement refers to strong sense of psychological ownership and commitment to the organizations and its goals while Consistency refers to the degree of normative integration where leaders and followers have common mindset and high degree of conformity. It is an indicator of stability and internal integration. Adaptability refers to the capacity for internal changes in response to external conditions and Mission refers to long-term vision including components such as strategic direction and intent, goals and objectives and vision. (Denison et al., 2005).

2.3. Organizational Culture and Innovation

A small number of studies on the relationship between organizational culture and innovation among SMEs in Malaysia limit comprehensive understanding on the dynamic of organizational culture-innovation. In view of this limitation, most previous studies were derived from international repository. Perhaps, one of the most relevant studies is the one conducted by Valencia et al (2010). Using structural equation modeling to analyze 420 responses from organizations which have more than 25 employees in Southern Europe, they found product innovation is positively associated with adhocracy culture and has negative relationship with hierarchal cultures. Adhocracy culture characteristics include creativity, empowerment, freedom and autonomy and risk taking, which in essence parallel with Involvement dimension in Denison Model of Organizational Culture. As such, this study hypothesized that;

\[ H_I: \text{There is a significant relationship between Involvement and product innovativeness} \]

Valencia et al (2010) also found that product innovation is stimulated by organizational culture that embraces external and flexible orientation. Flexibility orientation is similar with Adaptability dimension of Denison model of organizational culture. Thus, this study postulated that;
**H2:** There is a significant relationship between Adaptability and product innovativeness

Bart (2004) asserts that mission is a critical starting point for enhancing firm innovativeness and has been linked with new product success. Thus, this study hypothesized that:

**H3:** There is a significant relationship between mission and product innovativeness

McShane et al. (2013) proposed a model of potential benefits and contingencies of culture strength which is labelled as Consistency in Denison’s model of organizational culture. Strong cultures would stimulate innovation if the culture content fits the environment and adaptive in nature. As such, it is hypothesized that;

**H4:** There is a significant relationship between consistency and product innovativeness

### 3. Methodology

#### 3.1. Data Collection and Sample

As the aim of this study is to examine the relationship between organizational culture and product innovation, a cross-sectional survey was viewed as most suitable based on positivism perspective. The data were collected through questionnaires distribution among SMEs’ owner-managers located at two industrial parks in Johor. The SME Corporation’s directory was used as the sampling frame. There are forty-three SMEs listed in these two parks. However, only thirty-six SMEs agreed to participate to provide a return rate of 83.7%. The small number of participating SMEs is expected as research participation in Malaysia remains low. Majority of SME’s owner-managers is male (58.3%), more than 34 years old (50%), Malay (61.1%) and with high school certificates (38.9%).

#### 3.2. Measures

Product innovation in this study was measured using sixteen self-developed items operationalized under four product innovation categories namely Incremental Improvements, Addition to Product Families, Next-Generation Products and New Core Products. This conceptualization of product innovation is used since most Malaysia SMEs use matured technologies whereby majority of their innovations come in forms of product innovations (Mazuki, et al, 2004). The Cronbach’s coefficient alpha was 0.942 which showed high inter-item consistency (Nunnaly, 1978). Exploratory factor analysis revealed Kaiser-Meyer-Olkin measure of sampling of 0.815, which is good (Hair et al, 2012). Bartlett’s test of sphericity was significant at $\chi^2 (120) = 525.852, p < 0.05)$. All item communalities were all above 0.5 which indicate that each item shared common variance with other items. However, rotated component matrix revealed three categories of product innovations rather than four as initially conceptualized. However, since the aim of this study is to measure product innovation, all items under each category were computed to yield composite score of product innovation.

Organizational Culture Survey (OCS) developed by Denison consists of four dimensions namely Involvement, Consistency, Adaptability and Mission. Each of the four dimensions is further characterized into three sub-dimensions. These sub-dimensions are then operationalized into sixty questions. The OCS uses a five-point Likert scale ranging from strongly disagreed to strongly agree. OCS was used in this research as it conceptualized performance-based organizational culture. The Cronbach’s coefficient alpha for OCS was 0.930. Confirmatory factor analysis was performed which yielded Kaiser-Meyer-Olkin measure of sampling of 0.864, which is good. Bartlett’s test of sphericity was significant at $\chi^2 (66) = 259.156, p < 0.05)$. With all item loading exceeded 0.5.

#### 4. Results

Table 2 shows the means, standard deviations, correlations coefficients for dimensions of organizational culture and product innovation.
Table 2: Descriptive Statistics and Correlations

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>OC</th>
<th>CS</th>
<th>AD</th>
<th>MS</th>
<th>INV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Org. Culture (Overall)</td>
<td>3.819</td>
<td>0.358</td>
<td>1.00</td>
<td>0.886**</td>
<td>0.895**</td>
<td>0.893**</td>
<td>0.416**</td>
</tr>
<tr>
<td>Consistency</td>
<td>3.687</td>
<td>0.437</td>
<td>1.00</td>
<td>0.700**</td>
<td>0.707**</td>
<td>0.652**</td>
<td></td>
</tr>
<tr>
<td>Adaptability</td>
<td>3.795</td>
<td>0.436</td>
<td>1.00</td>
<td>0.760**</td>
<td>0.619**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mission</td>
<td>3.841</td>
<td>0.460</td>
<td>1.00</td>
<td>0.580**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Involvement</td>
<td>3.959</td>
<td>0.308</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product Innovation</td>
<td>3.271</td>
<td>0.713</td>
<td>0.416**</td>
<td>0.373*</td>
<td>0.313</td>
<td>0.414*</td>
<td>0.342*</td>
</tr>
</tbody>
</table>

* p <0.05  ** p< 0.01
OC: Organizational Culture
CS: Consistency
AD: Adaptability
MS: Mission
INV: Involvement

The cumulative mean of organizational culture was 3.819 (SD=0.358) which was medium high. Consistent with previous studies on product innovation among SMEs (Abdullah et al., 2012), product innovation among participating SMEs was not encouraging and at varying levels (M= 3.271, SD=0.713). All dimensions of organizational culture except Adaptability were significantly correlated with product innovation with r values more than 0.3, which indicate practical significance (Cohen, 1988). The strongest significant correlation was product innovation and Mission, followed by Consistency and Involvement. Regression analyses yielded similar results as shown in Table 3. Thus H1, H3, and H4 were all rejected. These findings substantiate the importance of organization’s mission and vision formulation as foundation of competitive organizational culture. High involvement of employees is also imperative to ensure innovation activities are in line with organizational objective. The non-significant relationship between product innovation and adaptability, even though inconsistent with previous studies, was not unexpected. Scholars of organizational culture have cautioned that strong organizational culture might be antithesis of competitiveness, especially when the organizational culture is not adaptable to environmental changes.

Table 3: Results of Regression Analysis of Organizational Culture on Product Innovation

<table>
<thead>
<tr>
<th></th>
<th>R²</th>
<th>B</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mission</td>
<td>0.171</td>
<td>0.414</td>
<td>0.012*</td>
</tr>
<tr>
<td>Adaptability</td>
<td>0.098</td>
<td>0.313</td>
<td>0.063</td>
</tr>
<tr>
<td>Consistency</td>
<td>0.139</td>
<td>0.373</td>
<td>0.025*</td>
</tr>
<tr>
<td>Involvement</td>
<td>0.117</td>
<td>0.781</td>
<td>0.041*</td>
</tr>
</tbody>
</table>

* Significant at p < 0.05

5. Conclusion

Although organizational culture has been commonly examined as all-encompassing construct, this study has taken a different route by examining each dimension effect on product innovativeness. The reasoning behind this is simple. As most SMEs are limited in terms of their resources, knowing which dimensions of organizational culture that would further stimulate the product innovation would give them a competitive advantage. This study highlights the importance of incorporating innovation in organizational mission and vision, getting the commitment and involvement from employees in product innovation activities and organizational level consensus of product innovation. The insignificant effect of adaptability in this study indicates the need to further replicate this research in larger samples. Furthermore, this study used different conceptualization of organizational culture from previous studies. The cross sectional nature of the survey and the small number of participating SMEs posed significant limitations on the generalization of this finding. Despite these limitations, this study provides, to certain extent, support on the effects of organizational culture on product innovation. Therefore, development
programmes for entrepreneurs should incorporate culture-building skills to increase organizational competitiveness.

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