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Innovative low-cost strategy and firm performance of restaurants

The moderation of competitive intensity

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Abstract

Purpose – The purpose of this paper is to improve the appreciation of the moderating role of competitive intensity on the relationship between low-cost strategy and firm performance of restaurants.

Design/methodology/approach – The study uses empirical data collected from 118 restaurants operators, Ghana. The effects of relationships and the interaction of low-cost strategy and competitive intensity were tested using regression analysis.

Findings – The findings indicate the existence of a significant positive relationship between low-cost strategy and firm performance. The effect of competitive strategy on firm performance was found to be partially significant. The findings revealed that competitive intensity does moderate the relationship between low-cost strategy and firm performance of restaurants.

Practical implications – Implications of the findings for restaurant operators suggest that effective application of low-cost strategy and monitoring and managing competitive intensity results in high performance.

Originality/value – This study contributes to the existing literature on low-cost strategy, competitive intensity and firm performance. More specifically, the interaction terms of low-cost strategy and competitive intensity have been explored in this study and can be used for further investigations.

Keywords Innovation, Firm performance, Restaurants, Competitive intensity, Low-cost strategy

Paper type Research paper

Introduction

In spite of the importance of competitive strategies, research on the strategic activities of businesses in Ghana is now taking shape. Among the few studies focusing on Ghana, include Acquaah et al. (2008); Acquaah, (2011); Acquaah and Yasai-Ardekani (2008), Dadzie et al. (2013); Acquaah and Agyapong (2015), Amoako-Gyampah and Boye (2001); as well as
Acquaah et al. (2008). Agyapong and Boamah (2013) have also studied the competitive nature of the business environment and their effect on the performance of firms in the country. Unfortunately, previous studies do not converge on the individual effect of innovation low-cost strategies among firms in Ghana; although generally the significance of implementing coherent innovation strategies is supported by these extant studies. Gunday et al. (2011) stated that innovation assists service firms to reduce the cost of production and delivery as well as enhance quality features.

Additionally, Hilman and Kaliappen (2014) mentioned that innovation in the hospitality industry allows the organization to achieve economies of scale, reducing the cost and gain market share. Alegre and Berbegal-Mirabent (2016) found management, core and support process in the restaurant industry that requires innovations in managing the costs. Acquaah (2011) find that low-cost strategies have a strong positive effect on performance; Acquaah and Agyapong (2015), Dadzie et al. (2013) and Agyapong and Boamah (2013) found that strategic cost leadership does not extract strong effects on firm performance. Based on the inconsistency in the results, there is a need for further investigation.

Perhaps the major limitation of the extant studies is that they overly focus on manufacturing oriented SME’s, (Oyewobi et al., 2016). There is not enough literature focusing on the strategic behavior of small-scale restaurants in Ghana. Conner (1991) posits that generally, conventional strategic management applies theories including contingency theory and industrial organization theory to explain performance differentials among firms. However, within the restaurants’ sector, there is generally limited research employing these theories (Hoskisson et al., 1999). Also little is known about the effect competitive intensity has on the strategic actions of a restaurant in the country. The dynamic nature of the hospitality industry coupled with the changing trends within the global economic landscape makes it significant for restaurants to formulate and implement a proactive position that response to the changes (Flint et al., 2002). In addition, Smith and Bashaw (2009) explain that the distinguishing nature of the restaurant sector is its fragmentation and uniqueness, characterized by some outfits that enter continuously due to the liberalized market. In effect, such firms need an efficient business operational strategy balanced on the dynamic competitive environment to achieve superior performance. Unfortunately, little is known concerning how restaurants deploy their strategic actions and whether or not such actions are instigated by the intensely competitive market. Among the previous known studies examining the strategic behavior of firms in Ghana, only Acquaah (2011) attempted to control for the effect of competitive intensity. This work, therefore, attempts to close the gap in previous studies by focusing on the strategic actions of restaurants in Ghana. Specifically, the study investigates the performance of restaurants through the combined effects of innovative low-cost strategy and competitive intensity.

**Literature review and hypothesis development**

The conceptual framework of the study establishes a literature review of the path relationship between low-cost strategy, competitive intensity and firm performance. This leads to the development of the three study hypotheses.

*Low-cost strategy and firm performance*

Optimizing cost is significant in contemporary business operations, especially restaurants, since it is the foundation for maximization of profitability. Kraja and Osmani (2013) explained that low-cost strategies boost firm performance, mostly financial performance. Similarly, Dumbu and Chadamoyo (2012) confirmed that a positive relationship exists between low-cost strategy and operational and financial performance.
Torgovicky et al. (2005) stated that costs leadership strategies address operations, facilities, overhead, costs saving from experiences and being relatively prudent in areas such as R&D, salesforce, service, training and development. Thus, due to the returns that firms accrue by adopting cost-saving practices and technologies they can control prices that are closer to the industry average (Acquaah et al., 2010; Akingbade, 2014). With price-sensitive customers, they can capture a chunk of the market share leading to higher returns. Acquaah (2011) contend that cost leadership strategies are applied broadly by organizations in Ghana. This is because the revenues levels of most Ghanaians are very low; therefore, consumption decisions of most buyers are dependent on price and not quality (Amoako-Gyampah and Acquaah, 2008). As a result, once small-scale restaurants are more focused on customers within the informal sector, the application of a cost leadership strategy would be more relevant to their business than otherwise. It is therefore hypothesized that:

\[
H1. \text{ There is a positive relationship between low-cost strategy and firm performance.}
\]

*Competitive intensity and firm performance*

Murray et al. (2011) argue that as competition increases organizations become more aggressive to counter rivals. Zahra and Covin (1995) and Pearce and Robinson (2011) noted that rivalry implies the behavior that an organization’s competitors display in areas of controlling the industry by seeking, on a continuous process, to gain an advantage over the others. Such behavior is articulated based on the number of firms competing in such a market, nature of the technology used, product differentiation, competitive prices, value for money and provision of better services (Zúñiga-Vicente and Vicente-Lorente, 2006).

An organization is not likely to achieve its objectives when the managers fail to implement strategies required to effectively stand its competitors (Amoah-Mensah, 2016; Panayides, 2003). Grawe et al. (2009) argue that with high competitive intensity managements are always on the lookout for best ways to sustain or improve existing market share. Acquaah et al. (2008) find that competitive intensity results in high performance among firms in Ghana. This assertion further corroborated by Auh and Menguc (2005) and Dibrell (2007) who argue that generally, firms develop way-out to achieve targets due to the threat of deterioration in profitability as a result of firms passively operating in such a market. The study, therefore, hypothesizes that:

\[
H2. \text{ There is a positive relationship between competitive intensity and firm performance.}
\]

*Moderating of competitive intensity and low-cost strategy on firm performance*

The intensity of competition within an industry can serve as a motivation for firms to implement strategic actions. Literature suggests competition brings some level of uncertainty which inevitably affects business decisions. Acquaah et al. (2007) stress that in a fiercely competitive environment, firms that adopt a coherent competitive strategy are likely to succeed. That is intense competition motivates firms to aggressively utilize strategies actions to outplay rivals rather than being passive. Murray et al. (2011) also suggest firms cannot afford to be lethargic in a highly competitive environment. Those applying competitive strategies are projected to benefit from enhanced performance than organization doing the same when encountering less competition.
In Ghana, due to globalization consumer preferences are very high. Consumers are not only concerned about how good the food tastes but issues of the cost of food services is also paramount (Blankson et al., 2018). The increased number of new entrants and period fold up of existing restaurants coupled with the preferences of consumers justifies the need for implementing cost leadership strategy of small scale restaurants who have a relatively price conscious client base. Miller (1988) has also posited that the impact of business activities on performance is dependent on the nature of competitive intensity in the market. The dynamic level of the market influences the strategic operation to pursue. The study, therefore, hypothesizes that:

\[ H3. \text{ Competitive intensity moderates the relationship between low-cost strategy and firm performance.} \]

**Methodology**

*Population and sample issues*

The target population of the study was limited to restaurants in Ghana. Given the difficulty in collecting data and conducting research in the small-scale restaurant industry, a convenience sample was used as suggested in related research by Elbanna (2009). This sampling technique has been applied widely in similar studies in Ghana. Again, convenience sampling was used because of the difficulty of acquiring a full list of all the small-scale restaurants in the country to perform a random sampling procedure. A total number of 150 questionnaires were sent out, 118 of them were returned and used for the analysis representing a response rate of 79 per cent. Meanwhile, because this research focused on an organizational level unit of analysis; all the information required concerning operations of the restaurant were based on organizational unit.

The survey respondents were 84.7 per cent (representing 100 respondents) of the total sample were females whereas only 15.3 per cent (representing 18 out of 118) were males. The respondents were between the age brackets of 31-40 years representing 48.3 per cent. This is followed by the respondents who were between 21-30 years of age (representing 28.4 per cent of the total sample). The respondents who answered the survey questions were mostly owner-managers of their restaurants 47.5 per cent or managers who were also relatives to the founders 40 per cent. The proportion of respondents who held executive positions but were not related to the founders constituted only 12.5 per cent of the sample.

*Questionnaire development*

The survey questionnaire was designed based on the construct available from the extant literature. All the variables: low-cost strategy, competitive intensity and firm performance were measured using a seven-point Likert-scale, ranging from strongly agree to strongly disagree. Firm size, firm age and firm ownership were all included in the questionnaire as control variables.

*Low-cost strategy.* The low-cost strategy was measured using 11 items adapted from previous such as Dess and Davis (1984), Kim and Lim (1988) and Robinson and Pearce (1988). This was based on the information in the available literature. The items have been summarized as developing new services, segmenting the services, offering special services, Innovations in operations, and offering competitive prices.

*Competitive intensity.* The competitive intensity was measured using seven items. The instruments have also been used by Murray et al. (2011); Jaworski and Kohli’s (1993) and management researchers (Auh and Menguc, 2005) to study the moderating effect of
competitive intensity. These included frequency of change in customer demands, the degree of change in market structure, service innovation in the market, level of change in technology and radical changes in customer attitudes and unpredictability of encounters in the industry.

Firm performance. The items for financial performance were adopted and refined from the scale of Kokkinaki and Ambler (1999) and Shin and Lee (2016), resulting in 10 items. The items included sales volume, profit levels, growth in profitability, ROI, ROS, market share and growth in ROI. Operational performance (10 items) items were refined constructs from previous studies (Morgan and Turnell, 2003; Al Mamun and Fazal, 2018; Cho and Lee, 2018). The 10 items listed included flexibility in service delivery processes, consistency in providing the needs of customers, a variety of services, the time it takes to serve customers, nature of service to support customers’ resource utilization, cost of operation, reduced service failure, introducing new services and the ability to handle customer needs.

Control variables. To avoid model misspecification, control variables, firm size, firm age and firm ownership were included in the study. Firm size was measured based on the number of employees of the restaurants (Birley and Westhead, 1990; Sharma, 2000). Firm age was measured on how long the restaurants have been operating in the industry (Mata, 1994; Almus and Nerlinger, 1999). Firm ownership has an impact on performance (Randøy and Goel, 2003; Durand and Vargas, 2003) and was coded in the questionnaire as “1” sole proprietorship, “2” partnership and “3” family business.

Reliability and internal consistency of study variables
Cronbach’s alpha was used to evaluate the reliability of the various dimensions of the study variables. Hair et al. (2009) posit that a Cronbach Alpha value above 0.70 exhibits ‘acceptable’ reliability; above 0.80 is ‘good,’ and a value above 0.90 represents ‘excellent’ reliability. All the variables understudy loaded above the acceptable level, as suggested in the literature. The screening of the 7 items that measure competitive intensity recorded high 0.851. The low-cost strategy was acceptable with a Cronbach’s Alpha value for its 11 items at 0.782. Both financial and operational performance also recorded an accepted value. Ten items for financial performance dimensions recorded 0.811 and operational performance with 10 items recorded 0.712. The Variance Inflation Factors (VIF) values (Table III) indicated that there were no residual problems with the items used in measuring the firm performance.

Results
Descriptive and correlation analysis
A descriptive statistics and correlation statistics of the variables were performed (Tables I and II). Table I indicates that low-cost strategy is implemented widely within the restaurants industry. The mean score of 5.10 shows that the application of low-cost strategy is high among the small-scale restaurants. The mean score of 4.91 for competitive intensity suggests a highly competitive industry. The mean scores of firm performance components were high (Financial Performance = 5.00; Operational Performance = 5.21; and Overall Performance = 5.12). The mean values for the control variables; Firm ownership (2.02), firm age (10 years) and firm size (10 employees) were also recorded.

Table II reports the correlation statistics among the independent variables and the outcome variables. Low-cost strategy has a strong positive relationship with all the performance; operational (r = 0.552; p < 1 per cent), financial (r = 0.556; p < 1 per cent) and overall performance (r = 0.584; p < 1 per cent) of restaurants. Low-cost strategy is shown to have a significant positive correlation with competitive intensity (r = 0.456; p < 1 per cent).
Competitive intensity has a strong positive relationship with performance components: operational ($r = 0.495; p < 1$ per cent), financial ($r = 0.330; p < 1$ per cent) and overall performance ($r = 0.440; p < 1$ per cent). Firm size has a positive relationship with financial ($r = 0.296; p < 1$ per cent) and overall performance of the restaurants ($r = 0.196; p < 1$ per cent) but a weak relationship with operational performance ($r = 0.035; p > 10$ per cent). Firm size and low-cost strategy ($r = 0.143; p < 5$ per cent). Firm age and financial performance ($r = 0.163; p < 1$ per cent) operational performance ($r = 0.035; p > 10$ per cent) and overall performance ($r = 0.117; p > 10$ per cent). Firm ownership does not have strong relationship with all the performance indicators; financial performance ($r = 0.036; p > 10$ per cent), operational performance ($r = -0.001; p > 10$ per cent) and overall performance ($r = 0.03; p > 10$ per cent).

**Results and model estimation**

The hierarchical multiple regression technique was used to estimate the effect of the cost leadership strategy and competitive intensity on the performance of restaurants.

Table III reports the results of the model estimation involving the effect of cost leadership and competitive intensity on financial performance. Model 1 exhibits that among the control variables, only firm size has a significant positive effect on financial performance ($\beta = 0.041, p < 0.01$). The effect of firm age ($\beta = 0.006, p > 0.10$) and the ownership ($\beta = -0.062, p > 0.10$) have no influence on financial performance. The model fit, overall $R^2$ is 0.091 explains 9.1 per cent of the variations in financial performance. Model 2 firm size has a significant positive impact on financial performance ($\beta = 0.035, p < 0.01$). Firm age ($\beta = 0.001, p > 0.10$) and ownership ($\beta = -0.217, p > 0.10$). The effect of low-cost strategy on the financial performance of the restaurants ($\beta = 0.609, p < 0.01$) was significant according to model 2 results. The model fit $R^2 = 0.334$ shows that the model determines 33.4 per cent of

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-cost strategy</td>
<td>5.1027</td>
<td>0.98518</td>
</tr>
<tr>
<td>Competitive intensity</td>
<td>4.9144</td>
<td>1.00849</td>
</tr>
<tr>
<td>Operational performance</td>
<td>5.2106</td>
<td>0.91439</td>
</tr>
<tr>
<td>Financial performance</td>
<td>5.0036</td>
<td>1.19542</td>
</tr>
<tr>
<td>Overall performance</td>
<td>5.1246</td>
<td>0.95042</td>
</tr>
<tr>
<td>Firm ownership</td>
<td>2.02</td>
<td>0.457</td>
</tr>
<tr>
<td>Firm age</td>
<td>8.03</td>
<td>11.278</td>
</tr>
<tr>
<td>Firm size</td>
<td>10.15</td>
<td>8.201</td>
</tr>
</tbody>
</table>

**Table I.** Descriptive statistics

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firm ownership</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firm size</td>
<td>0.213**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firm age</td>
<td>0.01</td>
<td>0.386**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low-cost strategy</td>
<td>0.137*</td>
<td>0.143*</td>
<td>0.117</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Competitive intensity</td>
<td>-0.012</td>
<td>0.113</td>
<td>-0.005</td>
<td>0.456**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operational performance</td>
<td>-0.001</td>
<td>0.035</td>
<td>0.035</td>
<td>0.552**</td>
<td>0.495**</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial performance</td>
<td>0.036</td>
<td>0.296**</td>
<td>0.163**</td>
<td>0.526**</td>
<td>0.330**</td>
<td>0.639**</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Overall performance</td>
<td>0.03</td>
<td>0.196**</td>
<td>0.117</td>
<td>0.584**</td>
<td>0.440**</td>
<td>0.876**</td>
<td>0.931**</td>
<td>1.00</td>
</tr>
</tbody>
</table>

**Table II.** Correlation matrix

**Notes:** *Significant at the 0.05 level (two-tailed); **significant at the 0.01 level (two-tailed)
<table>
<thead>
<tr>
<th>Variables</th>
<th>Model 1a</th>
<th>Model 2a</th>
<th>Model 3a</th>
<th>Model 4a</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Beta (t-values)</td>
<td>Beta (t-values)</td>
<td>Beta (t-values)</td>
<td>Beta (t-values)</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>4.507 (19.40)***</td>
<td>1.736 (4.974)***</td>
<td>1.430 (3.624)***</td>
<td>1.292 (3.148)***</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>0.006 (0.847)</td>
<td>0.001 (0.231)</td>
<td>0.002 (0.399)</td>
<td>0.003 (0.475)</td>
<td>1.082</td>
</tr>
<tr>
<td>Ownership</td>
<td>−0.062 (−0.391)</td>
<td>−0.217 (−1.577)</td>
<td>−0.193 (−1.400)</td>
<td>−0.189 (−1.369)</td>
<td>1.207</td>
</tr>
<tr>
<td>Firm size</td>
<td>0.041 (4.239)***</td>
<td>0.035 (4.173)***</td>
<td>0.033 (3.987)***</td>
<td>0.033 (3.941)***</td>
<td>1.263</td>
</tr>
<tr>
<td>Low-cost (LC)</td>
<td>0.609 (9.675)***</td>
<td>0.556 (7.857)***</td>
<td>0.576 (7.931)***</td>
<td>0.576 (7.931)***</td>
<td>1.395</td>
</tr>
<tr>
<td>Competitive intensity (CI)</td>
<td>0.112 (1.642)</td>
<td>0.112 (1.636)</td>
<td>0.112 (1.636)</td>
<td>0.065 (1.213)</td>
<td>1.292</td>
</tr>
<tr>
<td>Low-cost × CI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.081</td>
</tr>
<tr>
<td>$R^2$-square</td>
<td>0.091</td>
<td>0.334</td>
<td>0.341</td>
<td>0.344</td>
<td></td>
</tr>
<tr>
<td>Δ$R^2$-square</td>
<td>0.091</td>
<td>0.243</td>
<td>0.007</td>
<td>0.004</td>
<td></td>
</tr>
<tr>
<td>$F$-statistic</td>
<td>8.604***</td>
<td>32.169***</td>
<td>26.444***</td>
<td>22.323***</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** ***$p < 0.01***
the variation in performance. The change in $R^2$ showing 72.75 per cent ($0.243/0.334 \times 100$) of the total predictive power of the model and determined 24.3 per cent of the total variations in performance of small-scale restaurants.

In model 3, firm size has a significant positive impact on financial performance ($\beta = 0.033, p < 0.01$). Firm age ($\beta = 0.002, p > 0.10$) and the ownership ($\beta = -0.062, p > 0.10$) have no influence on financial performance. The model fit, $R^2$ is 0.341 and explains 34.1 per cent of the variations in financial performance. Low-Cost has significant positive impact on financial performance ($\beta = 0.556, p < 0.01$). Competitive intensity has a positive but weak impact on financial performance ($\beta = 0.112, p > 0.10$) and a change in $R^2$, accounting for 2.05 per cent ($0.007/0.341 \times 100$) of the total predictive power of the model 3 and explains 0.7 per cent of the total variation in performance.

Model 4, competitive intensity and low-cost strategy do not have moderating influence on financial performance ($\beta = -0.065, p > 0.10$) and $R^2$ change of 0.004 exhibits that the predictive power of the model is 0.4 per cent.

Table IV captures the results specifying the impact of low-cost strategy on operational performance using four interconnected models. From model 1, firm size ($\beta = 0.003, p > 0.10$), firm age ($\beta = 0.002, p > 0.10$) and ownership ($\beta = -0.013, p > 0.10$) have a significant influence on operational performance. ($\beta = 0.021, p < 0.01$) with overall $R^2$ 0.002 (0.2 per cent) of the variation in operational performance.

Model 2 indicates that the implementation of low-cost strategy augments operational performance ($\beta = 0.527, p < 0.01$). The change in $R^2$ accounting for 99.32 per cent ($0.310/0.312 \times 100$) of the total predictive power of the model 2 and explains 31 per cent of the variation in operational performance. Firm-specific variables were however found not to have a significant impact on operational performance: firm size ($\beta = -0.002, p > 0.10$), firm age ($\beta = -0.002, p > 0.10$) and ownership ($\beta = -0.147, p > 0.10$).

In Model 3, competitive intensity has a strong influence on operational performance ($\beta = 0.278, p < 0.01$). The change in $R^2$ indicating 18.96 per cent ($0.073/0.385 \times 100$) of the total predictive power of the model and determined 7.3 per cent of the variation in operational performance. The impact of low-cost on operational performance ($\beta = 0.394, p < 0.01$) was found to be significant and $R^2$ 0.385 (38.5 per cent) of the variations in operational performance.

In model 4, the interactions of competitive intensity and low-cost strategy do not have a significant influence on operational performance ($\beta = -0.035, p > 0.10$). The effect of low-cost on operational performance of the restaurants ($\beta = 0.383, p < 0.01$) was found to be significant and positive. The results of the model show that competitive intensity has a strong positive impact on operational performance ($\beta = 0.297, p < 0.01$).

Table V, model 1 shows that firm size has a positive and significant impact on the overall performance ($\beta = 0.021, p < 0.01$). The effect of firm age ($\beta = 0.004, p > 0.10$) and ownership ($\beta = -0.019, p > 0.10$) were found not to have any effect on overall performance. The model fit $R^2$ is 0.040 (4 per cent) showing that the model determines 4 per cent of the variation in overall performance.

Model 2 results show that the inclusion of low-cost variable enhances the predictive power of the estimated model. The change in $R^2$ revealing 88.86 per cent ($0.319/0.359 \times 100$) of the total predictive power of the model 2 and determines 31.9 per cent of the total variations in overall performance. Meanwhile, the effect of low-cost on the overall performance ($\beta = 0.555, p < 0.01$) was found to be significant with the model fit $R^2$ 0.359 (35.9 per cent) of the variation in overall performance. Firm size was shown to have a significant positive impact on overall performance ($\beta = 0.015, p < 0.05$), firm age
### Table IV. Regression results – operational performance

<table>
<thead>
<tr>
<th>Variables</th>
<th>Model 1c Beta (t-values)</th>
<th>Model 2c Beta (t-values)</th>
<th>Model 3c Beta (t-values)</th>
<th>Model 4c Beta (t-values)</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>5.163 (27.73)***</td>
<td>2.768 (10.20)***</td>
<td>2.009 (6.893)***</td>
<td>2.084 (6.864)***</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>0.002 (0.361)</td>
<td>-0.002 (0.405)</td>
<td>0.001 (0.140)</td>
<td>0.002 (0.083)</td>
<td>1.082</td>
</tr>
<tr>
<td>Ownership</td>
<td>-0.013 (0.101)</td>
<td>-0.147 (1.371)</td>
<td>-0.087 (0.855)</td>
<td>-0.089 (0.877)</td>
<td>1.207</td>
</tr>
<tr>
<td>Firm size</td>
<td>0.003 (0.388)</td>
<td>-0.002 (0.374)</td>
<td>-0.006 (0.982)</td>
<td>-0.006 (0.946)</td>
<td>1.263</td>
</tr>
<tr>
<td>Low-cost (LC)</td>
<td></td>
<td>0.527 (10.756)***</td>
<td>0.394 (7.535)***</td>
<td>0.383 (7.124)***</td>
<td>1.385</td>
</tr>
<tr>
<td>Competitive intensity (CI)</td>
<td></td>
<td></td>
<td>0.278 (5.511)***</td>
<td>0.279 (5.514)***</td>
<td>1.292</td>
</tr>
<tr>
<td>Low-cost × CI</td>
<td></td>
<td></td>
<td></td>
<td>-0.035 (0.883)</td>
<td>1.081</td>
</tr>
<tr>
<td>( R^2 )</td>
<td>0.002</td>
<td>0.312</td>
<td>0.385</td>
<td>0.387</td>
<td></td>
</tr>
<tr>
<td>( \Delta R^2 )</td>
<td>0.002</td>
<td>0.310</td>
<td>0.073</td>
<td>0.002</td>
<td></td>
</tr>
<tr>
<td>F-statistic</td>
<td>0.154</td>
<td>29.091***</td>
<td>32.007***</td>
<td>26.779***</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** ***p < 0.01
<table>
<thead>
<tr>
<th>Variables</th>
<th>Model 1b</th>
<th>Model 2b</th>
<th>Model 3b</th>
<th>Model 4b</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Beta (t-values)</td>
<td>Beta (t-values)</td>
<td>Beta (t-values)</td>
<td>Beta (t-values)</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>4.84 (25.509)***</td>
<td>2.315 (8.509)***</td>
<td>1.779 (5.910)***</td>
<td>1.729 (5.512)***</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>0.004 (0.717)</td>
<td>-0.003 (-0.007)</td>
<td>0.002 (0.380)</td>
<td>0.002 (0.415)</td>
<td>1.082</td>
</tr>
<tr>
<td>Ownership</td>
<td>-0.019 (-0.144)</td>
<td>-0.160 (-1.488)</td>
<td>-0.118 (-1.117)</td>
<td>-0.116 (-1.100)</td>
<td>1.207</td>
</tr>
<tr>
<td>Firm size</td>
<td>0.021 (2.645)***</td>
<td>0.015 (2.339)***</td>
<td>0.013 (1.982)***</td>
<td>0.012 (1.955)**</td>
<td>1.263</td>
</tr>
<tr>
<td>Low-cost (LC)</td>
<td>0.019 (0.144)</td>
<td>0.160 (1.488)</td>
<td>0.118 (1.117)</td>
<td>0.116 (1.100)</td>
<td>1.207</td>
</tr>
<tr>
<td>Competitive Intensity (CI)</td>
<td>0.024 (0.573)</td>
<td>0.359</td>
<td>0.393</td>
<td>0.394</td>
<td>1.081</td>
</tr>
<tr>
<td>Low-cost × CI</td>
<td>0.019 (0.144)</td>
<td>0.160 (1.488)</td>
<td>0.118 (1.117)</td>
<td>0.116 (1.100)</td>
<td>1.207</td>
</tr>
<tr>
<td>R-Square</td>
<td>0.040</td>
<td>0.319</td>
<td>0.034</td>
<td>0.001</td>
<td></td>
</tr>
<tr>
<td>ΔR-Square</td>
<td>0.040</td>
<td>0.319</td>
<td>0.034</td>
<td>0.001</td>
<td></td>
</tr>
<tr>
<td>F-statistic</td>
<td>3.627**</td>
<td>36.065***</td>
<td>33.135***</td>
<td>27.595***</td>
<td></td>
</tr>
</tbody>
</table>

Notes: ***p < 0.001; **p < 0.05; *p < 0.10
(\(\beta = -0.003, p > 0.10\)) and the ownership (\(\beta = -0.160, p > 0.10\)) have no influence on overall performance.

Model 3, indicate that competitive intensity has a strong influence on the overall performance (\(\beta = 0.197, p < 0.01\)) and the change in \(R^2\) indicating 8.65 per cent (0.034/0.393 \times 100) of the total predictive power of the model and determined 3.4 per cent of the variation in the overall performance. The effect of low-cost on the overall performance (\(\beta = 0.461, p < 0.01\)) was found to be significant. Firm size (\(\beta = 0.013, p < 0.05\)) was shown to have a significant effect on overall performance but firm age (\(\beta = 0.002, p > 0.10\)) and the ownership (\(\beta = -0.118, p > 0.10\)) have no influence on overall performance.

Model 4, competitive intensity and low-cost strategy do not have moderating influence on overall performance (\(\beta = 0.024, p > 0.10\)) and the change in \(R^2\) indicating 0.25 per cent (0.001/0.394 \times 100) of the total predictive power of the model and explain 0.1 per cent of the variation in overall performance. Meanwhile, the effect of low-cost strategy on the overall performance (\(\beta = 0.469, p < 0.01\)) was found to be significant. Competitive intensity has a strong positive impact on overall performance (\(\beta = 0.197, p < 0.01\)). Meanwhile, the effect of firm size was also found to be significant on overall performance (\(\beta = 0.012, p < 0.10\)).

**Evaluation of hypothesis testing and discussion of results**

Based on the results of the regression analysis, it can be summarized that the pursuit of low-cost strategies augments the performance of restaurants in Ghana. Performance of a restaurant implementing a low-cost strategy is expected to be enhanced (Cadogan et al., 2003). Thus, \(H1\) which states low-cost strategy is positively related to firm performance is supported. This is consistent with the results of the empirical studies on Ghana; including the studies of Acquaah et al. (2008) and Duran and Akci (2015).

Furthermore, it was shown that competitive intensity has a positive relationship with performance (Auh and Menguc, 2005). However, the level of impact is mixed. It is shown that whereas competitive intensity has a strong and positive effect on operational (\(\beta = 0.279, p < 0.01\)) and overall performance (\(\beta = 0.197, p < 0.01\)), its effect on financial performance was rather insignificant (\(\beta = 0.112, p > 0.10\)). Based on this \(H2\) which stated that competitive intensity has a positive influence on restaurant performance is partially supported. Mahmoud (2010) found that competitive intensity influence performances of small and medium scale enterprises in Ghana; and found that competitive intensity has a strong positive influence on business performance (Langerak, 2003). The findings of this current study reveal that the effect of competitive intensity is likely to enhance overall performance through its impact on operational performance (Grawe et al., 2009) but not through financial performance; as it effects on financial performance is weak.

**Table VI. Hypotheses test results**

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Statement</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>(H1)</td>
<td>There is a positive relationship between low-cost strategy and firm performance</td>
<td>Supported</td>
</tr>
<tr>
<td>(H2)</td>
<td>There is a positive relationship between competitive intensity and firm performance</td>
<td>Partially supported</td>
</tr>
<tr>
<td>(H3)</td>
<td>Competitive intensity moderates the relationship between low-cost strategy and firm performance</td>
<td>Not Supported</td>
</tr>
</tbody>
</table>
Finally, all three model estimations consistently proved that the interaction of competitive intensity and low-cost strategy does not impose any significant influence on the performance of small scale restaurants industry. The result, therefore, does not provide adequate evidence to support $H3$ which states that competitive intensity moderates the relationship between low-cost strategy and performance. Table VI provides a summarized result of hypotheses testing.

**Managerial implications**

In practical terms, the result reminds operators of restaurants the significance of low-cost strategy as well as designing programs to improve their competitiveness. Restaurant operators should notice the important role innovative low-cost strategy plays in further shaping their operational and financial performance (Campbell-Hunt, 2000). This research findings exhibit that competitive intensity does not strengthen the positive effects of low-cost strategy on firm performance. However, the fact that the competitive intensity alone contributes to firm performance points to strong internal capabilities in the restaurant industry (Acquaah and Yasai-Ardekani, 2006; Bowman and Ambrosini, 1997). Significantly, for the restaurant industry, the dimensionality of competition can still not be underestimated even though it has statistically shown that it has no role in performance outcomes.

This finding suggests that managers of restaurants can build strong organizational capabilities in the direction of achieving low-cost leadership and competitiveness. For instance, they can be involved in innovative competitive strategies such as sustainable customer-focused activities, structuring and improving brand or organizational identification, delivering a broad range of products or services, emphasizing controls of operations and overhead costs, improving existing customer service. The control of operating and overhead cost involved in these internal activities would help managers of the restaurants to appreciate the effort towards building organizational capabilities for low-cost strategies aimed at achieving competitiveness in the industry.

**Conclusion**

The purpose of this study was to investigate the effects of innovative low-cost strategies and competitive intensity on performance of restaurants in Ghana. Based on the study results, it can be concluded that the pursuit of low-cost strategy is extremely relevant to restaurants in Ghana. Concerning the effect of competitive intensity, it is observed that though it is positively related to all the performance indicators, the strength of the impact is weak in terms of financial performance. The effect of the relationship supports the findings Cadogan et al. (2003).

Though competitive intensity has been widely acknowledged to have a positive influence on firm performance, we can conclude per the findings of this current study that the effect of competitive intensity on firm performance is possible through its effect on operational performance rather than through financial performance. Competitive intensity is found not to statistically moderating the relationship between low-cost strategy and performance and is found not to support the findings of Slater et al. (2006). This implies that the effectiveness of the low-cost strategic activities of the restaurants is immune to the level of competition in the market. That is whether competition increases or decreases, so far as the restaurant is found to pursue the appropriate strategic actions, it is guaranteed to survive and become relevant in the market.


Further reading

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Exploring entrepreneurial characteristics among university students: an evidence from India

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Faculty of Commerce, Aligarh Muslim University, Aligarh, India

Abstract

Purpose – The purpose of this paper is to explore the entrepreneurial characteristics among university students in India studying business and also comparing the levels of entrepreneurial characteristics between entrepreneurially inclined and entrepreneurially not inclined students.

Design/methodology/approach – In this study, the authors included six entrepreneurial characteristics, namely, risk taking propensity, innovativeness, locus of control, need for achievement, general self-efficacy and tolerance for ambiguity to define the entrepreneurial profile of students. Convenient sampling was used for collecting the data using a seven-point Likert scale based on 38-items self-administered questionnaire. Data were collected from three universities of different cities, namely, Aligarh Muslim University, Aligarh, CSJM University, Kanpur and KMCUAF University, Lucknow. In total, 300 questionnaires were distributed in each of the universities, and 719 questionnaires were found statistically suitable for the study. Students were asked the question “What career option are you planning to choose after completing your graduation?” to know the inclination of the students.

Findings – Results of the t-test confirmed that levels of all the entrepreneurial characteristics are higher in entrepreneurially inclined students when compared to entrepreneurially not inclined students except in terms of general self-efficacy. Thus, entrepreneurially inclined students carry higher risk taking propensity, innovativeness, locus of control, need for achievement and tolerance for ambiguity.

Research limitations/implications – This study is confined only to undergraduate students from business background, and only three universities were included in the sample. Further research can be done taking students from different streams, namely, engineering, science and technology and arts etc. University-wise studies can also be conducted with the view to bring comparability among the students in terms of levels of entrepreneurial characteristics based upon the inclination shown.

Practical implications – This research provides the deeper understanding about what course contents are effective in developing entrepreneurial characteristics among the students and what are to be added with the view to raise potential entrepreneurs.

Originality/value – This paper contributes to establishing the differences across different entrepreneurial characteristics between entrepreneurially inclined and non-inclined undergraduate students.

Keywords Entrepreneurship, Entrepreneurial inclination, Entrepreneurial characteristics, India, Students, University

Paper type Research paper

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Introduction
Entrepreneurship is considered as a phenomenon which has been talked about most in recent times. Among the researchers, immense urge for researching the entrepreneurship phenomenon has been sensed across the globe not only due to its inevitable significance in fostering the economy and creating employment opportunities but also for product and market innovation (Mueller and Thomas, 2000; Jack and Anderson, 1999). Moreover, its role is accepted as more expository within a developing economy such as India for it is considered to acting like an engine to the progress of an emerging economy. Hence, in India, new venture creation is widely being promoted the government and policymakers to trigger the economic growth.

As, among the academicians and researchers, the interest for the entrepreneurship research has extensively been witnessed widespread and is one of the world’s fastest-growing economies, Indian government has also undertaken several initiatives and instituted policy measures to foster a culture of innovation and entrepreneurship in the country. Employment generation is a prime challenge that India is facing at present. India, however with a rich, resourceful and unique geographic and demographic advantage, has huge potential to innovate and raise entrepreneurs with the view to generating employment for others thus befitting the nation’s economy.

Indians rate entrepreneurship as secondary career option and show more inclination to public and private sector salaried jobs when compared to factor-driven economies. For many years, the Global Entrepreneurship Monitor (GEM) have confirmed in their international reports that entrepreneurial initiatives/activities in India are impelled by necessities. The rate of Total Early-stage Entrepreneurial Activity (TEA) in India is 10.6 per cent, quite below than the average (16.8 per cent) of all factor-driven economies. Further in the GEM India report 2017-2018, Total Early-stage Entrepreneurial Activity (TEA) has further declined to 9.3 per cent. In fact, the TEA rate of India is found to be the third lowest among all the factors-driven economies. India’s rank is first with 28 per cent level of innovation among the factor-driven nation. Where, in average the innovation-driven economies exhibit a level of 31 per cent for innovation, thus being a factor driven economy, India’s level of innovation is not much below as compared to average level of innovation among innovation-driven nations (Herrington and Kew, 2016; Shukla et al., 2019).

In the past few years, several support programs and schemes have been introduced by the Indian government to bring the innovation through fostering entrepreneurship across various sectors. From engaging with academic researchers, industries, experts, investors, SMEs, NGOs to the most disadvantaged and underprivileged parts of society.

After going through the literature on entrepreneurship, it has now become evident that majority of the researchers have paid their attention on adult entrepreneurs. As people are more likely to enter into entrepreneurial activities between the age ranging from 25 to 44 years (Ahmad, 1974). It is also important to concentrate on the people with the age of less than 25 years and understand whether having an inclination toward entrepreneurship positively affects the level of entrepreneurial characteristics among people. In the present study, the age of respondents ranges between 17 and 24 years. From the entrepreneurship literature, it is also found that not a single study had been conducted which has measured the entrepreneurial characteristics among university students and tried establishing a difference in levels of characteristics between entrepreneurially inclined and not inclined groups in the Indian context. The primary objective of this manuscript is to measure the entrepreneurial characteristics of university students and comparing these characteristics between entrepreneurially inclined and not inclined groups.
To investigate entrepreneurship, we need to identify the factors that impact entrepreneurial conduct. Those factors could be related to individuals, society or environment. The Social Model examines the demographic profiles and social background i.e. background of both individual as well as of a family, status of the career (Robinson et al., 1991; Alstete, 2002; Green et al., 1996), life experiences and opportunities available for the growth (Gibb, 1993). On the other hand, the Environmental Model examines contextual factors such as financial status, tax redemptions and other benefits, market conditions (Alstete, 2002), social turmoil and propitious socio-economic environment (Green et al., 1996).

While the factors related to individuals, generally known as the traits model, concentrate on customized entrepreneurial qualities (Chye Koh, 1996). This model is based on the supposition that entrepreneurs possess some exceptional characteristics, own such orientation and values which create an inducement for them thus differentiate them from others (Thomas and Mueller, 2000; Chye Koh, 1996). Some of the previous studies used the characteristic model focusing on the basic queries such as; who become entrepreneurs, why people think of becoming entrepreneur and what qualities do successful entrepreneurs possess (Bygrave and Hofer, 1991; Littunen, 2000). This model has been an important component of entrepreneurial research. Several studies have examined various personality traits and established them as its attributes. For example, in the study conducted by Entrialgo et al. (2000) locus of control, need for achievement and tolerance of ambiguity are considered potential as determinants of the propensity for entrepreneurship. As opposed to this, the research by Stewart et al. (1998) mentions the need for achievement, innovation and risk-taking propensity to be the traits of entrepreneurs, thus distinguishing them from “corporate managers” and “small business owners”.

**Review of literature and hypotheses development**

In their study, authors have used six personality attributes of the university students, namely, risk-taking propensity, innovativeness, the locus of control, need for achievement, general self-efficacy and tolerance of ambiguity to assess the levels of entrepreneurial characteristics. These attributes were chosen based on their repeated citations in studies on entrepreneurship, and the belief of various authors that these attributes correctly represent the entrepreneurial behavior of an individual. However, it is interesting to note that the general results of the researches conducted on these attributes are yet to be concluded. The present literature both supports and counters the interrelatedness the attributes mentioned below. Complexities regarding methodology, definitions and concepts are viewed as key reasons for the contrast (Stewart et al., 1998; Robinson et al., 1991).

**Risk taking propensity**

Risk taking propensity is considered as the capacity of an individual to take or avoid risks when posed against perilous situations. Entrepreneurship may verifiably be connected with risk-taking. For a standout amongst the earliest examples, Cantillon (1755), demonstrates that the differentiating factor between employed workers and entrepreneurs is the ability of the latter to assume uncertainty and risk (Entrialgo et al., 2000; Thomas and Mueller, 2000). Especially what maybe accentuated reason for distinguishing the entrepreneurs from professional managers is that the entrepreneurs themselves take the risk of profit or loss. Also because of unpredictable and uncertain environment, they undertake the risk related to financial concerns, opportunities for the career, family and other relations, psychic welfare (Erdem, 2001; Brockhaus, 1980; Littunen, 2000). Thus, practical judgment skills might recommend that taking risks should not be neglected by entrepreneurs. Literature also supports that entrepreneurs show higher propensity for taking risks when compared to
other people (Cho and Lee, 2018; Cromie, 2000; and Thomas and Mueller, 2000; Teoh and Foo, 1997). Thus our first hypothesize is as follows:

\[ H1. \] Entrepreneurially inclined students will show high risk-taking propensity than entrepreneurially not inclined students.

**Innovativeness**

Innovativeness needs a thorough definition which includes the will to make different products or offer superior quality using latest production techniques, identifying the ways enter into new markets, establishing timely sources of supply, or set up a framework for new business venture. To achieve successful innovation a leadership has to be carried through a strong willpower (Hansemark, 1998). Innovativeness is considered as a must-have characteristic among the entrepreneurs as entrepreneurs always explore for further opportunities (Zacharakis, 1997; Entrialgo et al., 2000). Drucker also advocated innovativeness as crucial trait within an entrepreneur which will facilitate the systematic search for required changes within the markets to be met with new ideas and products (Cromie, 2000; Utsch and Rauch, 2000). In similarity with the available literature of different researchers from the entrepreneurial research arena, Stewart et al. (2003) contend that innovativeness is an ingrained part of entrepreneurship and differentiates “entrepreneurs” from “managers”. In their study, Utsch and Rauch (2000) found that there might be a close correlation between performance of the venture and innovativeness. Furthermore, Thomas and Mueller (2000) put forward that innovativeness has been taken as a prime measure when it comes to characterization of the entrepreneurship profile. Hence we frame our second hypothesis as follows:

\[ H2. \] Entrepreneurially inclined students will show more innovativeness than entrepreneurially not inclined students.

**Locus of control**

Out of all the characteristics extensively scrutinized, locus of control (LoC) is another trait. It is an identity variable that is identified with the summed up the desires of a man whether he has the capacity to control life situations (Leone and Burns, 2000). As stated by Rotter (1966) in terms of how many personal obligations they recognize and acknowledge for their conduct and outcomes. People with external LoC think that situations beyond their immediate control such as luck, destiny, fortune and other people have influence on their performance over a range of tasks. While people with internal LoC consider that they themselves control the outcomes and occasions (Chye Koh, 1996; Riipinen, 1994; Hansemak, 1998). It is widely accepted that entrepreneurs seeking newer business opportunities and forming an innovative attitude are supposed to be equipped with the quality “internal locus of control”. A large number of studies have also confirmed this notion (Mueller and Thomas, 2000; Hansemak, 1998; Chye Koh, 1996; Utsch and Rauch, 2000). For instance, Gilad (1982), in their study, successfully used LoC to differentiate between successful and unsuccessful small business owners (Engle et al., 1997). Also in Sharpero’s study, the inference points that entrepreneurs have generally higher locus of inner control when compared to non-entrepreneurs (Thomas and Mueller, 2000). In summary we can propose our third hypothesis:
H3. Entrepreneurially inclined students will have more locus of control than entrepreneurially not inclined students.

Need for achievement
McClelland’s (1961) theory on the need for achievement stands-out the most with respect to its application on entrepreneurship. As stated by its customary definition, the need for achievement is the stimulus that prompts an individual to struggle for the success until it is achieved (Sagie and Elizur, 1999). Persons with a strong desire for the need to achieve are those who want to be problem solvers, target setters and working towards them through their own endeavor, exhibit high execution in challenging tasks and are unconventionally imaginative while searching for different approaches their performance improvement (Littunen, 2000; Utsch and Rauch, 2000). Murray (1938) recognized the need for achievement as the most fundamental need that affects behavior. By establishing a construct in the entrepreneurial literature McClelland posited that a highly achievement motivated person is more likely to enter into the entrepreneurial world with the view to attain more of achievement satisfaction that he could attain from other career options (Entrialgo et al., 2000; Stewart et al., 2003). With the number of comparative studies based on entrepreneurs and non-entrepreneurs, it can be opined that the need for achievement has the most crucial connection with the entrepreneurship over other qualities existing in current the literature (Hansemek, 1998; Littunen, 2000). Thus, we have our fourth hypothesis as follows:

H4. Entrepreneurially inclined students will rate need for achievement higher than entrepreneurially not inclined students.

General self-efficacy
Self-efficacy has been studied substantially in organizational research (Bandura, 1997; Gist and Mitchell, 1992; Stajkovic and Luthans, 1998) and is generally defined as “One’s own belief in one’s own capabilities when posed with some situations which demand mobilizing the motivation, cognition and modus operandi” (Arafat et al., 2018; Wood and Bandura, 1989). In various researches it has been found that self-efficacy foresees the outcomes of several related works, including attitudes related to jobs (Saks, 1995), training prowess (Martocchio and Judge, 1997) and performance related job execution (Stajkovic and Luthans, 1998). Bandura (1986, 1997) in their social cognitive theory believed that self-efficacy varies on three dimensions:

1. level or magnitude (difficulty level of a particular task);
2. strength (level of certainty to be successful while performing the task with a particular level of difficulty); and
3. generalization (the coverage of generalization across situations and tasks pertaining to the belief in strength and magnitude).

Entrepreneurs are generally supposed to be having higher self-confidence when comrade to others because they neck out and take up some challenging tasks and complete them successfully which seem to be unlikely if they lack in confidence. In the entrepreneurial literature, it is has been claimed that entrepreneurs carry relatively a higher degree of self-confidence in comparison to others (Chye Koh, 1996; Robinson et al., 1991). Thus, this notion allows us to frame our fifth hypothesis as follows:
H5. Entrepreneurially inclined students will show higher general self-efficacy than entrepreneurially not inclined students.

Tolerance of ambiguity
Unpredictability is a situation which cannot be organized due to availability of inadequate data. The ability to tolerate ambiguity is reflected in ways a person reacts to vague and unfavorable situations. When an individual agrees with inconsistent data and trusts himself, his tolerance is side to on higher side (Teoh and Foo, 1997). On the contrary, people having low levels of tolerance are found to be more uncomfortable when put against dubious and unstructured circumstances and try to avoid being in such situations. The tolerance can be adequately conceptualized as an individual’s inclination towards taking chance while taking decisions. Entrepreneurial managers are better at tolerating ambiguity than conservative managers, as the entrepreneurial ones constantly face unstructured, more uncertain circumstances, and ultimately are held responsible for their choices (Entrialgo et al., 2000). Entrepreneurial behavior firmly sticks with risk and uncertainty, as decisions of the entrepreneurs result in innovative and original actions (Cromie, 2000; Teoh and Foo, 1997 and Chye Koh, 1996). Teoh and Foo (1997) also pointed out numerous researches that suggest that the entrepreneurs tend to be having greater capability to tolerate and handle ambiguous situations. Hence, we can propose our sixth hypothesis as follows:

H6. Entrepreneurially inclined students will have more tolerance of ambiguity than entrepreneurially not inclined students.

Research design and methodology
In this study, researchers have focused on analyzing the entrepreneurial characteristics of university undergraduate students based on presumption that few certain entrepreneurial characteristics urge people to become entrepreneurs thus discerning them as potential future entrepreneurs. For this purpose, data sample of 719 students was collected from three different universities of three different cities in India. With the support of available literature, where it has been confirmed that university students are potential future entrepreneurs, authors have used the data collected from undergraduate students of business, ranging between 17 and 24 years of age (mean age = 19.21), from three different universities, namely, Aligarh Muslim University, CSJM University and KMCUAF University. Of these three universities, first one is a central government university, while other two are state government universities. Before going for final survey we also conducted a piloting survey on 79 students. For the final survey, convenience sampling technique was used because it has been used widely in many entrepreneurial researches (Krueger et al., 2000; Liñán and Chen, 2009) and 300 questionnaires were distributed in each of the above-mentioned universities among both male and female students. Out of total 900 administered questionnaires in all three universities, 776 questionnaires were returned by respondents and of them 57 were found with some discrepancies and eliminated thus forming a final sample size of total 719 students (Table I).

Research instrument
Adopting the scales on the constructs from relevant entrepreneurship literature, a self-structured questionnaire was framed on seven-point Likert like scale ranging from rating 1 (lowest) to rating 7 (highest) and used for collecting data which was divided into two parts. In the first part, questions related to demographic profile and knowing the entrepreneurial
inclination of the respondent were asked. For knowing the inclination of the students a question “What career option are you planning to choose after completing your graduation?” was posed which was followed by three statements regarding career options choice, namely, “I am planning to choose entrepreneurship as my career,” “I am planning to work as a salaried employee in private sector” and “I am planning to work as a salaried employee in public sector”. While second part of the questionnaire consist of variables to measure characteristics; risk-taking propensity, Innovativeness, locus of control, need for achievement, general self-efficacy and tolerance of ambiguity which are considered to be crucial for discerning between entrepreneurial and non-entrepreneurial inclination. In this part of the questionnaire, total 38 statements were posed; five items for risk-taking propensity, eight items for innovativeness, eight items for locus of control, five items for need for achievement, six items for general self-efficacy and six items for tolerance for ambiguity. Out of total 38 statements 15 negative statements were also used and intermixed with other statements and were reverse coded at the time of feeding the data into SPSS 21 with a view to minimize the bias of the responses (Nunnally and Bernstein, 1978; Schriesheim and Eisenbach, 1995). Table II shows the lists of the items used in the questionnaire along with their sources of adoption.

Results
Exploratory factor analysis and Cronbach’s alpha reliabilities
Exploratory factory analysis was used to determine whether indicators adopted from different published and widely accepted scales are loading under their respective variables or not. For the of purpose extraction of the factors, authors have used principal axis factor method with varimax rotation method. Results of exploratory factor analysis showed loadings above 0.4 for all the indicators coming under each factor and average loadings above 0.6 for each factor which is found to be significantly satisfactory for a sample size above 350 (Hair et al., 2012). To test the internal consistency and reliability of the subscales, Cronbach’s alpha was used. Values mentioned in parentheses are the reliabilities of Cronbach’s alpha. Reliabilities for all the subscales have been found above 0.70 thus showing that all the subscales are having internal consistency and measuring the same concept (Table III).

Descriptive statistics of samples and variables
Out of total 719 respondents 305 students showed “entrepreneurial inclination” while rest 414 students were found “not inclined” toward entrepreneurship. Only 111 female students (33.43 per cent) evinced entrepreneurial inclination out of total 332 female students while on the other hand 194 male students (50.13 per cent) confirmed their entrepreneurial inclination as compared to total 387 male students. With the purpose of knowing whether parent’s occupation influences the student’s inclination or not, a question was posed to know the father’s occupation of the respondents. 302 students turned up with parents’ entrepreneurial or self-employed occupational background, of them 128 students (42.38 per cent) showed

<table>
<thead>
<tr>
<th>University name</th>
<th>Sample size</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aligarh Muslim University</td>
<td>216</td>
<td>118</td>
<td>98</td>
</tr>
<tr>
<td>CSJM University</td>
<td>274</td>
<td>153</td>
<td>121</td>
</tr>
<tr>
<td>KMCUAF University</td>
<td>229</td>
<td>113</td>
<td>116</td>
</tr>
<tr>
<td>Total</td>
<td>719</td>
<td>384</td>
<td>335</td>
</tr>
</tbody>
</table>

Table I. Data sample synthesis
<table>
<thead>
<tr>
<th>Construct name with items</th>
<th>Source of adoption</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Risk taking propensity (Five items)</strong></td>
<td></td>
</tr>
<tr>
<td>1. I am willing to take higher risks for higher returns</td>
<td>Chye Koh (1996)</td>
</tr>
<tr>
<td>2. I do not care if the profit is small for a long time provided it is assured and constant*</td>
<td></td>
</tr>
<tr>
<td>3. I never fear moving into a new undertaking, I know nothing about</td>
<td></td>
</tr>
<tr>
<td>4. I prefer to avoid any risk situation at all costs*</td>
<td></td>
</tr>
<tr>
<td>5. I prefer a business that offers high returns with high risks over a secured job with steady salary</td>
<td></td>
</tr>
<tr>
<td><strong>Innovativeness (Eight items)</strong></td>
<td></td>
</tr>
<tr>
<td>1. I often surprise people with my novel ideas</td>
<td>Jackson's (1994)</td>
</tr>
<tr>
<td>2. I prefer the work that requires original thinking</td>
<td>Personality Inventory</td>
</tr>
<tr>
<td>3. I like the job which demands skill and practice rather than innovativeness*</td>
<td></td>
</tr>
<tr>
<td>4. I obtain more satisfaction from mastering a skill than coming up with a new idea*</td>
<td></td>
</tr>
<tr>
<td>5. I like to experiment with various ways of doing the same thing</td>
<td></td>
</tr>
<tr>
<td>6. I usually continue doing a job in exactly the way it was taught to me*</td>
<td></td>
</tr>
<tr>
<td>7. Nothing gets accomplished in this world unless you stick to some basic rules*</td>
<td></td>
</tr>
<tr>
<td>8. Sometimes I rather enjoy going against the rules and doing things I'm not supposed to do</td>
<td></td>
</tr>
<tr>
<td><strong>Locus of control (Eight items)</strong></td>
<td></td>
</tr>
<tr>
<td>1. My life is determined by my own actions</td>
<td>Levenson (1974)</td>
</tr>
<tr>
<td>2. I feel in control of my life</td>
<td></td>
</tr>
<tr>
<td>3. I feel that what happens in my life is mostly determined by people in powerful positions*</td>
<td></td>
</tr>
<tr>
<td>4. To a great extent my life is controlled by accidental happenings*</td>
<td></td>
</tr>
<tr>
<td>5. When I get what I want, it is usually because I worked hard for it</td>
<td></td>
</tr>
<tr>
<td>6. When I get what I want, it is usually because I am lucky*</td>
<td></td>
</tr>
<tr>
<td>7. My success depends on whether I am lucky enough to be in the right place at the right time*</td>
<td></td>
</tr>
<tr>
<td>8. Whether or not I am successful in life depends mostly on my ability</td>
<td></td>
</tr>
<tr>
<td><strong>Need for achievement (Six items)</strong></td>
<td>Chang et al. (2007)</td>
</tr>
<tr>
<td>1. Achievement is more important than material or financial reward</td>
<td></td>
</tr>
<tr>
<td>2. Achieving the aim or task gives greater personal satisfaction than receiving praise or recognition</td>
<td></td>
</tr>
<tr>
<td>3. Financial reward is regarded as a measurement of success*</td>
<td></td>
</tr>
<tr>
<td>4. Achievement-motivated people constantly seek improvements and ways of doing things better</td>
<td></td>
</tr>
<tr>
<td>5. Achieving the aim and task brings more financial reward than praise or recognition*</td>
<td></td>
</tr>
<tr>
<td>6. Achieving the aim and task is regarded as a measurement of success</td>
<td></td>
</tr>
<tr>
<td><strong>General self-efficacy (Six items)</strong></td>
<td>Chye Koh (1996)</td>
</tr>
<tr>
<td>1. I will be able to achieve most of the goals that I have set for myself</td>
<td></td>
</tr>
<tr>
<td>2. When facing difficult tasks, I am certain that I will accomplish them</td>
<td></td>
</tr>
<tr>
<td>3. I am confident that I can perform effectively on many different tasks</td>
<td></td>
</tr>
<tr>
<td>4. Even when things are tough, I can perform quite well</td>
<td></td>
</tr>
<tr>
<td>5. Compared to other people, I can do most tasks very well</td>
<td></td>
</tr>
<tr>
<td>6. In general, I think that I can obtain outcomes that are important to me</td>
<td></td>
</tr>
<tr>
<td><strong>Tolerance of ambiguity (Six items)</strong></td>
<td>Kirton (1981)</td>
</tr>
<tr>
<td>1. I like to fool around with new ideas, even if they turn out later to be a total waste of time</td>
<td></td>
</tr>
<tr>
<td>2. Practically every problem has a solution</td>
<td></td>
</tr>
<tr>
<td>3. A problem has little attraction for me if I don’t think it has a solution*</td>
<td></td>
</tr>
<tr>
<td>4. I don’t like to work on a problem unless there is a possibility of coming out with a clear-cut and unambiguous answer*</td>
<td></td>
</tr>
<tr>
<td>5. I have the adaptability to every unpleasant social situation</td>
<td></td>
</tr>
<tr>
<td>6. I get pretty anxious when I’m in a social situation over which I have no control*</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** *Items marked with an asterisk are negative statements and reverse coded during analysis
their entrepreneurial inclination. This finding of the results shows that in India, parents’ entrepreneurial occupational background does only moderately lead to entrepreneurial inclination among the students.

**Correlations**

Results of correlation have been given in Table IV. All the variables are fairly correlated with each other at 0.01 level. The highest correlation of 0.62 was observed between tolerance of ambiguity and innovativeness, while the lowest correlation of 0.313 was found between general self-efficacy and risk-taking propensity.
Testing of hypotheses
As this manuscript aims to investigate the mean differences within the variables based upon entrepreneurial inclination and non-inclination of the students thus the hypotheses were statistically tested using independent samples t-test (Table V). According to the results from Table V, H1 was accepted as students with entrepreneurial inclination are prone to taking of the risk as compared to students with no entrepreneurial inclination. As entrepreneurially inclined students tend to be more innovative than entrepreneurially not inclined students thus resulting into acceptance of H2. H3 was also accepted due to higher belief shown by entrepreneurially inclined students that they are in more control of the events in their lives than entrepreneurially not inclined students. Students who are entrepreneurially inclined turned out to be more achievement motivated when compared to their counterpart students showing no entrepreneurial inclination, this also led to acceptance of H4. In terms of having confidence in their own skills and abilities both entrepreneurially inclined and not inclined students have been found at the same point therefore H5 was rejected. As entrepreneurially inclined students found to be having more tolerance when they are exposed to unpleasant situations and events in comparison to the students with no entrepreneurial inclination (Table VI).

Discussion
In this study, authors have used the entrepreneurship traits model to examine six entrepreneurial characteristics, namely, risk-taking propensity, innovativeness, locus of control, need for achievement, general self-efficacy and tolerance of ambiguity. Having the supposition that these distinct characteristics are carried by potential entrepreneurs, this study attempted to identify the students having high degree of these entrepreneurial characteristics in comparison of other general students. Given that these all characteristics are said to special attributes of entrepreneurs and each one of them measures some aspect of

<table>
<thead>
<tr>
<th>Variable name</th>
<th>Entrepreneurially inclined</th>
<th></th>
<th>Entrepreneurially not inclined</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Risk taking propensity</td>
<td>4.374</td>
<td>0.821</td>
<td>4.261</td>
<td>0.829</td>
</tr>
<tr>
<td>Innovativeness</td>
<td>4.482</td>
<td>0.637</td>
<td>4.332</td>
<td>0.754</td>
</tr>
<tr>
<td>Locus of control</td>
<td>4.736</td>
<td>0.749</td>
<td>4.632</td>
<td>0.741</td>
</tr>
<tr>
<td>Need for achievement</td>
<td>4.548</td>
<td>0.810</td>
<td>4.419</td>
<td>0.827</td>
</tr>
<tr>
<td>General self-efficacy</td>
<td>5.278</td>
<td>0.869</td>
<td>5.193</td>
<td>0.913</td>
</tr>
<tr>
<td>Tolerance of ambiguity</td>
<td>4.380</td>
<td>0.642</td>
<td>4.245</td>
<td>0.751</td>
</tr>
</tbody>
</table>

Table IV. Descriptive statistics

<table>
<thead>
<tr>
<th>Variable name</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk taking propensity</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Innovativeness</td>
<td>0.530**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Locus of control</td>
<td>0.451**</td>
<td>0.538**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Need for achievement</td>
<td>0.508**</td>
<td>0.567**</td>
<td>0.530**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>General self-efficacy</td>
<td>0.313**</td>
<td>0.328**</td>
<td>0.412**</td>
<td>0.404**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Tolerance of ambiguity</td>
<td>0.509**</td>
<td>0.629**</td>
<td>0.531**</td>
<td>0.429**</td>
<td>0.368**</td>
<td>1</td>
</tr>
</tbody>
</table>

Table V. Correlations

Note: **Correlation is significant at 0.01 level
entrepreneurship phenomena thus some degree of interrelatedness should also exist among all six characteristics. Results from correlation analysis showed somewhat higher correlations we compared to the results of study conducted by Gürol and Atsan (2006).

The $t$-test was used to distinguish the students with higher degree of these entrepreneurial characteristics from others. Accordingly, hypotheses were framed and students were divided into two groups; entrepreneurially inclined and entrepreneurially not inclined by posing question defining their entrepreneurial inclination. Results generated from hypotheses testing exhibit that the students with entrepreneurial inclination are more prone to taking of risks, possess higher degree of innovativeness, tend to be more in control of the situations in their lives, highly achievement motivated and have more tolerance when exposed to any unpleasant or unfavorable situation. Both entrepreneurially inclined and entrepreneurially not inclined groups were found having no difference when it comes to self-belief in their own skills and abilities. These results are somewhat similar to the findings of previous researches but with the exception that insignificant difference only in general self-efficacy has been found here while Gürol and Atsan (2006), in their study reported that two students groups are insignificantly different at general self-efficacy and tolerance of ambiguity.

About 42.40 per cent of total respondents hinted their inclination toward entrepreneurship which is quite at higher side when compared to similar previous researches. In the study of Gürol and Atsan (2006), 362 university students were taken as sample size in Turkish settings, of them only 66 students (18.23 per cent) were found to be entrepreneurially inclined which is significantly low as compared to the rate of entrepreneurial inclination shown by students in this study. The reason for this higher rate of entrepreneurial inclination could be the various programs and schemes launched by government of India to promote and feed the entrepreneurship. Another reason behind this might be the inability of the present system to provide employment to number of literate youths added to the total employable workforce of India which averted the Indian students from being bossed by others to being their own boss. Sample of total 719 students also consists of 332 females and 33.43 per cent of them were found to be entrepreneurially inclined which seem to be pretty high given that India has been a country dominated by males. Results of this manuscript also revealed that out of total entrepreneurially inclined students, the rate (42.45 per cent) of students with non-entrepreneurial parental background was higher than the rate (40 per cent) of those with entrepreneurial parental background which is not in conformity of the findings of previous researches. As all the students taken into sample for this study come from the background of business studies, this also might be a reason for higher numbers of students showing preference to entrepreneurship as their career option.

In this research, authors have only focused on the entrepreneurial characteristics of those students studying business; hence, it is dubious that students coming from other streams would also show such higher levels of entrepreneurial characteristics. Thus, this notion creates a space for the researchers to conduct further research taking students from different

<table>
<thead>
<tr>
<th>Variables name</th>
<th>$N$</th>
<th>$t$-value</th>
<th>$p$-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk taking propensity</td>
<td>719</td>
<td>2.481</td>
<td>0.020</td>
</tr>
<tr>
<td>Innovativeness</td>
<td>719</td>
<td>2.793</td>
<td>0.005</td>
</tr>
<tr>
<td>Locus of control</td>
<td>719</td>
<td>2.337</td>
<td>0.030</td>
</tr>
<tr>
<td>Need for achievement</td>
<td>719</td>
<td>2.717</td>
<td>0.008</td>
</tr>
<tr>
<td>General self-efficacy</td>
<td>719</td>
<td>1.265</td>
<td>0.210</td>
</tr>
<tr>
<td>Tolerance of ambiguity</td>
<td>719</td>
<td>2.773</td>
<td>0.006</td>
</tr>
</tbody>
</table>

Table VI. Results of independent samples $t$-test
streams, namely, engineering, science and technology and arts etc. University-wise studies can also be conducted with the view to bring comparability among the students in terms of levels of entrepreneurial characteristics based upon the inclination shown.

Authors were very optimistic for conducting this study with the belief that assessing the levels of entrepreneurial characteristics among the university students of India would be very valuable information to the policymakers as Indian Government has shown keen interest in promoting the start-ups by initiating various training and support programs for young and willing entrepreneurs. Another objective of this research was to have insights about current course contents which enable the students to raise the levels of entrepreneurial characteristics which will facilitate the educators in settings the educational programs with the view to develop and nurture entrepreneurial characteristics.

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Further reading


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Promoting creativity and innovation: expected and unexpected consequences

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Angelina Nhat-Hanh Le
University of Economics Ho Chi Minh City, Ho Chi Minh City, Vietnam

Abstract
Purpose – The paper aims to explore the role of climate for creativity and innovation as the situational variable to lead to both expected and unexpected consequences (e.g. performance and unethical behavior), by discovering the relationships among task characteristics (e.g. difficulty, clarity and performance pressure), individual psychological aspects (e.g. mindfulness and self-justification) and work environmental conditions (e.g. peer behavior and climate for creativity and innovation). In this study, task characteristics are proposed to positively associate with unethical behavior via mindfulness. Moreover, climate for creativity and innovation is proposed to moderate the relationship between self-justification and unethical behavior. Finally, unethical behavior is predicted to positively influence on performance.

Design/methodology/approach – Data were collected from the sample of salespeople, who are working for variety of companies in Vietnam. Partial least squares structural equation modeling (PLS-SEM) and SmartPLS 3 are implemented to test the path model.

Findings – Emphasizing both bright and dark sides of promoting creativity and innovation, the study highlights the role of climate for creativity and innovation in strengthening the positive relationship between self-justification and unethical behavior. In turn, unethical behavior positively influences performance. Further, the findings indicate that mindfulness contributes in explaining unconscious unethical behavior.

Originality/value – Exploring the relationships among climate for creativity and innovation, unethical behavior and performance, this paper contributes for deeper understanding of variety aspects of innovation. Demands for an intelligent management in modern workplaces are suggested.

Keywords Innovation, Creativity, Performance, Ethics

Paper type Research paper

Introduction
Recently, creativity and innovation have received the increasing interest, because of their acknowledged effects on employees’ innovativeness, performance and firm growth (Klomp and Leeuwen, 2001; Mamun and Fazal, 2018; Donkor et al., 2018). However, it has been
wandered that promoting creativity and innovation may spur unethical behaviors (Baucus et al., 2008). This implies that studies of creativity and innovation should not ignore the complex interactions with ethics.

Although fostering creativity and innovation has been investigated to be a driver of numerous benefits, it’s negative consequences (i.e., unethical behaviors) have received little attention. In other words, it is not yet known whether climate for creativity and innovation (CCI) may lead to both expected and unexpected outcomes (e.g., performance, and unethical behavior). Noticeably, not only CCI, but also some task characteristics and individual factors may interact to influence on behaviors (Baucus et al., 2008; Yoo and Jeong, 2017). In that regard, this paper sheds lights on the worrisome role of CCI and strives to contribute some insight on the relationships among CCI, task characteristics and individual factors to explain about unethical behaviors.

In firms, unlike other positions, salespeople are considered as entrepreneurs and boundary spanners (Jones et al., 2000). They are expected to accomplish the sales tasks, achieve sales performance to get revenue for firms, as well as responsible for contacting with customers. Facing the variety of customers and operating in vulnerable conditions, salespeople need to be creative and innovative to adapt to changeable sales situations (Cho and Chang, 2008; Yoo and Jeong, 2017). To promote salespeople’ creativity and innovation, many firms have created an organizational CCI. In such situations, salespeople are empowered (Jones et al., 2000) and may be accepted to break the rules to have more opportunities to try new approaches, ideas and solutions, even though their behaviors are immoral.

Moreover, they often conduct their sales tasks outside the firms and autonomously decide the way to achieve performance. With entrepreneurial traits, such as autonomy, and risk taking, salespeople easily justify their unethical behaviors (Jones et al., 2000; Mallin and Serviere-Munoz, 2012). Seriously, despite taking responsible for customers’ welfare is the moral responsibility of salespeople, they often perform unethical sales practices to customers to gain their sales outcomes (Abratt and Penman, 2002). Although unethical sales behaviors aim to customers, they may lead to adverse effects to firms, such as decrement of firm’ brand images, and customers’ loyalty. Surprisingly, while unethical behaviors in the workplace have been investigated in previous ethics studies (Schweitzer et al., 2004; Welsh and Ordóñez, 2014; Niven and Healy, 2015), personal unethical sales behavior, which is performed to the external stakeholders, has been less understood (McClaren, 2013).

Further, with limited supervision, the sales tasks are often fulfilled with characteristics, including performance pressure, difficulty and clarity. These variables are also considered as task-goals, which are often designed to manage and force salespeople to pay attention to assigned tasks. However, the effortful attention to the focal goals may lead to mindlessness, or a decrement of mindfulness. In that psychological state, people can act unethically without consciousness. Although prior scholars have emphasized that people may perform unethical behaviors in unconsciousness, prior research has mainly focused on rational unethical behaviors rather than unconscious unethical behaviors (Shalvi et al., 2011; Tseng, 2017; Gino and Bazerman, 2009; Sezer et al., 2015; Welsh and Ordóñez, 2014; Niven and Healy, 2015).

Thus, this paper fills the research gaps by:

- clarifying the role of CCI in linking personal unethical sales behavior to sales performance; and
- extending to explore how CCI, task characteristics (e.g. difficulty, clarity and performance pressure) and psychological states (e.g. mindfulness, self-justification) contribute to influence on unethical sales behavior.
Noticeably, different cultures may be predictors of ethnic perception gaps (Jae and Jeon, 2016). Consequently, prior studies of creativity, innovative and ethics in variety of countries may suggest inconsistent results and implications. Meanwhile, it has been emphasized that ethics may be a big challenge for developing countries, including Vietnam (Nguyen and Truong, 2016). Further, due to focusing on short-term business results, most Vietnamese firms have paid little attention to support innovation (Hoang et al., 2006). These bring to the necessary discussion about innovation and ethics in Vietnam to demonstrate the literature about ethics and innovation.

**Literature review**

*Creativity and innovation: expected and unexpected consequences*

In competitive and dynamic markets, creativity and innovation have been emphasized to be the main drivers of the firms’ growth (Janssen et al., 2004; Donkor et al., 2018). Generally, creativity may be defined as a production of useful ideas, which help firms adapt to changes in markets (Gilson and Shalley, 2004; Valentine et al., 2011). Meanwhile, innovation can be understood as a generation, and an acceptance of new ideas or products, to enhance performance of an individual, or an organization (Janssen et al., 2004). Accordingly, CCI may be conceptualized as an individual’s perception of how creativity and innovation are supported in his/her group (Matsuo, 2006; Valentine et al., 2011).

It has been widely acknowledged that CCI may contribute to create a positive work environment, which impacts employees’ psychology, behaviors and performance (Matsuo, 2006; Srivastava et al., 2017; Donkor et al., 2018). In detail, Srivastava et al. (2017) study confirmed that innovation positively influences on the competitive performance of the firms. Similarly, Donkor et al. (2018) study, which tested on 340 small- and medium-scale enterprises, the results also confirmed that innovative capabilities had positive effects on financial performance. Thus, many organizations have paid efforts to create a work environment, which encourages employees’ creativity and innovation.

However, recent studies also place much emphasis on not only the bright sides (e.g. performance, innovative behavior, job satisfaction, etc.) but also the dark sides (e.g. risk-taking, resistance to change and animosity) from pursuing creativity and innovation (Janssen et al., 2004; Baucus et al., 2008; Donkor et al., 2018). Some scholars have argued that fostering creativity and innovation in firms may allow employees to consider their risky behaviors as creative and innovative solutions. Therefore, they blindly break accepted practices to pursue creativity and innovation, even though they are unethical.

In the ethics literature, an unethical behavior may be defined as any illegal, or unacceptable action based on the social norms (Barsky, 2008). Accordingly, in the sales context, the term “unethical sales behavior” is conceptualized as an unfair or harmful behavior, including stretching the truth to encourage customers to buy unnecessary products, or hiding products’ information from customers, etc. (Roman and Munuera, 2005). Although some studies have paid attention to innovation and ethics separately, less attention has been taken placed on both CCI and ethics.

*Goal-setting theory*

The goal-setting theory (Locke and Latham, 1990) is one of the foundation theories in explaining the links between task-goals and behaviors. This theory has suggested that the more difficult and clear task-goals are, the higher level of task performance is. These relationships can be explained through task-goals’ functions, including directing a person’ attention toward goals, motivating people to put efforts to achieve goals and increasing persistence the effort devoted to goals (Locke and Latham, 1990).
In many organizations, goal-setting is a common management practice to improve employees’ performance. To pursue task-goals, people have to self-regulate their cognition, attention, attitude and behavior (Latham and Locke, 1991; Welsh and Ordóñez, 2014). Although through these self-regulatory mechanisms, people may govern their attention and behavior to the focal goals, it has been postulated that people may diminish their attention to goal-irrelevant issues and forget all else (Shah et al., 2002). Explaining for this assumption, the theory suggests that an individual’s cognitive resources, including attention resources, are limited. Thus, when an individual’s cognitive resources are focused on one task, they must be withdrawn from others. Supporting for this idea, some previous studies have argued that goal-setting may lead people to decrease their ethical cognition and behave unethically (Schweitzer et al., 2004; Barsky, 2008; Welsh and Ordóñez, 2014).

Resource depletion theory

Presenting a different mechanism, the resource depletion theory (Helton and Warm, 2008; Helton and Russell, 2011) posits that vigilance tasks may require people to use cognitive resources, including attention resources available for information processing. Moreover, these tasks, which require sustained attention, may create a workload burden on an individual’s cognition. Because of the limited resources, the sustained attention to the given tasks may require continuous employment without replenishment of resources and lead to depletion of cognitive resources (Helton and Russell, 2011).

Although existing scholars have deeply investigated how an individual performs behaviors to adapt to task requirements, the questions about how people’s cognitive resources are withdrawn from ethical standards to perform unconscious unethical behavior have remained unexplored. In view of these claims, this paper proposes that task characteristics may both direct an individual’s attention to task relevant stimuli and block task-irrelevant stimuli. Further, sustained attention may consume cognitive resources and lead to the depletion of cognitive resources. Considering mindfulness as a personal cognitive resource, it is expected that decrement of mindfulness may lead people to consciously perform unethical behaviors. Thus, the conceptual framework (Figure 1) was proposed.
The relationship between task characteristics and unethical behavior

As mentioned above, salespeople often have to take responsibility for sales, which contribute to the total revenue. Therefore, their performance is often evaluated based on their sales. In addition, they usually perform their task outside the firms. Thus, to remind salespeople to pay attention toward their duties, sales tasks are often fulfilled with core characteristics, such as difficulty, clarity and pressure for performance. Accordingly, difficulty refers to the level to which a sales goal is attainable. Meanwhile, specificity can be understood as how clear the level of a task goal is and how specifically the goals are understood by an employee (Locke and Latham, 1990; Fang et al., 2004). Besides, performance pressure is conceptualized as how an employee perceives that he/she is forced to accomplish a task goal (Rodríguez-Escudero et al., 2010). For example, firms often set some difficult sales goals with a high sales quota to motivate salespeople to achieve higher performance. Moreover, the sales goals are very clear and specific, to ensure that salespeople clearly understand about what they have to achieve. Finally, pressure for performance is necessary to ensure salespeople to exert effort to gain sales outcomes.

These task-goal characteristics may not only promote higher performance, but also have relationships with cognitive and behavioral factors. More seriously, recent studies have shown that task-goal difficulty, clarity and performance pressure are predictors of unethical behaviors (Niven and Healy, 2015; Welsh and Ordóñez, 2014; Schweitzer et al., 2004), highlighting the links between task characteristics and unethical behaviors.

According to the goal-setting theory, task-goals may promote an individual's performance through some mediating mechanisms, including directing attention toward goals, motivating an individual to exert effort and develop strategies to accomplish task goals (Fang et al., 2004; Anderson and Stritch, 2015). For example, in the Fang et al. (2004) study, the results confirmed that task-goal difficulty and specificity may both lead salespeople to exert effort, perform adaptive selling behaviors and positively influence on performance. Similarly, Anderson and Stritch (2015) study demonstrated that goal clarity may positively impact on performance.

Supporting to the goal-setting theory, the load theory of attention proposes that one of the task-goal’s functions is to direct an individual’s attention toward goal-relevant stimuli and away from goal-irrelevant ones (Lavie et al., 2004). Interestingly, the above task-goal characteristics can stimulate an individual’s attention, via the following causal mechanisms. Facing task-goal difficulty, employees may interpret that accomplishing these goals will prove their performance effectiveness. These task-goals are important to their companies and themselves (Barsky, 2008). Meanwhile, task-goal clarity may be interpreted that accomplishing these tasks are their key responsibilities. How they attain these goals will be the criterion for evaluating their performance (Anderson and Stritch, 2015). Finally, facing high pressure for performance, employees may feel that task accomplishment is critical and significant. In other words, these task characteristics highlight the tasks’ importance and require employees to pay attention to them. Thus, employees not only focus on tasks, develop strategies to accomplish tasks, but also reject any irrelevant issues, including ethical problems. If unethical behavior may be seen as a strategy to accomplish tasks and get higher performance as mentioned by Gould and Kaplan (2011), it is logical to assume that increases in these task characteristics may positively influence on unethical sales behavior:

H1a-c. There will be positive associations between task characteristics, i.e. (a) difficulty, (b) clarity, (c), performance pressure and unethical behavior.

H1d. There will be a positive association between unethical behavior and performance.
The mediating role of mindfulness

While task characteristics have been widely acknowledged to have relationships with performance, it is not well understood about how these task characteristics and individual psychological states (i.e. mindfulness and self-justification) work together to influence unethical practices.

As a personal cognitive resource, mindfulness can be conceptualized as a psychological state, in which people are aware and pay attention to experience what is happening, both internal and external stimuli, at the moment (Brown and Ryan, 2003). Generally, mindfulness is seen as a feature of consciousness and reflects the self-regulation of attention, orientation to experience and feelings about surrounding events (Dane, 2011; Howell et al., 2010). In a modern life, mindfulness has been revealed to have relationships with clinical benefits, tolerance, well-being and ethics (Brown and Ryan, 2003; Valentine et al., 2010; Ruedy and Schweitzer, 2010; Dane, 2011). For example, mindfulness reflects the strength of consciousness and mind, which helps people to reduce working conflicts, as well as realize moral values of the working environment (Valentine et al., 2010). Moreover, people who have high mindfulness will less behave unethically (e.g. telling a lie) (Ruedy and Schweitzer, 2010). Based on these arguments, it is expected that mindfulness has a relationship with unethical behavior.

Although mindfulness reflects the strength of consciousness, awareness and attention, little research has explored the roles of mindfulness in explaining unconscious behaviors. Meanwhile, it was argued that many unethical decisions may stem from a lack of consciousness (Ruedy and Schweitzer, 2010). Therefore, considering mindfulness as a cognitive resource, this paper predicts that the task characteristics may influence on unintentional unethical behaviors through mindfulness. The rationales behind the prediction are the task characteristics' functions.

The first, as emphasized above, the task-goal characteristics (i.e. difficulty, clarity and performance pressure) may both direct people’s attention to goal-relevant stimuli and remove their attention from others. Additionally, these task-goals may motivate employees to exert effort to accomplish tasks. Therefore, employees not only focus on goals but also self-regulate their attention, attitude, cognition, emotion and behavior in goal pursuit, yet forget all else (Shah et al., 2002). As a result, people are refrained from realizing what are occurring around them. This reflects the decrement of their mindfulness.

The second, according to the resource depletion theory, sustained attention to a task may lead people to consume cognitive resources so that their cognitive resources are depleted. As cognitive capacity is reduced, people may not recognize what they are really thinking and doing. Seriously, people may not control their mind, as well as realize unethical aspects of their behaviors. Therefore, they may conduct unethical behaviors without consciousness. This argument has been supported in some of the early studies (Mead et al., 2009; Welsh and Ordóñez, 2014). For example, in Mead et al.’s (2009) study about self-control, the results reflected that self-control depletion may be a predictor of unethical behavior. More interestingly, the results revealed that people may tell lie to attain goals, even though they do not know that they are telling a lie. In additional, Welsh and Ordóñez (2014) study confirmed that high goals may lead people to consume their self-regulatory resources so that their self-regulatory resources were depleted. Therefore, they may act unethically to achieve task-goals.

In line with these claims, it is reasonable to interpret that the task characteristics may negatively impact mindfulness. In the state of less mindfulness, people may be involved in tasks. Thus, they may not realize any ethical conflicts and mindlessly conduct unethical
behaviors (Gino and Bazerman, 2009; Sezer et al., 2015). Given the aforementioned discussion, the following effects are proposed:

**H2a-c.** Task characteristics, i.e., (a) difficulty, (b) clarity and (c) performance pressure, have positive indirect relationships with unethical behavior via decreased mindfulness.

### The relationship between mindfulness and self-justification

The concept of self-justification refers to the moral disengagement, a cognitive mechanism, in which people reconstruct their moral cognition and find moral purposes for their unethical behaviors (Bandura, 1999; Shalvi et al., 2011). Among practices of self-justification, moral justification is the first practice, which promotes people to disengage in moral control (Niven and Healy, 2015). Not surprisingly, moral justification has received increasing attention in recent studies and revealed as a cognitive barrier, which prevents people to realize unethical dilemmas and help to reduce their ethical responsibilities so that they can conduct harmful behaviors without guilt and shame (Bandura, 1999; Niven and Healy, 2015). Therefore, this paper aims to investigate the role of moral justification in linking mindfulness and unethical behavior.

In a state of less mindfulness, people cannot self-regulate their awareness and attention. Therefore, they easily find acceptable reasons for their unethical behaviors. They may think that their behaviors are job responsibilities and meaningful for organizations. These moral reasons may give psychological benefits that salespeople can conduct unethical behaviors without any ethical conflicts. Consequently, self-justification may promote unethical practices (Barsky, 2011; Shalvi et al., 2011; Baron et al., 2015):

- **H3a.** Mindfulness negatively influences self-justification.
- **H3b.** Self-justification positively influences unethical behavior.

### The relationship between peer behavior and unethical behavior

In an organization, peer behavior is considered as an environmental factor, which contributes to orient an employee’s cognition and guide his/her behaviors (Valentine et al., 2011; Babin et al., 2000). Regarding ethical erosion, unethical behavior has been accepted to be a mixed result of variety of antecedents, including individual and environmental factors. Thus, past research has aimed to investigate peer behavior’s effects on an individual’s behavior (O’Fallon and Butterfield, 2012; Gould and Kaplan, 2011). As proposed in the social cognitive theory of personality (Bandura, 1999), people may learn from the models in their environment, such as leaders, peers and families. Consequently, people may act on a shared belief. If salespeople share the belief that the unethical practices are meaningful and acceptable, they may justify their sales behaviors.

This problem may be more serious if a person is in a state of less mindfulness. Once people have less mindfulness, they difficulty control their cognition. Instead, they tend to follow their peers’ perceptions and behaviors. As frequency of observation of unethical peer behavior, they may gradually reconstruct their moral cognition that unethical sales practices are acceptable and meaningful. As a result, moral justification increases:

- **H4a.** Unethical peer behavior has a positive association with self-justification.
**H4b.** Mindfulness negatively moderates the association between unethical peer behavior and self-justification.

*The moderating role of climate for creativity and innovation*

Pursuing creativity and innovation require organizations to create working climates, in which new ideas and solutions are accepted despite of risks and failures. When salespeople are encouraged to try new ideas and solutions to achieve higher performance, they may feel that they have more opportunities to try any selling practices, despite of immoral aspects of these practices. They simply think that these behaviors are creative and innovative, not unethical (Baucus et al., 2008). Thus, it is predicted that CCI may strengthen the relationship between self-justification and unethical sales behavior:

**H5.** CCI positively moderates the influence of self-justification on unethical behavior.

**Research methodology**

This paper applies a quantitative method to test these hypotheses. All of the instruments of the constructs are adopted from previous studies. The three- and four-item scales, which were developed by Fang et al. (2004), were used to measure the task difficulty (D) and clarity (C). Meanwhile, performance pressure (P) was measured by the scale from Akgun et al. (2007) and Rodríguez-Escudero et al. (2010). The scale from Babin et al. (2000) was used to measure the unethical peer behavior (UPB). To measure mindfulness (M), this paper adopted the scale from Brown and Ryan (2003). To assess self-justification (SJU), this study concentrates to moral justification, because is the first practice of moral disengagement. The scale from Barsky (2011) was used because it was developed in the sales context. The scale from Roman and Munuera (2005) was used to measure unethical sales behavior (USB) and sales performance (SAP). Finally, CCI was measured by the scale from Valentine et al. (2011).

Data were collected from online and paper surveys. Adopting prior studies (Roman and Munuera, 2005; Barsky, 2008; Tseng, 2017), salespeople, who are responsible for selling cars, life insurance services and houses, are chosen to be participants, because they take responsibilities for consulting and may impact on customers’ buying decisions. The participants are contacted by face to face and e-mail. To reduce the rate of unusable data, the questionnaire includes some questions to examine:

Q1. Whether participants are salespeople.
Q2. Whether their sales practices may influence on customers’ buying decisions.

Because of the model’s complexity with both mediating and moderating relationships, partial least squares structural equation modeling (PLS-SEM) and SmartPLS v3 software were implemented to evaluate the models.

**Results**

Although 278 respondents returned the questionnaires, some invalid data (e.g. missing values) were rejected. Finally, the sample comprised a total of 245 salespeople with a board range of industries (life insurance industry over 60 per cent and others 40 per cent). In addition, most of the participants are male (168 people, account for 68.57 per cent), with age from 20 to 30 years (196 people, account for 80 per cent).
Validation of measures
As provided in Tables I and II, all Cronbach α values were higher than 0.7, and all of the composite reliability (CR) values were higher than 0.7. Thus, the reliability of the constructs was demonstrated. Furthermore, the average variance extracted (AVE) of each construct was higher than 0.50, and the AVE of each pair of constructs was higher than the squared correlation between each of the constructs and any other construct. Hence, the constructs’ discriminant validity and convergent validity were demonstrated (Hair et al., 2017).

Hypotheses testing
To test the hypotheses, bootstrapping procedure was applied with the option 5,000 bootstrap samples. The significance level of 10 per cent was chosen because this level is possible in psychology (Hair et al., 2017). As described in Table III, all direct relationships were significant, except D → USB (p = 0.176), C → USB (p = 0.617), P → USB (p = 0.082) and UPB → SJU (p = 0.665).

Further analysis of indirect effects showed that some indirect relationships are significant, including D → USB (p = 0.003), C → USB (p = 0.026) and P → USB (p = 0.082). Thus, all of the hypotheses were supported, except H1a, H1b and H1c. From these results, it may be interpreted that although D, C and P did not directly influence USB, they indirectly influenced USB via M. In detail, D, C and P were negatively associated with M. In turn, M was negatively associated with USB (Table IV).

Supporting H4b and H5, the moderated regression analysis presented that M played a significant moderating role in the relationship between UPB and SJU (path coefficient = −0.24; p = 0.004), despite the relation between UPB and SJU was not significant (Figure 2).

Table I.
Descriptive statistics

<table>
<thead>
<tr>
<th>Construct</th>
<th>Cronbach’s α</th>
<th>CR</th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>0.837</td>
<td>0.902</td>
<td>0.754</td>
</tr>
<tr>
<td>C</td>
<td>0.816</td>
<td>0.888</td>
<td>0.726</td>
</tr>
<tr>
<td>P</td>
<td>0.846</td>
<td>0.897</td>
<td>0.685</td>
</tr>
<tr>
<td>M</td>
<td>0.899</td>
<td>0.806</td>
<td>0.653</td>
</tr>
<tr>
<td>SJU</td>
<td>0.825</td>
<td>0.884</td>
<td>0.656</td>
</tr>
<tr>
<td>UPB</td>
<td>0.855</td>
<td>0.889</td>
<td>0.794</td>
</tr>
<tr>
<td>USB</td>
<td>0.836</td>
<td>0.917</td>
<td>0.786</td>
</tr>
<tr>
<td>CCI</td>
<td>0.839</td>
<td>0.903</td>
<td>0.757</td>
</tr>
<tr>
<td>SAP</td>
<td>0.703</td>
<td>0.835</td>
<td>0.630</td>
</tr>
</tbody>
</table>

Table II.
Discriminant validity of the constructs

<table>
<thead>
<tr>
<th>Construct</th>
<th>D</th>
<th>C</th>
<th>P</th>
<th>M</th>
<th>SJU</th>
<th>UPB</th>
<th>USB</th>
<th>CCI</th>
<th>SAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>0.868</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>0.554</td>
<td>0.852</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>0.538</td>
<td>0.161</td>
<td>0.793</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>−0.721</td>
<td>−0.618</td>
<td>−0.599</td>
<td>0.796</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SJU</td>
<td>0.665</td>
<td>0.541</td>
<td>0.465</td>
<td>−0.654</td>
<td>0.854</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UPB</td>
<td>0.621</td>
<td>0.605</td>
<td>0.501</td>
<td>−0.416</td>
<td>0.516</td>
<td>0.891</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>USB</td>
<td>0.645</td>
<td>0.519</td>
<td>0.513</td>
<td>−0.754</td>
<td>0.538</td>
<td>0.786</td>
<td>0.911</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CCI</td>
<td>0.602</td>
<td>0.449</td>
<td>0.704</td>
<td>−0.702</td>
<td>0.734</td>
<td>0.769</td>
<td>0.586</td>
<td>0.870</td>
<td></td>
</tr>
<tr>
<td>SAP</td>
<td>0.253</td>
<td>0.327</td>
<td>0.216</td>
<td>−0.482</td>
<td>0.443</td>
<td>0.383</td>
<td>0.432</td>
<td>0.339</td>
<td>0.794</td>
</tr>
</tbody>
</table>
In addition, although CCI weakly enhanced the relationship between SJU and USB (Figure 3), this moderating relationship was significant (path coefficient = 0.101; p = 0.071).

**Assessing structural model.** Following the rules of thumb, $R^2_{SAP}$ (0.187) was rather weak, whereas $R^2_{SJU}$ (0.946), $R^2_{M}$ (0.780) and $R^2_{USB}$ (0.980) were substantial. Additionally, the blindfolding technique was performed to assess the predictive relevance of the path model. As provided in Table V, all $Q^2$ values were larger than 0, with the omission distance of 5. Therefore, it could be concluded that the model had predictive relevance for a certain endogenous construct.

Consistent with prior studies (Anderson and Stritch, 2015; Donkor et al., 2018), the results reflected that CCI contributed to enhance sales performance. Further, the results also confirmed that the task characteristics, individual psychological states and CCI may work together to lead to unethical behavior. Although the task characteristics did not directly promote unethical behavior, their indirect relationships via mindfulness were significant.
Finally, CCI enhanced the positive effect of SJU on unethical behavior. After all, the findings contribute to explain how fostering creativity and innovation may create opportunities for unethical behaviors.

Conclusion
While existing literature highlights the importance and benefits of promoting creativity and innovation, less attention has focused on unexpected consequences of this. Moreover, the lack of understanding of how CCI, task characteristics and individual psychological factors work together to influence unconscious behavior motivates this paper to pay attention to these relationships. Drawing on the goal-setting and the resource depletion theories, this paper makes several contributions to the field of innovation and ethics. Accordingly, this paper proposes that both task-goal attributes (e.g. difficulty, clarity and performance pressure), individual psychological factors (e.g. mindfulness and SJU) and environmental factors (e.g. peer behavior and CCI) contribute to influence unethical behavior and performance. The findings confirmed that these task characteristics were predictors of unethical behavior. Moreover, mindfulness was explored as the mediator of the above relationships. Finally, CCI positively moderated the relationship between SJU and unethical behavior.

Therefore, the findings imply an intelligent management to create work environments to promote creativity and innovation, yet not create opportunities for unethical behaviors. In respect to the task design and performance, tasks should be designed to motivate employees’ effort and attention to accomplish performance expectations, yet not lead employees to be mindless. Finally, mindfulness training should be considered to help employees balance themselves in work.

Despite of contributions, this paper has some limitations. First, the study only investigates the unethical sales behavior in Vietnam. With differences of cultures and ethnic
perceptions, the results may be inconsistent in other countries. Thus, future studies can examine this topic in other countries. Second, the quality of self-report measures may rely on the participants’ honesty. To minimize this concern, the questionnaires do not include participants’ names and their companies’ names. However, to have clearer pictures about ethics, especially in psychology, future studies may adopt some techniques, such as interview and group discussion, to get higher quality.

References


**Further reading**


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Towards innovation, co-creation and customers’ satisfaction: a banking sector perspective

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Abstract

Purpose – Co-creation fosters customer’s involvement for innovation in products/services and is used as a tool to develop competitive edge for better entrepreneurship. Based on limited evidence, the study aims to examine the factors contributing to the co-creation and the relationship of co-creation with customer satisfaction.

Design/methodology/approach – A sample of 384 customers from selected banks in Pakistan was selected. The study adopted quantitative, explanatory and cross-sectional research design. Structural equation modeling is used for analysis.

Findings – The results revealed a positive and significant relationship between co-creation with customer satisfaction. Further results revealed that access to information, risk assessment and transparency have a positive relationship with co-creation for innovation. The study is significant for customers and management of banks to understand the implications of co-creation to increase customer satisfaction.

Research limitations/implications – Few banks with a small number of customers were selected for the study.

Practical implications – Managers must consider customer’s access to information, risk assessment and transparency of information as necessary factors for co-creation that foster innovation and entrepreneurial opportunities because co-creation strengthens customer satisfaction.

Social implications – Adopting the co-creation process brings long-lasting harmony between customers and banks, and customers may consider the banks as being socially responsible by inviting the opinions of their customers.

Originality/value – Model is re-tested in the context of Pakistani banks with selected variables affecting co-creation for innovation. Moreover, the relationship of co-creation with customer satisfaction is examined.

Keywords Pakistan, Banks, Co-creation (a way to innovation), Customer service, Customer satisfaction, Relationship marketing

Paper type Research paper

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The researchers are thankful to the respondents for providing responses by filling up the questionnaires. Upon mutual consent, the research paper is extracted from the MS thesis submitted by Mr. Rizwan Ahsan. The thesis was supervised by Dr Muhammad Imran Malik and was submitted to the COMSATS University Islamabad, Attock campus, Pakistan in the year 2017.

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Undertaking: This paper has not been submitted earlier in any shape or form to any other research journal or research conference.
Introduction

A general consensus exists that co-creation with customers is beneficial for introducing innovativeness, but there is a lack of agreement regarding how and why. It is also necessary because a bank working on radical innovations may wish to add or remove customer inputs as per the requirements (Akman et al., 2019). It is noted that the different aspects co-creation like frequency, direction, and content have a positive and equally significant effect on product success while introducing innovations (Gustafsson et al., 2012).

Banks are becoming customers oriented for making innovations and gaining stronger competitive position through customer involvement and satisfaction (Mainardes et al., 2017). Developing an understanding of the co-creation in the banking sector is an emerging area for the banks and customers equally, for bringing in innovations in services. The organizations giving preference to their customers and knowing their requirements have the tendency to develop a bigger pool of loyal customers (Keshavarz and Jamshidi, 2018). By having a bigger pool of customers the banks can gain financial stability (Rashid et al., 2017; Anderson et al., 2004). On the other hand the customer satisfaction demands increased services quality and profitability from the businesses (Keshavarz and Jamshidi, 2018; Horngren, 2004), and demand improved operational performance (Ittner and Larcker, 2003), value creation and bringing higher returns (Chen et al., 2017; Chen et al., 2014). Thus, for any organization, it is important to develop and monitor strategies that enhance customer satisfaction and foster profitability (Chen et al., 2018; Kim et al., 2003). This may be possible through addressing customer preferences (Carù and Cova, 2015), although not an easy task to address. At the same time, the customers are continuously looking for enriched purchase experience through integration (Jaakkola et al., 2015; Prahalad and Ramaswamy, 2004).

Organizations that pay attention to the demands of the customers generally have the capacity to innovate by utilizing their idea bank (Rialti et al., 2017; Payne et al., 2008), commonly called as co-creation. McColl-Kennedy et al. (2015) argued that for a company the co-creation is a possibility of interaction and personalization of the product/service. Further, it is noted that co-creation is a concept having a positive impact on the consumers as well (Ranjan and Read, 2016) and vice versa (Ellway and Dean, 2016). Co-creation encourages the customer to participate in the production processes and generally improves the last outcome (Conduit and Chen, 2017). However, it is not yet clear that co-creation always results in positive outcomes, thus the possible gaps exist in the direct relationship of the concept (Keshavarz and Jamshidi, 2018). Therefore, in this context, a study is conducted by examining the relationship of co-creation and customer satisfaction in banking services.

Traditionally, it is observed that the banks create and offer products without seeking the opinion from their customers and market them as per their will. Thus, the products and services remain bank-centric; that may result in being unsuccessful, at times. In this case, the benefits of co-creation cannot be ignored. The customers have diverse knowledge and provide knowledge to the banks and can help banks save their costs of environmental scanning that further help banks to formulate a strategy.

Additionally, it is noted that the co-creation in banking services is studied by Brazilian researchers Mainardes et al. (2017) using the DART model. They examined the direct effect of the DART model on customer satisfaction and have ignored co-creation having an impact on customer satisfaction. The DART model explains that Dialogue, Access to information, Risk assessment and Transparency (DART) are necessary to make people involved and satisfied with the products and services being offered.

Mainardes et al. (2017) have argued that there can be potential benefits of co-creation to both the parties that are the banks and the customers and have conducted the study in one major bank in Brazil and recommended conducting examinations in other banks.
current study considered three private and three public sector banks for examining the contributions of co-creation towards customer satisfaction. In this regard, only the perceptions of the customers are recorded for establishing the relationships. The current study is unique in terms considering the service sector, that are banks, rather than considering the manufacturing sector and the co-creation construct is added to the existing framework. This study highlights the importance of co-creation in benefiting the organization and customers for long-lasting relationships.

Literature review
Customer satisfaction is a necessity to maximize profitability (Keshavarz and Jamshidi, 2018). Organizations focusing on enhancing productivity through relationship building look towards the needs of customers as the first step to innovation (Williams and Naumann, 2011). This generates a feeling of satisfaction by creating a link between individuals and the organization (Szymanski and Henard, 2001). At the same time, the generation of different customer opinions and popping up of insights may provoke innovative products (Mittal and Kamakura, 2001).

Customer satisfaction is the lifeblood for the organizations especially the organizations dealing in services but at the same time, it is considered a challenge (Hofacker and Belanche, 2016; Arvidsson and Caliandro, 2016). Satisfaction leads to creating loyalty and a loyal customer can be a source of continued income. Moreover, loyal customers generally pay less attention to the substitute products available in the market (Jaakkola et al., 2015). It is noted that customer satisfaction increases loyalty and reduces undesired objection to the company and its products/services. Further, the companies should understand the importance of customer satisfaction as it is cheaper to retain the existing customers than acquiring new ones (Chen et al., 2018).

To add to the customer’s satisfaction, the co-creation is an emerging term (Zollo et al., 2018) in the banking industry of Pakistan and is considered necessary for planning sustained competitiveness. The awareness among customers has expanded with the availability of internet and other awareness sources and these sources have made customers educated and curious to know and use new products.

For bringing innovations, Verhoef et al. (2009) argued that the speed in information sharing and access to various internet options that help in expanding client choices/desires must be considered by banks and if the banks ignore this useful segment possessing multi-dimensional information they may remain disadvantaged (Zhu and Zhang, 2010). The co-creation is a relationship between organizations and consumers that focus on product customization and enable organizations to expedite the process of product creation (Carù and Cova, 2015; Etgar, 2008).

Prahalad and Ramaswamy (2004) argued that consumers have more choices of purchasing goods and services in the present era than ever before but they still seem dissatisfied. The organizations are trying their best to produce a variety of goods and services but still cannot meet the requirements of the customers. This gap can be bridged through sitting together and listen to one another. At the same time, it is becoming more complex to define the meaning of value and the process of value creation that also calls for co-creation.

Payne et al. (2008) argued that central to service-dominant logic is the proposition that the customer becomes a co-creator of value. This emphasizes the development of customer-supplier relationships through interaction and dialog. However, research to date suggests relatively little is known about how customers engage in the co-creation of value and they laid emphasis on developing a framework for value creation through co-creation.
Vargo et al. (2008) argued that the creation of value is the core purpose and central process of economic exchange. Traditional models of value creation focus on the firm’s output and price. The alternate perspective adopted here is, one representing the intersection of two growing streams of thought, service science and service-dominant logic. They viewed that:

- service, the application of competences (such as knowledge and skills) by one party for the benefit of another, is the underlying basis of exchange;
- the proper unit of analysis for service-for-service exchange is the service system, which is a configuration of resources (including people, information, and technology) connected to other systems by value propositions; and
- service science is the study of service systems and of the co-creation of value within complex configurations of resources.

Further, they argued that the service systems interact through mutual service exchange relationships, improve the adaptability and survivability of all service systems engaged in exchange, by allowing integration of resources that are mutually beneficial.

Grönroos (2011) observed that some of the 10 foundational premises of the so-called service-dominant logic do not fully support an understanding of value creation and co-creation in a way that is meaningful for theoretical development and decision-making in business and marketing practice. Without a thorough understanding of the interaction concept, the locus as well as nature and content of value co-creation cannot be identified. Value co-creation easily becomes a concept without substance. Based on the analysis in the present article, it is observed that the unique contribution of a service perspective on business (service logic) is not that customers always are co-creators of value, but rather that under certain circumstances the service provider gets opportunities to co-create value together with its customers. So it is to examine that under what conditions co-creation is needed?

Recently, Chen et al. (2018) viewed co-creation as a procedure that organizations can use to create products through collaboration with customers. This helps organizations fostering cutting edge innovations, bringing changes in products or structures and to examine the changing inclinations of clients.

Co-creation can also be used as a strategy characterized by transparency in the production of products and a tool to develop trust between producer and customer, thus benefiting both (Arvidsson and Caliandro, 2016; Prahalad and Ramaswamy, 2004). Further, it provides an edge to promote the possibility of having strong control and supervision through the preferences set before offering products or services (Ranjan and Read, 2016).

Errajaa et al. (2013) conducted the analysis about co-creation and highlighted that co-creation is the most important for survival of organizations. Moreover, with the collaboration between organizations and individuals the learning is enhanced for both parties (Vargo and Lusch, 2008), keeping this in view the banks can attract and retain customers and the co-creation processes are optimized for better outcomes.

Hung et al. (2012) viewed the use of technologies as tools to connect customer and organization having a positive impact on organizational performance in terms of work efficiency and financial outcomes. Bendapudi and Leone (2003) reported the psychological implications of co-creation as satisfaction and having trust in the creator. Furthermore improved quality in the production process, early recovery of product failures and services can be realized (Dong et al., 2008).

In the same run, the Finne and Grönroos (2017) determined another important element for the co-creation that is client access to production process information and relevant
resources as a part of communication, ensuring transparency. It is a structure that allows a partnership with the customer, through facilitating tools like the internet. Sawhney et al. (2005) emphasized the optimization of these tools through investments and new technologies, contributing to a collaborative environment because it enables true interactivity between customers and product/services providers. Prahalad and Ramaswamy (2004) and Ahsan (2017) argued that the banks, through consumer dialogue get access to information that may not be under consideration otherwise.

The consumers having knowledge of opportunities and risks help to reduce uncertainties and make viable decisions in the presence of the available choices. The details of the process add to the confidence of the customers regarding investments in the products offered by the banks. The management of the information becomes valuable for better customer relationships with the company, thus ensuring the satisfaction of those involved (Garbarino and Strahilevitz, 2004).

Looking at another aspect of DART model, Prahalad and Ramaswamy (2004) viewed transparency as a contributor to the development of cordial organization-customer relationships. Ambiguities can be removed and error-free work can be ensured at the organizational level. Vargo and Lusch (2008) defend the basic premise of co-creation as equal access to information can boost positivity in the production of goods and services. Ballantyne and Varey (2006) argued that customer’s dialogue with the company is a reciprocal need of the day for innovation.

In addition, Garbarino and Strahilevitz (2004) pointed out that the transparency of information, when facilitated by access, becomes advantageous for the company by mitigating the risks involved. This provides an interactive environment and the production of goods and services becomes a responsibility for both.

Prahalad and Ramaswamy (2004) revealed that the traditional system of company-centric value creation (that has served us so well over the past 100 years) is becoming obsolete. Leaders now need a new frame of reference for value creation. In the emergent economy, competition will center on personalized co-creation experiences, resulting in value that is truly unique to each individual.

They examined a new frontier in value creation emerging, replete with fresh opportunities. In this new frontier, the role of the consumer has changed from isolated to connected, from unaware to informed, from passive to active. As a result, companies can no longer act autonomously, designing products, developing production processes, crafting marketing messages, and controlling sales channels with little or no interference from consumers. Armed with new tools and dissatisfied with available choices, consumers want to interact with firms and thereby co-create value. The use of interaction as a basis for co-creation is at the crux of our emerging reality. The co-creation experience of the consumer becomes the very basis of value.

It is assumed that all the components of the DART model are important. Prahalad and Ramaswamy (2004) argued that the dialogue is a real interaction amongst clients and organizations. According to Ballantyne and Varey (2006), communication generates trust and the wishes and needs of customers are well communicated for new productions. The quality of this relationship is achieved over time, from mutual learning. Dialogue brings several benefits together such as bringing customer knowledge onboard, improving structures, making work error free, enhancing creativity and solving problems (Hoyer et al., 2010) and so forth.

The framework
The hypotheses were developed on the basis of dimensions, dialogue, access, risk assessment and transparency having the relationship with co-creation and further
co-creation affecting satisfaction, keeping in view the recommendation made by Mainardes et al. (2017) (Figure 1).

Hypotheses developed

*H1.* There is a positive relationship between “dialogue” with “co-creation” in banks.

*H2.* There is a positive relationship between “customer’s access to information” and “co-creation” in banks.

*H3.* There is a positive relationship between “risk assessment” and “co-creation” in banks.

*H4.* There is a positive relationship between “transparency” and “co-creation” in banks.

*H5.* There is a positive relationship between “co-creation” with “customer satisfaction” in banks.

Methodology

The research design used for the study was quantitative, cross-sectional, and deductive and based on primary responses. The population of the study is based on the customers of the selected banks. A sample of 384 customers is used for this study including the customers from three private banks (n = 207) and three public banks (n = 177). The convenience sampling technique was used. The convenience sample was used keeping in view the availability and willingness of the customer to fill in the questionnaire. The customers were told about the reason for data collection, that is, purely the research.

The co-creation scale is adopted from Albinsson et al. (2016) having 23 items including dimensions such as Dialogue, Access, Risk Assessment, and Transparency, whereas

![Figure 1. Research framework](image)

Source: Adopted from Ahsan (2017)
customer satisfaction questionnaire is adapted from Mainardes et al. (2017). All the items were gauged on five-point Likert scale. The respondents, that were the customers, were contacted by visiting the branches of the banks. The customers were found cooperative enough to fill in the responses regarding co-creation and reporting their satisfaction levels from the services they availed at banks.

Moreover, it is to mention that the perceptions of customers were recorded for examination and it is not merely confirmed that whether the banks are using the co-creation processes in actual or otherwise. Therefore, this still remains an unanswered question.

Results
Table I shows that the total number of responses recorded were 384 out of which there were 207 respondents from the private sector banks as compared to the 177 from the public sector. It was ensured that all the respondents must have at-least Bachelor’s degree or above. This was considered necessary because the readers must be able to understand the statements asked and respond to the statements written in the questionnaire. Majority of the bank customers belonged to the age group 36 to 45 (n = 158) followed by the age group 26 to 35 years (n = 144). Male (n = 292) actively participated in the survey as compared to the females (n = 92). When asked about the years of availing bank services it was revealed that majority of the customers were using the services of bank from three to seven years (n = 98).

Internal consistency reliability
Internal consistency reliability (construct reliability) was assessed using the composite reliability (CR) and Cronbach’s alpha that must be > 0.7. The results revealed that the CR values are ranging from 0.798 to 0.948. Cronbach’s alpha value ranged from 0.721 to 0.909. Convergent validity of the model is assessed through Average Variance Extracted (AVE), the results of which must be greater than or equal to 0.5, thus the results of this study fulfilling the criterion see Table I. Further, the factor loadings, to present confirmatory factor analysis were also presented in Table I. The Confirmatory factor analysis is conducted to examine the validity of the instruments used for the study.

Partial least square as an estimation tool
Hair et al. (2014) argued that PLS (SEM) is one of the best techniques for path-modeling having the ability to run compound analyses simultaneously.

The coefficient of determination and inner model path coefficient
Wong (2013) suggested an examination of the reflective model, the coefficient of determination and inner model path coefficients for analysis. Further analysis is provided below: (Figure 2)

Circles in the above figure show that how much the variance independent (exogenous) variable is explained by independent (endogenous) variables and value on arrows represents how strong one variable have the effect on other (Wong, 2013). The coefficient of determination ($R^2$) is examined to assess the strength of the structural model. It is noted that all constructs show moderate values of $R^2$.

Hypothesis testing
Bootstrapping was applied to obtain the path-coefficients and their corresponding t-values. This helps to determine the significance of the path-coefficient. Table I shows the value of path-coefficients and t-values, see Table II.
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Table I. Demographics, factor loadings, AVE, CR
The hypotheses testing results show that the path-coefficients and t-values (significant at \( p < 0.05 \) with t-values >1.96), except for one relationship. Additionally, for ensuring the model fitness the SRMR and NFI were examined, that met the required criteria of being less than 0.08 and greater than 0.9 respectively, as per recommendations of the experts (Hair et al., 2017).

**Summary of results**

The relationship between dialogue and co-creation is not significant as \( \beta = 0.296 \) and the t-values of outer loading is less than 1.96. Results indicate that dialogue has a non-significant impact on co-creation. Further, the beta shows just 29.6 per cent changes in co-creation by 100 per cent change in dialogue.

Relationship between Access and co-creation is significant with the positive influence as the \( p \)-value = 0.000 with t-values was 8.616 of outer loading greater than 1.96. Therefore, \( H2 \) is accepted.
Risk Assessment shows a direct significant relationship with the dependent variable. $P$ value = 0.000 value of co-creation and $t$-values is 3.235 which is above 1.96. Consequently, $H3$ also accepted.

Transparency also has a direct positive influence on co-creation. $P$ value = 0.000 and $t$-values is 9.607 which is above than 1.96 it noticeably signify. Thus, $H4$ is accepted.

Co-creation for innovation has positive significant relation with customer satisfaction $p$-value = 0.000, $t$-values is 16.483 which is above from 1.96. Accordingly, $H5$ is accepted for the study.

**Discussion**

The bank customers reported that the “dialogue” was not statistically significant and not counting towards co-creation. It shows that customers/clients are not actively invited to express their ideas and suggestions for bringing improvements in the upcoming products/services and are not made part of the co-creation process. So $H1$ is rejected. The constructs including access, risk assessment, and transparency were positively significant (Malhotra et al., 2006). Therefore, $H2$, $H3$ and $H4$ are accepted and $H1$ is rejected. Keeping in view the results the dialogue, although having importance is not given much importance in designing the innovative products by the banks that may restrict the entrepreneurial opportunities for banks where as other constructs have been given more importance by the banks.

Earlier, Prahalad and Ramaswamy (2004) reported four variables of the DART model to enable customers to co-create. This study revealed that “Access”, “Risk Assessment” and “Transparency” are positively related with co-creation for innovation and co-creation has a positive link with customer satisfaction.

The development of strong and fair communication channels can guarantee creating positive word of mouth and thus better satisfaction can be ensured (Chen et al., 2017). The organizations providing access to information and receiving suggestions from the customers can introduce innovative products and can expand their entrepreneurial scope by offering better quality of products and services (Keshavarz and Jamshidi, 2018).

Banks focusing one-sided communication may consider the supply side as important one only and ignore the demand side that may cause disadvantaged entrepreneurial and competitive position (Conduit and Chen, 2017). Developing fair and clear channels of communication reduce conflicts and ambiguities and develop bank – customer trust. Customers play the role of ambassador and spread positive word of mouth if they feel satisfied and vice versa (Finne and Grönroos, 2017). Further, the benefits of having a dialogue with customers may include valuing customers is a key to success for any selling organization. Asking customers about their ideas about bringing in the new products gets their self-esteem higher and their start getting involved in the organizational matters and thus feel respected and develop a sense of trust on the product offering organization. The dialogue is becoming a cry for organizational development and market expansion. Through dialogue the changing market demands can be well addressed, the perceptions and expectations can be well matched, thus changing their word of mouth regarding the organization. This customer-bank collaboration can open innovative entrepreneurial opportunities for the banks. Moreover, the client’s complaints may also be catered for. At the same time, by removing their ambiguities and complaints, the organizations may also retain them for longer and thus boost their profits. Through two-way communication, the dis-satisfied customers can also be contacted and the barriers can be removed. However, at the same time, it is to consider that sensitive information may also go out of the bank while having discussions with the customers and the banks may experience competitive
disadvantage, if that information is leaked to other banks in competition. This may be a reason that banks may opt to avoid dialogue with outside stakeholders.

Another element, the transparency, creates trust between customer and organization (Medina and Rufín, 2015) and access to the information makes people aware of their value to the organization and supports risk assessment. These enhance entrepreneurial opportunities for banks by building trust and helps banks develop infrastructure free of ambiguities (Akotey and Abor, 2013).

The DART model is re-examined in the context of Pakistan that revealed almost the same results as of earlier studies, except for the dialogue component. It means that this model has the potential for testing in different contexts and the researchers may consider it testing in various products and services organizations. The weaker results of dialogue may predict that banks want to maintain their financial secrecy this they do not prefer to indulge more in dialogue process but at the same time it cannot be ignored that by doing so they may lose the innovation and entrepreneurial opportunities.

Conclusion
Co-creation for innovation and expanding entrepreneurial avenues is necessary that brings customer satisfaction. The factors contributing towards co-creation include access to information, risk assessment, and transparency. The dialogue was found to be a weaker factor in co-creation keeping in view the current ample. In the Pakistani context, all the factors of the DART model are not effective in offering new bank products/services that introduces contradiction to the existing evidences. The customers felt that dialogue between customers and policymakers is a missing link in co-creating value and it should be focused upon. Access to information is there but after the product/service is finalized by the bank and is offered to the customers without their consent.

Implications/suggestions
Co-creation for innovation and entrepreneurial openings must be considered by the bank managers and policy makers to enhance customer services and satisfaction in the banking industry. The dialogue must be given preference for developing better communication and interpersonal relations with the customers for inviting better input and choices from the customer side for better co-creation. Further, the banks that want to expand their operations and products have to consider the opinions given by the customers because customers are kings and they want to purchase such products that they like to form the core of their hearts. Co-creation reduces risks of failure, builds long-lasting relationships and becomes a source of sharing positive word of mouth and so forth that is why the managers must consider it to be the foremost.

Considering the selected/examined factors will add to the banks entrepreneurial orientation and will add to the competency of banks as a whole (Al-Mamun and Fazal, 2018). It is to note here that the customers should be used as a resource by the banks. When these are used as a resource, the betterment in the competitive position can be ensured. This resembles with the resource-based view adopted by the banks. This is how the banks can pay attention to the creativity and innovation and can enhance their performance. Moreover, this can be used as a tool to develop trust among customers and bank (Chiu et al., 2017).

For the purpose of co-creation, there is need to develop a mechanism through selecting and training employees to be helpful, polite, responsive and empathetic towards bank customers can trigger co-creation. Communication between banks and customers should boost customer approval and delight and customers will feel comfortable in sharing their views openly. The banks can offer incentives, reliable service delivery and a recovery design...
to stimulate customer participation in bank co-creation. Soliciting feedback requires sound technological support and direct communication links with bank customers. Keeping in view the results of the study; from a practical perspective, the research impacts on theory building, management decision making, and teaching.

Further, despite a general consensus that co-creation with customers is beneficial, there is a lack of agreement regarding how and why. The present study addresses this shortcoming and shows that co-creation is largely about access to information, risk assessment, transparency to understand their future needs. The banks can grow by using the components of the DART model and the customer’s satisfaction can be enhanced through adequate policy-making.

Limitations and future directions
The study considered four factors of co-creation that limit the results to four factors. The coefficient of the determination indicates that other dimensions of co-creation could be identified and related to the concept. At the same time, the use of probability sampling technique will add to the value of the research by making it plausible for generalizing the results. Moreover, the direct effects were examined limited to customer satisfaction. The addition of other constructs having indirect effects such as trust in the offering company may also add value to the research. The inclusion of other customer-oriented businesses for testing the same model will be a good contribution to the literature.

In the current study, the linkages are examined based on the perceptions of the customers that predicted their opinions regarding using the selected factors for co-creation thus still leaving space for the other factors to be considered. It is still not clear whether actually these factors (DART model really contribute towards co-creation and customer satisfaction or not? Further a single sector and selected banks were included for in this study for analysis a broader range of organizations representing different sectors, manufacturing and non-manufacturing, may add value to the existing framework. Additionally the adoption of longitudinal design will bring brighter insights to the study. Further in this study, the direct relationships are examined and the need is still remaining to examine the indirect relationships by including the mediators and moderators especially by considering different cultural dimensions.

References


**Further reading**


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Open innovation: from technology exploitation to creation of superior performance

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Abstract
Purpose – Nowadays, to develop innovative activities in research and development units, it is desirable to rely on the concept of open innovation to take actions towards the identification of external capabilities of an organization and external knowledge acquisition. Therefore, this study aims to evaluate the impact of external technology acquisition (ETA), external technology exploitation (ETE) and culture of innovation (IC) on open innovation (OI) using SEM approach and then examine the amount of the impact of open innovation on organizational performance (OP) and value creation (VC).

Design/methodology/approach – This study was an applied survey in terms of research purpose and data collection method. The statistical population included all companies in Yazd Science and Technology Park (STP). To collect the data, 109 questionnaires were distributed. The content validity of the questionnaire was confirmed by experts’ comments, and Cronbach’s alpha coefficient was calculated equal to 0.873 for reliability.

Findings – The results indicated, ETA, ETE and IC had significant and positive effects on OI, and OI by itself had a significant and positive impact on OP and VC. However, the hypothesis of the significant and positive effect of VC on OP was rejected.

Originality/value – Considering the importance of innovative activities of companies in STPs and the role of OI in achieving the goals of idea-driven companies, the present study evaluated the effects of factors affecting the fulfillment of OI in companies based in STPs in the Yazd province of Iran.

Keywords Open innovation, Culture of innovation, External technology acquisition, External technology exploitation, Science and technology park (STP)

Paper type Research paper

Introduction
In organizations, research and development (R&D) units play an important role in idea production and design to create new products; as well, in most industries, activities in the course of R&D units are considered as one of the critical assets of an organization to promote competitive position (Van de Vrande et al., 2016). Given the fact that the quality of R&D activities is on the basis of innovation, complexity, and transformation of today’s
business environment; organizations have been forced to direct their actions more towards
gaining competitive advantage and innovative activities. Hence, many scholars believe that
access to global networks enables organizations not only to increase their level of knowledge
but also to develop their own innovative activities (Janeiro et al., 2013; Hogan and Coote,
2014).

Earlier, managers considered innovative activities of an organization as strategic assets
and enclosed processes associated with generating ideas within its boundaries. Research
studies conducted in the field of organizational innovation suggested that increased global
competition, added costs of R&D units of organizations as well as shortened product life
cycle have made managers realize that sole reliance on conventional methods of R&D and
considering the limited environment of an organization cannot meet the needs of customers
in competitive markets (Saebi and Foss, 2015). Accordingly, in recent years, centralized and
internal approach to R&D units has lost its popularity in many industries; instead,
organizations have been pushed back more towards business processes for the production
and development of innovative processes of value creation (Doz and Hamel, 1998).

Innovation is considered as a process that helps the entry of new products and services of an
organization to markets and it is one of the most important factors affecting the level of survival
and desirability of organizational performance. Open innovation is also a newfound concept that
enables managers to have access to external capabilities of an organization in addition to
internal ones to develop their own technologies (Sisodiya et al., 2013; Edgeman et al., 2015).

Today, business development does not depend only on internal capacity of an
organization, but it relies on the creation of opportunities for identifying new external
solutions as well as exploitation of technologies, concepts, and ideas generated in a business
context. In regard to this issue, open innovation is a driving force and a stimulant to integrate
technology management and innovation management in organizations (Lichtenthaler, 2011)
and scholars are able to introduce the ability to acquire external technology and exploit
external technology as open innovation strategies (Hung and Chou, 2013; Greco et al., 2016).
Adopting open innovation strategies leads current organizational processes to the creation of
values as activities associated with open innovation. The power of value acquisition by an
organization and subsequently organizational level of performance are also enhanced
(Capaldo and Petruzzelli, 2011; Greco et al., 2016). In addition to the necessity to consider open
innovation strategies, the realization of innovation needs kind of culture which continually
encourages employees to express creative solutions and new ideas. Therefore, culture of
innovation contributes to motivating organizational employees towards innovative behavior
and participation in innovation programs (Krot and Lewicka, 2012).

Companies located in science and technology parks (STPs) are always looking for
innovation and welcome processes which help companies in identifying new areas of
research and conducting joint research activities with other companies.

Considering the importance of innovative activities of companies in STPs and also with
regard to the role of open innovation in achieving the goals of idea-driven companies, the
present study was to evaluate the effects of factors affecting the fulfillment of open
innovation in companies based in STPs in the city of Yazd in Iran, considering the
importance of applying open innovation strategies (external technology acquisition and
external technology exploitation) in the context of an innovative culture.

Literature review

Open innovation

Open innovation paradigm was introduced in 2003 by Chesbrough and led to a wide range
of research studies in the field of creativity and innovation (Christiansen et al., 2013;
Tödtling et al., 2011). In recent years; the phenomenon of globalization, increased technological complexities and environmental, strategic and economic changes have led organizations in R&D units to change their focus on closed and traditional innovation and target the concept of open innovation. While traditional innovation paradigms put emphasis on production of ideas within an organization as well as intellectual and mental capabilities of employees, open innovation paradigm states that organizations need to remove the established boundaries in their own contexts and those of other organizations and take advantage of external technological knowledge and resources to create and develop new ideas (Hagedoorn and Zobel, 2015; Del Vecchio et al., 2018). The core of open innovation is based on sharing organizational knowledge with competitors, customers, suppliers and startup organizations (Hagedoorn and Zobel, 2015) and its realization in the organization causes greater and faster access to scientific resources, technical knowledge and ideas, accelerated completion of innovation processes, reduced costs and greater economic value (Saebi and Foss, 2015).

External technology acquisition and external technology exploitation are considered as the principal parts of open innovation processes. Acquisition of external technologies refers to the flow of innovative ideas, and technological knowledge outside the organization refers to organizational innovative system and it is a process by which an organization acquires external technologies to use external knowledge and complete its own business model (Hung and Chou, 2013; Greco et al., 2016). In fact, external technology acquisition authorizes companies to obtain the best existing technologies, reduce time spent on the market, and focus on external technological capabilities in addition to their resources and capacities (Kang et al., 2015). External technology exploitation refers to a process in which innovative ideas and technologies outside an organization are appreciated and ideas within an organization are improved through the analysis of ideas and utilization of external innovative technologies. Thus, organizations can manufacture new products by relying on the technology acquired and gain profitability through its exploitation (Wang et al., 2015).

**Culture of innovation**

Culture is a set of norms, beliefs, customs, history and behaviors that brings together people with the same expectations, standards, and understanding (Daniel and Klein, 2014). Organizational culture refers to a collection of shared values and beliefs among employees about the existence and mission of the organization as well as why the organization is formed (Hogan and Coote, 2014). When it comes to the issue of innovation, culture can encourage innovation processes and also prevent them (Naranjo-Valencia et al., 2017). When organizational culture supports collaborative activities and encourages individuals to cooperate in-group problem solving, the process of idea production is facilitated. It is also possible that culture structure is not consistent with collaboration and knowledge sharing and prevent emergence of new ideas in the organization (Daniel and Klein, 2014). Implementation of innovation and its realization in an organization requires the development of a culture supporting innovation and also directing people, communications, and business processes of the organization towards creation of innovative ideas for the success of innovation (Tödtling et al., 2011).

**Organizational performance and value creation**

Reaching superior performance is the ultimate goal of many organizations and despite all changes, the process of improving the performance of organizations is continually going on (Strohmaier et al., 2005). Organizational performance is defined as the final criterion for evaluating organizational output (Walker et al., 2015). It is also one of the characteristics of
superior performance across the organization to create values (Gupta, 2011). Value is also the cost that the customer meets in exchange for economic, technical, social, and service-related benefits of a product. It is also defined as the organization's credibility in the eyes of the customer. Furthermore, value creation is a dynamic process which looks for a series of experiences, perceptions and information exchanged within the network which consequently lead to value creation (Matthyssens et al., 2016). To achieve this, it is clear that environmental conditions, resources and actions are required by which an organization can usually create value and achieve profitability by enhancing its capabilities and achieving outstanding performance (Gupta, 2011). Since in the business environment, value creation is usually measured by profitability and long-term growth, it is necessary to establish organizational infrastructure based on business models and continuous development and production of products and services (Adner and Kapoor, 2010).

Research background

The importance of open innovation in the success of organizations in recent years has led researchers to conduct research studies in terms of identification of the factors affecting open innovation and evaluate the impact of open innovation and its related processes on different organizational dimensions (Knake et al., 2017; Igartua et al., 2010; Spencer, 2012; Munsch, 2009; Chaston, 2013; Holgersson and Granstrand, 2017). Huang and Chou in their study on the effect of open innovation on corporate performance considered the impact of the dimension of external technology acquisition and exploitation of the external technology of open innovation on performance. This study was conducted considering investment in internal R&D units as a moderator aimed at examining the moderating effect of market confusion on the impact of open innovation on company performance as well as shortcomings and gaps in this respect. The study showed how open innovation can be used to strengthen the performance of Taiwanese high-tech companies (Hung and Chou, 2013). In a study investigating the relationship between external open innovation and financial performance of R&D projects by drawing open innovation practices, management, and performance of 489 R&D projects in a multi-national company in Europe. The results of the study showed that R&D projects with the participation of open innovation in two mentioned dimensions were associated with better financial performance and governed by appropriate means (Du et al., 2014).

Also, Walker et al. tried to integrate the findings of a series of studies to examine the relationship between innovation management and organizational performance. The results of this study indicated that innovation and its management had significant and positive impacts on organizational performance (Walker et al., 2015).

Nowadays, scholars consider the integration of organization’s internal resources with external knowledge and capabilities as one of the most important factors in achieving organizational innovation (Saebi and Foss, 2015). Wang et al. made an attempt to examine the effect of resource and external knowledge acquisition on organizational innovative measures and subsequently organizational performance. The results of this study indicated that developed channels for the acquisition of external resources can add to the level of efficiency of open innovation in an organization and consequently gain organizational superior performance (Wang et al., 2015).

Hogan and Coote to use Skin’s model and examine the relationship between organizational culture, innovation, and organizational performance. The results of the study showed that the higher the trends of organizational culture to values, norms and pro-innovation beliefs; the more the innovative practices by the organization and the more improved the organizational performance (Hogan and Coote, 2014). Parveen et al. studied the
linear relationship between corporate culture and open innovation considering the mediating role of commitment. The results of this study revealed that culture especially pro-innovation culture was positively related to open innovation (Parveen et al., 2015).

Schiuma et al. in their study entitled “Managing knowledge processes for value creation” stated that effective utilization and management of knowledge resources were the fundamentals of development for the successful abilities of targeted organization and dynamics linking knowledge processes with value creation had an impact on organizational performance (Schiuma et al., 2012). Daniel and Klein examined the role of innovation in creating value for R&D units in one of the industries in Australia. The results of this study showed that the development of innovation in an organization could promote various aspects of value creation (Daniel and Klein, 2014).

Research methodology
The present study was applied and descriptive in terms of the research purpose. Considering the data collection method, the present study was in the form of a field research type (survey). As questionnaires are used to collect the required data in surveys, the study questionnaire was developed by reviewing scientific research papers and utilization of the comments of academics and managers of STPs and the related items were designed to measure each variable of the study. The content validity and reliability of the questionnaire were confirmed based on experts’ opinions and using Cronbach’s alpha equal to 0.873, respectively. The statistical population of this study included all companies operating in STPs in the city of Yazd in Iran, comprised of 179 companies during the study. As a sample, the survey questionnaire was distributed among 109 companies engaged in R&D (in the working areas of bio-technology, information and communication technology, management and consultancy, industry and mining, electronics, robotics, etc.) and out of which 96 questionnaires were returned.

Conceptual model of research
Given the importance of innovation activities by companies located in STPs as well as the role of open innovation in achieving the goals of idea-driven companies and R&D units as well as studies in the field of open innovation, the conceptual model of the present study was illustrated in Figure 1:

![Figure 1. Conceptual model of the study](image-url)
**H1.** External technology acquisition has a significant and positive effect on open innovation.

**H2.** External technology exploitation has a significant and positive effect on open innovation.

**H3.** Culture of innovation has a significant and positive effect on open innovation.

**H4.** Open innovation has a significant and positive effect on value creation.

**H5.** Open innovation has a significant and positive effect on organizational performance.

**H6.** Value creation has a significant and positive effect on organizational performance.

**Stages of research implementation**

To address and examine the research hypotheses, the following stages in Figure 2 were used:

The SEM is a statistical method that is based on the establishment of multiple regression, composition and integration of path analysis and factor analysis which can be used to analyze complex relationships between one or more independent variables and one or more dependent ones (Kaynak et al., 2015). The SEM using partial least squares (PLS) is also very popular and it is considered as a new generation of statistical methods in social sciences and management. This technique provides for the simultaneous study of relationships between latent variables and measures (observable variables). Two models are tested in the PLS models: external and internal models. External or outer models are similar to confirmatory factor analysis and internal or inner models are identical to path analysis in the SEMs, respectively. Therefore, it is necessary to provide the inner model which indicates the relationship between latent variables of the study following outer model testing. Inner model can be used to evaluate the research hypothesis of the model (Schubring et al., 2016; Kaufmann and Gaeckler, 2015).

**Data analysis**

In the methodology of the SEM, it is essential to determine the validity of the construct under study to measure whether the selected indicators for the measurement of given constructs were accurate or not. The optimal level of factor loadings for indicators was equal to 0.4 or higher (Hulland, 1999) and suggested a broadly acceptable reliability for the measurement model. If the factor loading was an index lower than 0.4, the index must be removed. Table I shows the validity of the initial stage.
The PLS output in state of standardized coefficients (factor loadings) after removal of question 4 was shown in Figure 3.

**Reliability of model**

- **Cronbach’s alpha coefficient**: internal consistency indicates correlation between a construct and its corresponding index. Cronbach’s alpha is a factor whose values higher than 0.7 are accepted (Cronbach, 1951); and
- **Composite reliability**: composite reliability of the SEM is regarded as a better measure of Cronbach’s alpha (Vinzi et al., 2010) due to equal importance to all the indicators of each construct in calculating Cronbach’s alpha coefficient and in contrast greater importance to indicators with higher factor loadings in calculating composite reliability which result in more actual and accurate standards of composite reliability values of constructs compared with Cronbach’s alpha. According to the obtained values, composite reliability was located at a very desirable level (above 0.7). Table II showed values of these coefficients for each construct in PLS software.

**Validity of internal (inner) model**

- **Convergent validity**: it is the average variance extracted (AVE) used to validate convergence which shows high correlation of the indices of a construct compared
with the correlation of other construct indicators. Based on Fornell–Larcker method, the value of this index varies from zero to one and values higher than 0.5 are accepted. The AVE of both dependent and independent variables and each construct are shown in Table III and the convergent validity is accepted according to the values obtained.

- **Divergent validity:** The relationship between a construct with other indices compared with the relationship between this construct and other constructs in the PLS software are shown by Fornell–Larcker matrix. In this method, only first-order latent variables were entered into the matrix. The closer the numbers make greater correlation and the relationship between two variables.

The numbers obtained based on Fornell–Larcker method indicated the values of construct correlations with each other. Such values are listed in Table III. Values on the diagonal axis...
were the matrix of squared root of the AVE for each variable. According to the matrix, root of the first-order variables from the correlation between them was high and showed divergent validity as well as goodness of fit for the measurement model.

**Evaluation of SEM (internal or inner model)**

Evaluation of SEM is conducted through the factors as follows:

- **Z significance coefficients:** Z method and t-values can be used to calculate the significant paths of the model. The path between variables should be a value greater than 1.96 to verify the accuracy of the path as well as the significance of all the questions at a 0.95 confidence level. T-values showed the accuracy of the relationships, but the severity of the relationship between constructs cannot be compared with such values. After drawing the conceptual model and the initial PLS analysis, the conceptual model for the state of standardized coefficients was illustrated in Figure 4.

- **Coefficient of determination (R2):** The coefficient of determination reflects the impact of endogenous variable on a dependent and exogenous variable. It is

<table>
<thead>
<tr>
<th>Variables</th>
<th>External technology</th>
<th>Access to foreign technology</th>
<th>Culture of innovation</th>
<th>Value creation</th>
<th>Open innovation</th>
<th>Organizational performance</th>
</tr>
</thead>
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<tr>
<td>External technology acquisition</td>
<td>1</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Access to foreign technology</td>
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<td>1</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Culture of innovation</td>
<td>0.46</td>
<td>0.33</td>
<td>1</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Value creation</td>
<td>0.79</td>
<td>0.66</td>
<td>0.88</td>
<td>1</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Open innovation</td>
<td>0.58</td>
<td>0.51</td>
<td>0.33</td>
<td>0.54</td>
<td>0.54</td>
<td>--</td>
</tr>
<tr>
<td>Organizational performance</td>
<td>0.40</td>
<td>0.36</td>
<td>0.74</td>
<td>0.71</td>
<td>0.71</td>
<td>1</td>
</tr>
</tbody>
</table>

**Table III.**

**Figure 4.**

Conceptual model of study in the state of standardized coefficients (t-values)
calculated only for the dependent variable. Some experts evaluated values closer to 0.67 at a desirable level, and the values closer to 0.33 and 0.190 at normal and weak levels, respectively. In the present study, the values obtained revealed the desirability of the GoF for the SEM.

**Overall GoF for the research model**

The measure of GoF is related to overall SEMs. By this measure, researchers can control the overall GoF for the overall model of their studies following the evaluation of GoF for the measurement section and the construct of the model. Vetselz et al. (2009) introduced three values of 0.01, 0.25, and 0.36 as the weak, medium, and strong values for the GoF. The overall GoF of the model was calculated by the following formula ($R^2 = 0.44$ and communalities was equivalent to 0.4). The number obtained showed that the model had a very strong GoF:

$$\sqrt{R^2 \times \text{communalities}} = 0.42$$

**Results of hypothesis testing**

Research hypotheses were studied and tested. This section consisted of two parts: A) examination of $Z$ significance coefficients associated with hypotheses: if the significance coefficients were higher than 1.96, they indicated significance and proper explanation of the variables. According to the results, all the $t$ significance coefficients were greater than 1.96 which revealed the significance of all questions and relationships between the variables at a 0.95 confidence level. B) Examination of standardized path coefficients of hypotheses: such coefficients between dependent and independent variables indicated what percentage of changes in the dependent variable can be explained by the independent variable.

**Conclusion and recommendation**

In recent years, intensified competitive environment has made organizations to do innovation activities to survive and gain competitive advantage more than the past and also strengthen their R&D units to improve organizational performance. Therefore, it is obvious that, utilization of facilities within organizations is not sufficient to develop innovative activities and it is better to take measures through reliance on the concept of open

<table>
<thead>
<tr>
<th>List</th>
<th>Factor loading</th>
<th>Z path value</th>
<th>Components</th>
<th>Test result</th>
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<tr>
<td>1</td>
<td>0.35</td>
<td>10.17</td>
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<td>Confirmed</td>
</tr>
<tr>
<td>2</td>
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<td>4.68</td>
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<td>Confirmed</td>
</tr>
<tr>
<td>3</td>
<td>0.64</td>
<td>9.89</td>
<td>Significant and positive effect of culture of innovation on open innovation</td>
<td>Confirmed</td>
</tr>
<tr>
<td>4</td>
<td>0.71</td>
<td>15.85</td>
<td>Significant and positive effect of value creation on open innovation</td>
<td>Confirmed</td>
</tr>
<tr>
<td>5</td>
<td>0.59</td>
<td>3.73</td>
<td>Significant and positive effect of open innovation on organizational performance</td>
<td>Confirmed</td>
</tr>
<tr>
<td>6</td>
<td>-0.06</td>
<td>0.36</td>
<td>Significant and positive effect of organizational performance on value creation</td>
<td>Rejected</td>
</tr>
</tbody>
</table>
innovation to identify capabilities outside the organization and acquire external technology. Accordingly, the present study aimed at using the SEM approach to evaluate the impact of components such as external technology acquisition, external technology exploitation, and culture of innovation on open innovation and then examine the amount of the impact of open innovation on organizational performance and value creation. The statistical population of the study included all companies operating in STPs in the city of Yazd and they received 109 questionnaires. It should be noted that the content validity of the questionnaire was confirmed by experts' comments and its reliability was calculated by Cronbach's alpha coefficient equal to 0.873.

The results showed significant \( t \)-values = 3.73 and positive (path coefficient = 0.59) correlation between the effect of open innovation on organizational performance in Yazd STPs, but this hypothesis was rejected in terms of the positive and significant impact of open innovation factors on value creation according to the results of hypothesis testing. Moreover, the results of overall GoF for the model demonstrated that the conceptual model of study had the desirable GoF (GoF = 0.42).

In terms of testing the first hypothesis, the significant and positive effect of external technology acquisition on open innovation was investigated. The path coefficient obtained for this hypothesis was 0.35 which revealed a positive effect between these two factors which was significant at 95 per cent level according to the \( t \)-statistic of 10.17. The test results of this hypothesis were consistent with the findings of studies by Saebi and Foss (2015). Also, the study of (Cui et al., 2015) shows that firms can strengthen their internal innovation for commercialization and learn new ways to exploit knowledge and innovation, through search, acquisition and integration of foreign technology or knowledge with its own R & D activities.

The positive and significant impact of External technology exploitation on open innovation was studied in the second hypothesis. The path coefficient for this hypothesis was 0.21 which indicated a positive impact between these two factors and given the \( t \)-statistic of 4.68, this positive relationship was significant at 95 per cent level. It should be noted that no direct studies had been conducted in this area composed of open innovation factors considered in the present study.

In terms of testing \( H3 \), the significant and positive impact of culture of open innovation on open innovation was investigated. The path coefficient for \( H3 \) was 0.64 which showed a positive impact between these two factors that was significant at 95 per cent level according to the \( t \)-statistic of 9.89. The test results of \( H3 \) were in line with the findings obtained by Hogan and Coote (2014).

The significant and positive impact of open innovation on value creation was investigated in \( H4 \). The path coefficient obtained for \( H4 \) was 0.71 which indicated a positive impact between these two factors and this positive relationship was significant at 95 per cent level according to the \( t \)-statistic of 15.85. The test results of \( H4 \) were in agreement with the findings by Daniel and Klein (2014). According to confirmation of \( H4 \), Hung and Chou (2013) demonstrated that if the company has access to external innovating knowledge and internal ideas, it can create value for its customers and earn a competitive advantage for its products and services.

In terms of testing \( H5 \), the significant and positive effect of open innovation on organizational performance was examined. The path coefficient for \( H5 \) was 0.59 which showed a positive impact between these two factors. According to the \( t \)-statistic of 3.73, this positive relationship was significant at 95 per cent level. The test results of \( H5 \) were consistent with the findings obtained by Dou et al. (2014), Walker et al. (2015), and Hung and Chu (2013).
The significant and positive impact of value creation on organizational performance was explored in $H_6$. The path coefficient obtained for $H_6$ was $-0.06$ and the t-statistic was equal to 0.36. In general, $H_6$ was rejected.

According to the results obtained from this study, identifying external technologies, developing external communications, expanding research and building the foreign industrial co-workers’ networks by using open innovation has a direct effect on business area and can direct organizations to reach excellence performance.

It was suggested that organizations with technology as their fundamental component should make attempts to consider open innovation. External technology acquisition from competitors allows organizations to recognize external knowledge and promote their innovative activities scientifically. Furthermore, open innovation can be applied within an organization when technologies of external environment are identified and used for existing products and services of the company. Open innovation can be also supported by an organization when infrastructures of culture of innovation are formed by employees within the organization and there are not obstacles and conflicting interests by the organization. In other words, culture of innovation can play a facilitating role in open innovation. Given that companies interact with each other in different areas in a general atmosphere in STPs; it was recommended in the present study that each company should take actions in terms of acquisition of external knowledge and technology in line with the vision of open innovation based on collaboration rather than competition. Researchers in this study suggested that considering the companies operating together in STPs, apart from the competition of the companies and their knowledge of each other, and their cooperation in search of acquisition of external knowledge and technology from an international perspective, the process of the impact of open innovation on organizational performance can be accelerated. However, culture of innovation as a significant factor affecting open innovation is of the fundamentals considered by organizational managers separately, i.e. it is necessary to establish spaces and centers such as thinking rooms to provide more innovation and better grounds for open innovation in knowledge-driven companies. This can help in the exchange of comments between the members and different groups and encourage them to have consensus and innovation and facilitate more interactions and collaboration between individuals which can by itself lead to superior performance between companies located in STPs. Considering that the companies operating in STP are seeking to develop innovative and technological activities, it is suggested that, based on the results of the present study, the innovation system is established in STP area. The innovation system can be built on open innovation, facilitating the interaction of active companies and speed up the exchange of ideas between firms. In addition to the establishment of a network of internal co-operation, there will also be widespread communication among foreign partners in the companies. Also, the required foundation for the flow of the internal and external processes of open innovation will be built.

The present study faced limitations including the low frequency of research studies associated with the field of study as well as the resistance of some companies to handle the required data in terms of the state of organizational performance and their levels of success in value creation. Therefore, researchers were recommended to develop the model presented in this study taking into account the views of competitive advantage (resource-based and industry-driven perspectives) in future studies and examine the impact of the processes associated with open innovation on the level of success of companies in acquiring competitive advantage. It is desirable to examine the model presented in this study in different periods and in STPs in other provinces in Iran as well as businesses with a R&D nature.
References


Further reading


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Impact of IoT on social innovation in Japan

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Abstract

Purpose – Recently, the discussion on the impact of the Internet of Things (IoT) in theory and in practice is increasing. While some proponents envisage that the IoT will bring about positive radical change in the modern society, others argue that the IoT will introduce more disadvantages in the long run (mainly in terms of job losses) than advantages. The purpose of this paper is to arbitrate this controversy by examining the impact of IoT on the Japanese society.

Design/methodology/approach – While previous studies have largely been qualitative in nature, in this study, a quantitative approach was used. A multi-dimensional analysis was carried out and the statistical method known as the one-way analysis of variance was used to process the data obtained during this study.

Findings – The results show that indeed the IoT has a positive impact on the daily lives of the Japanese people, however the change it brings are mainly incremental change and not radical. Furthermore, rather than reducing job opportunities, it has created more opportunities and simplified operation processes.

Research limitations/implications – However, a limitation of this study is in its narrow scope. It is important to note that further studies on an international level or perhaps multi-national level is needed. Furthermore, there may be other underlining factors, such as culture, social, economic, geographical location, technology capacity, that may contribute to the impact of the IoT on daily life. Therefore, future research needs to verify if indeed this is the case.

Originality/value – This research successful arbitrates the argument about the impact of the IoT on the society by specifically showing that the advantages brought by the IoT out-ways its disadvantages. Furthermore, the uncertainty (fear of job losses) expressed by some experts was addressed in this study. The results obtained showed that the diffusion of the IoT has no correlation with job loss but rather supports improved working environment and creation of jobs.

Keywords Internet of things, Industry 4.0, Incremental innovation, SMART society

Paper type Research paper

Introduction

The concept of the Internet of Things (IoT) has grown since the emergence of the co-existence of the real and virtual world. Day by day the concept of a virtual world is growing and is gradually becoming a norm in the society. The main guiding principle of the IoT is to make computers process information without receiving help from a human being.
The key component that enables this capacity is the present of high speed internet with the capability of connecting various objects across a wireless network. The IoT-enabling devices include the radio frequency identification (RFID), Bluetooth, telephonic data services, embedded sensor and actuator nodes, in addition to Wi-Fi connections (Atzori et al., 2010). The emergence of the IoT has revolutionized the manufacturing sector by enhancing the speed and quality of production. The IoT improves the performance of SMART factories by ensuring flexibility in production, product customization improvements, integration of roles (customers, companies and suppliers) and supports sustainable development (Shrouf et al., 2014; Haller et al., 2009). According to Wang et al. (2016), SMART factories involve a vertical integration of many parts in the system, to reconfigure and implement flexibility within the factory in the emerging fourth industrial revolution (Industry 4.0). An important aspect of Industry 4.0 is the use of the blockchain technology that is relevant to the IoT. A key benefit of the blockchain technology is to enhance the security of the IoT (Skwarek, 2017). According to Boireau (2018), the blockchain is a technology that consists of a decentralized, distributed ledger technology with the capability to provide historical records of transactions on a peer-to-peer network.

The concept of Industry 4.0 originally came from Germany and comprises cloud-based manufacturing, RFID, IoT, enterprise resource planning (ERP) and social product development (Lu, 2017). One of the main drivers of the industry 4.0 is the IoT; hence, it is important to understand the impact of the IoT on social life in the evolving Industry 4.0 economy. According to Hofmann and Rüschi (2017) and Vaidya et al. (2018), the fourth industrial revolution has been identified by many names in literature that include SMART manufacturing, cloud-based manufacturing, IoT, industry internet and integrated industry. The main characteristics of Industry 4.0 are the digitization and intelligentization of manufacturing processes, which involve the use of the IoT amongst other things (Vaidya et al., 2018). The impact of the IoT affects every aspect of the modern day life; hence, its impact on social behavior cannot be overlooked. According to Ng and Wakenshaw (2017), the IoT has changed the way marketing is done today through digitization, SMART technologies, nanotechnology and energy-scavenging technologies. Other areas of life the IoT has impacted positively include communication, health care, education, finance, recreation, social networking and security (Ai et al., 2018; Ding et al., 2018; Ahmed et al., 2016). Because of the overall effect of the IoT on the human life and the changes it introduces, it is considered a social innovation. Shin (2017), in his research on the impact of the IoT in small- and medium-sized enterprise (SME) in South Korea, argues that the IoT brought about destructive and open innovation. This type of innovation cumulates into social innovation within the society.

Van der Have and Rubalcaba (2016) posits that social innovations (SIs) are new ways of creating and implementing change in the society. The IoT has been instrumental in the promotion of innovation, improving the exchange of ideas and the development of knowledge management systems. It is a disruptive innovation that is altering the way in which information and knowledge is managed within organizations to foster knowledge flows, open flow of knowledge and knowledge management systems (Santoro et al., 2018). Shin (2014), in his research (that focused on studying the relationship between the IoT and humans), provided a socio-technical analysis of the development of the IoT in Korea. While Tyler (2002) argued that the internet has not changed the way people live their lives, rather it simply brings about new ways of doing old things, other researchers argued otherwise. The IoT has led to the development of SMART environments for humans while ensuring the conservation of water and energy (Curry et al., 2018; Reka and Dragicevic, 2018). On the
other hand, while Balaji and Roy (2016) concludes that the IoT seeks to bridge the gap between the digital world and the real world, Wijk et al. (2019) classified SI into three categories, namely, micro (individual-level interaction), meso (diverse actor interaction) and macro level (institutional-level interaction). However, in this research, the impact of the IoT on SI in the Japanese society will be examined (on a macro level). Furthermore, the approach that will be used herein will involve an empirical analysis relating to real life data on the IoT in Japan.

**Theoretical background**

*Linear social change theory.* Social change occurs when there is a change in the behavior, culture or the value system of a group of people within a society. Reeler (2007) classified social change theories into three categories that include emergence change (an evolution of day to day life brought about by conscious and unconscious learning from experience), transformative change (a form of change that develops from the need to solve an ongoing crisis) and predictable change (a change that evolves from a conscious execution of well thought out plans to solve a problem). While emergence and predictable change are relatively linear, transformative change is not and often takes a concave or convex shape. In this study, however, we shall assume that the impact of the IoT in the society is linear and test this assumption in the course of this research; using the social linear model. The social linear models (evolutionary models) involve a process of cumulative, non-repetitive and permanent change (Social change bibliography, 2002). These models study the effects of change while considering several factors. According to Çam and Kayaolu (2014), some of the causes of social change include differentiation (change in complexity of the society) and integration (integration as a result of changes in societal complexity). Social change can occur in various aspects of human life, but according to Landheer (1960), changes occur in the social reality, value systems, informal and formal structure of a social group. The aim of this research is to use the linear social change theory to study the impact of the IoT in Japan and understand its impact on the daily lives of the average Japanese people. Therefore, this research presents itself as one of the earliest studies that use the social change model to study the impact of the IoT on SI. In this study, the impact of the IoT will be considered from a linear social change perspective to consider its impact on the social life and businesses in Japan.

**IOT and social innovation in Japan.** While the IoT is relatively new, in Japan its use is growing by the day, and it has found its way into the daily life and business production processes mostly in the field of telecommunication and electronics. The growth in the utility of the IoT in many aspects of the Japanese economy makes it a suitable case study in examining the impact of the IoT. Furthermore, extensive data exist on the usage of the IoT in Japan that can be used to study trends and the impacts it has on the daily lives of its people. The growth of the IoT in Japan is fostered by the development of technology in the field of telecommunications and electronics (Naito, 2016). One of the key areas that the IoT has positively impacted, in the Japanese society, is the farming sector. According to Hoshi et al. (2017), while the problem of aging population continues to be a major issue in Japan, the IoT has revolutionized green farming by helping farmers improve their automation. Furthermore, the IoT has made farming convenient for the aging population by improving the food production output in Japan. The technological development brought by the IoT has been examined by various researchers in the past. These research studies focus on the types of process and product innovation. For example, Kodama and Shibata (2017) argued that the development and deployment of the IoT and digital economy is bringing about technology development in the Japanese machine tool industry. The construction companies in Japan
have also adopted the IoT to improve their proficiency. Japan is one of the few countries in the world that has used the IoT to advance building information modeling (BIM), and RFID in the construction of homes (Zhong et al., 2017). BIM is a 3D intelligent building technique used in planning, designing and construction of buildings, while RFID is a form of wireless communication device. Both BIM and RFID are enabled by IoT.

SI in the Japanese society – with community participation in social projects – is on the rise. According to Maruyama et al. (2007), SI in Japan has brought about social economic change in the field of renewable energy technology. Japan is currently utilizing the IoT to bring about innovation in solving real life issues in the society. To enhance the positive impact of the IoT on productivity and innovation in the daily lives of the Japanese people, the Japanese Government launched the u-Japan and i-Japan strategies in 2008 and 2009, respectively (Xu et al., 2014). According to Zhang et al. (2019), the u-Japan project was an initiative of the Ministry of Internal Affairs and Communications, and the aim of the project is to establish connections between things and people as well as people and things in a network within the society. On the other hand, the i-Japan strategy was designed by the IT strategy headquarter of Japan, and its aim is to ensure digital information technology was available to all, like water and air in every corner of the Japanese society and with specific interest in areas such as e-governance, health care, education and various industrial sectors (Liu, 2017). According to Vakali et al. (2014), Japan is one of the countries in the world that is deploying the IoT in its quest in developing SMART cities across the country. Furthermore, the development of SMART factories is on the rise in Japan. Japanese firms such as Kawasaki, Sony and Toyota are leading the way in the development and implementation of SMART factories (Lee and Trimi, 2018). Chen (2012) posits that during disasters, the IoT has been used in Japan in various dangerous missions. While the IoT in Japan is widely used and affects the daily life of the Japanese people, an empirical analysis that shows the way and manner in which it does this is yet to be studied. Previous studies on the IoT in Japan have largely been qualitative and unilateral; hence, in this study, a quantitative analysis using a multi-dimensional approach, examining the effects of the IoT on the Japanese people and their businesses will be carried out.

Methodology

Data and variables

In this study, a multi-variant approach to study the relationship between the dependent variable and independent variables will be carried out. The secondary data, used herein, were compiled from the Organisation for Economic Co-operation and Development (OECD) iLibrary (Table I).

The first stage of analysis in this study will be to test for any case of adverse collinearity of the independent variables used herein. The result of this examination will be presented in the Table AI. The limit for adverse collinearity set in this research is ±0.8. Based on the results in Table AI, there is no case of adverse collinearity recorded because the collinearity factor of all the variables considered is less than 0.8. Next the data collected will be processed using the statistical method called the one-way analysis of variance (one-way ANOVA). This method provides an effective way of analyzing the relationship between multiple variables. The variables used in this study have previously been used in a single variant form; however, a collected effective of their impact is yet to be studied. This research seeks to bridge this gap. Table II contains a reference to previous research studies that have used these variables in a unilateral way. By carrying out a multi-level analysis, this study seeks to answer the question on whether each of these independent variables are interrelated and how they impact the dependent variable.
<table>
<thead>
<tr>
<th>Year</th>
<th>Households with internet access at home (%)</th>
<th>Innovation and technology researchers (per thousand employed)</th>
<th>Science, technology and innovation gross domestic expenditure on R&amp;D (% of GDP)</th>
<th>Businesses with a broadband connection – both fixed and mobile (%)</th>
<th>Average annual hours actually worked</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>57</td>
<td>10.38639728</td>
<td>3.41</td>
<td>68.1</td>
<td>1775</td>
</tr>
<tr>
<td>2006</td>
<td>60.5</td>
<td>10.3787601</td>
<td>3.41</td>
<td>73.6</td>
<td>1784</td>
</tr>
<tr>
<td>2007</td>
<td>62.1</td>
<td>10.2885344</td>
<td>3.46</td>
<td>75.9</td>
<td>1785</td>
</tr>
<tr>
<td>2008</td>
<td>63.9</td>
<td>9.888060713</td>
<td>3.47</td>
<td>76.8</td>
<td>1771</td>
</tr>
<tr>
<td>2009</td>
<td>67.1</td>
<td>9.987963189</td>
<td>3.36</td>
<td>76.9</td>
<td>1714</td>
</tr>
<tr>
<td>2010</td>
<td>68.76</td>
<td>10.01667328</td>
<td>3.25</td>
<td>79.7</td>
<td>1733</td>
</tr>
<tr>
<td>2011</td>
<td>70.23</td>
<td>10.03209839</td>
<td>3.38</td>
<td>83.4</td>
<td>1728</td>
</tr>
<tr>
<td>2012</td>
<td>70.48</td>
<td>9.916795802</td>
<td>3.34</td>
<td>91.8</td>
<td>1745</td>
</tr>
<tr>
<td>2013</td>
<td>71.71</td>
<td>10.07623556</td>
<td>3.48</td>
<td>91.5</td>
<td>1734</td>
</tr>
<tr>
<td>2014</td>
<td>78.87</td>
<td>10.35785786</td>
<td>3.59</td>
<td>93.1</td>
<td>1729</td>
</tr>
<tr>
<td>2015</td>
<td>80.35</td>
<td>9.998051948</td>
<td>3.34</td>
<td>94.5</td>
<td>1719</td>
</tr>
<tr>
<td>2016</td>
<td>82.95</td>
<td>9.95581284</td>
<td>3.48</td>
<td>90.8</td>
<td>1714</td>
</tr>
<tr>
<td>2017</td>
<td>82.96</td>
<td>10.01453399</td>
<td>3.59</td>
<td>91.2</td>
<td>1710</td>
</tr>
</tbody>
</table>

Source: OECD (2019)
Analytical framework

The social linear theory adopted in this research will be used to develop the analytical framework used herein (Figure 1). Based on the analytical framework, the following hypotheses will be examined:

H1. There is a positive relationship between the number of households with internet access and the number of innovation and technology researchers. The assumption in this study is that the number of households with internet access is a representation of the diffusion of the IoT. This is because one of the main infrastructure in which the IoT thrives is the internet. Therefore, the first hypothesis to be tested in this study will be the relationship that exists between the number of households with internet access and the number of researchers in the field of science and technology.

H2. The number of households with internet access is positively related to the science, technology and innovation gross domestic expenditure on R&D. In this study, we

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Independent variables</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Households with internet access (Y₁)</td>
<td>Innovation and technology researchers (x₁)</td>
<td>Alaa et al. (2017)</td>
</tr>
<tr>
<td>Households with internet access (Y₁)</td>
<td>Science, technology and innovation gross domestic expenditure on R&amp;D (x₂)</td>
<td>Scheerder et al. (2017)</td>
</tr>
<tr>
<td>Households with internet access (Y₁)</td>
<td>Businesses with a broadband connection - includes both fixed and mobile (x₃)</td>
<td>Reisdorf and Groselj (2015)</td>
</tr>
<tr>
<td>Households with internet access (Y₁)</td>
<td>Average annual hours actually worked (x₄)</td>
<td>Syverson (2017)</td>
</tr>
</tbody>
</table>

Table II.
List of variables

Figure 1.
Research analytical framework
make the assumption that as the IoT diffuses, the R&D expenditure of the private and public sector will continue to increase. As such, the relationship between the number of homes with access to the internet and the total R&D expenditure in Japan will be examined.

**H3.** The number of households with internet access is positively related to the number of businesses with broadband connections (both fixed and mobile). Another key assumption in this study is that as the use of the IoT increase, the number of businesses that use the IoT in various aspects of their operations will also be on the rise. This will be tested in the course of this research.

**H4.** The number of households with internet access has a positive impact on the average annual hours worked. To determine whether the IoT has a positive or negative impact on jobs in Japan, the relationship between the diffusion of the IoT and the average working time of employees in Japan will be tested.

**Analytic results**
Data used in this study were processes using the one-way ANOVA statistical method and the results are presented in Table III.

The results obtained in this study show that the diffusion of the IoT has a positive co-relationship with SI in Japan. It shows that as the IoT increases its reach, the number of researchers employed in the field of information technology to study and improve innovation (with regards to the IoT) is on the rise. Furthermore, as the IoT diffuses, funding in the field of science and technology is on the rise. This rise is particularly observable in research relating to the IoT. Also, the IoT improved the use of internet-based platforms in businesses across Japan and the working hours of employees. However, the nature of the relationship between the independent and dependent variables varies in proportion. From Table III, it can be observed that the IoT influenced the number of businesses that use various forms of the internet the most. Number of research in the field of science and technology, research funding and average working hours follow sequentially. Figure 2 shows the results of the relationship between the dependent and independent variables. It can be observed that the model relationship is indeed linear and satisfies the linear social change theory used herein in this study.

**Discussion**
This research started off with the aim of providing answers to the argument on the impact of the IoT on the lives of the people living in Japan. Japan is one of the earliest countries to

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Df</th>
<th>Sum Sq</th>
<th>Mean Sq</th>
<th>F value</th>
<th>Pr(&gt;F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Innovation and technology researchers (per thousand employed, full-time equivalent)</td>
<td>1</td>
<td>159.66</td>
<td>159.66</td>
<td>18.2112</td>
<td>0.0027336**</td>
</tr>
<tr>
<td>Science, technology and innovation gross domestic expenditure on R&amp;D (% of GDP)</td>
<td>1</td>
<td>213.11</td>
<td>213.11</td>
<td>24.3070</td>
<td>0.0011491**</td>
</tr>
<tr>
<td>Businesses with a broadband connection – both fixed and mobile (%)</td>
<td>1</td>
<td>369.78</td>
<td>369.78</td>
<td>42.1769</td>
<td>0.0001892***</td>
</tr>
<tr>
<td>Average annual hours actually worked</td>
<td>1</td>
<td>77.12</td>
<td>77.12</td>
<td>8.7967</td>
<td>0.0179829*</td>
</tr>
<tr>
<td>Residuals</td>
<td>8</td>
<td>70.14</td>
<td>8.77</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table III.** Results of computation

**Notes:** Signif. codes: 0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1
use the IoT in developing its infrastructures and businesses; hence, this makes it a suitable candidate to use as a case study. While SI in Japan is on the increase, as a result of the IoT, the results obtained in this study shows that the change it brings are incremental. This incremental change leads to gradual changes in the daily lives of the Japanese people. The first relationship considered in this study was the interaction between the IoT and employment within the science and technology field. The results obtained showed that as a result of the rising number of research focused on the integration of the IoT, the number of researchers in this field has been on the rise. While Ng et al. (2015) posit that the IoT, in production processes, brings about a reduction in productivity of humans, which may result in job losses, Islam et al. (2015) argued that the IoT has not only improved the quality of lives but also created new opportunities in the health sector. The results obtained in this research support the latter argument, because it shows that the IoT improves job opportunities in Japan. The second relationship studied in this research was the association that exists between the IoT and the research expenditure in the field of science and technology in Japan. It was discovered that the IoT improved funding in the field of science and technology. This may be as a result of increasing demand and efficiency of social technologies spurred by the adaptation of the IoT. The need for automation, led by the IoT and RFID, by enterprise all around the world is on the increase (Yan and Huang, 2009). According to Gershenfeld et al. (2004), all around us, there is an upsurge in the improvement of everything as a result of the IoT. Therefore, as efficiency grows, demand likewise intensifies with time.

On the other hand, the third relationship studied herein is the link between the IoT and business operations in Japan. Based on the analysis of results obtained in this study, the IoT has penetrated the business environment in Japan. This is because business operations are becoming more and more internet based and the IoT offer businesses improved efficiency and effectiveness in their operations. According to Glova et al. (2014), the use of the IoT in business has reduced the life cycle of production and services; however, this change requires new business models to accommodate them. The final relationship studied was the interaction between the IoT and the time spent averagely on jobs over time with the introduction of the IoT. While some researchers say that the IoT brings about a reduction in working hours (for example, Glova et al., 2014), the results obtained in this study prove otherwise. The results show that while the IoT diffuses, the working hours continue to increase. This may be explained by the decrease in the working population in Japan. Because the population continues to decrease, many are compelled to take on multiple roles and perhaps multiple jobs. According to Yuji et al. (2012) in Japan, as a result of the aging population, demand for health-care services is more than supply. Hence, many doctors have
to work overtime. Based on the linear social change theory used in this research, the change that the IoT drives is incremental and not radical. Furthermore, the advantages of the IoT to businesses and homes in Japan are positive, and the IoT complements a better living standard rather than threaten it in the Japan’s case.

Conclusion
The development of the IoT to solve societal issues is growing with many developed countries leading the way. However, just like every innovation, the uncertainty surrounding the deployment of the IoT has led to divided opinions amongst experts in the field. While some experts posit that impact of the IoT in our daily lives will lead to radical innovations that will reform the way we live in a negative way (because of the cost and change required), others have argued that the change will be incremental, allowing for the development of prerequisite infrastructure and proper readjustment in the society to accommodate the change. The aim of this study is to try to answer the questions raised by the underlining debate through a study of the IoT and its impact on the Japanese people. Japan was chosen in this study because it is one of the leading countries that has adopted the use of the IoT in many sectors of its economy. The results obtained in this study show that indeed the IoT brings about change in the society, but the change is mainly incremental and not radical. This change has accommodated SI within the Japanese society by building on already existing infrastructure and through making these infrastructures more effectively. Further revelations deduced from this research show that the IoT has been able to bridge the gap between a declining workforce and efficient management by optimizing production and creating a balance of an automated working environment with human participation. However, a limitation of this study is in its narrow scope. It is important to note that further studies on an international level or perhaps multi-national level are needed. Furthermore, there may be other underlining factors, such as culture, social, economic, geographical location, technology capacity, that may contribute to the impact of the IoT on daily life. Therefore, future research needs to verify if indeed this is the case.

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Appendix

Social innovation in Japan

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Innovation and technology researchers (per thousand employed, full-time equivalent)</td>
<td>1.0000000</td>
<td>0.26394584</td>
<td>-0.4172873</td>
<td>0.54818761</td>
</tr>
<tr>
<td>Science, technology and innovation gross expenditure on R&amp;D (% of GDP)</td>
<td>0.2639458</td>
<td>1.0000000</td>
<td>0.2821487</td>
<td>-0.06086882</td>
</tr>
<tr>
<td>Businesses with a broadband connection – both fixed and mobile (%)</td>
<td>-0.4172873</td>
<td>0.28214868</td>
<td>1.0000000</td>
<td>-0.70669501</td>
</tr>
<tr>
<td>Average annual hours actually worked</td>
<td>0.5481876</td>
<td>-0.06086882</td>
<td>-0.7066950</td>
<td>1.0000000</td>
</tr>
</tbody>
</table>

Table AI. Co-linearity matrix of the independent variables

About the authors

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Micro-enterprise development training and entrepreneurial competencies among low-income households in Malaysia

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**Abstract**

**Purpose** – Low-income households form a significant portion of the Malaysian population. To improve the socio-economic condition of low-income households, development organizations in Malaysia offer a wide range of development trainings, discussions and group or center meetings. This study aims to examine the impact of enterprise development training programs on entrepreneurial competencies among Peninsular Malaysia microentrepreneurs.

**Design/methodology/approach** – Adopting a cross-sectional design, the authors collected data from 300 randomly selected microentrepreneurs from the list of microentrepreneurs provided by eKasih (the National Poverty Data Bank), across four states of Peninsular Malaysia. Quantitative data were collected through structured interviews with the respondents from October to November 2017.

**Findings** – The findings revealed that enterprise development training programs significantly affected three of six entrepreneurial competencies (i.e. opportunity recognition competency, organizing competency and relationship competency). These findings highlight the importance of enterprise development training programs towards microentrepreneurs in increasing their competencies.

**Originality/value** – Through its insights, the study enriches the understanding of low-income communities in emerging economies, while offering significant practical implications. Based on findings, it is recommended that development organizations should therefore continue the current microenterprise...
development training programs. With improved entrepreneurial competencies, microentrepreneurs can thrive amidst competition yet sustaining business performance.

**Keywords** Entrepreneurship, Training, Competencies

**Paper type** Research paper

**Introduction**

Poverty and inequality are longstanding issues prevalent in developing countries. Sizable populations of most developing countries have been experiencing high levels of material deprivation and disproportionate individual well-being. Understandably, developing countries prioritize alleviation of poverty and reduction in income inequalities over and above the other millennium development goals (MDGs) of the United Nations. As future poverty concept and scenarios continue to be vastly discussed, the events of international economic shock, such as back-to-back global economic crises unfortunately, spiked the rates of both poverty and hardcore poverty adversely affecting millions worldwide (Heltberg *et al.*, 2015). In Malaysia, the reported reduction rates in both poverty (income range at RM451-RM720 or less than poverty line income) and hardcore poverty (income less than RM450 or below half of poverty line) were determined based on the quantitative money-metric measures in terms of Poverty Line Income (Al Mamun and Mazumder, 2015; Ahmed *et al.*, 2016); the persistence of income inequality and socio-economic vulnerability continue to threaten low-income households, as experienced by other developing countries (Nair and Sagaran, 2015).

Within the Malaysian context, poverty befalls upon those who live below the poverty line income (PLI) which is RM930, RM1,170 and RM990 for Peninsular Malaysia, Sabah and Labuan, and Sarawak respectively (EPU - Economic Planning Unit, 2017). It is noteworthy to mention that Malaysia has achieved remarkable poverty alleviation targets among households below the PLI: a substantial reduction from 50 per cent (1970) to less than 1 per cent (2014) in just a span of four decades (EPU, 2017). In essence, Malaysia has successfully eradicated extreme poverty and hunger, which has been one of the MDGs. Nevertheless, poverty has always remained a major concern (Nair, 2010) primarily due to the stubborn pockets of poverty among certain groups and areas, particularly amidst urban slums and remote areas with limited accessibility, among female household heads, less educated household heads, workers in the informal sectors, unresolved issues linked with income distribution, and new emerging forms of poverty, wherein each demand pressing attention (Nair and Sagaran, 2015).

Development organizations play a major role in the effort to reduce poverty, inequality and vulnerability among households and communities. The impact of development training programs is a popular research area among academics and practitioners. Despite studies having found the positive effects of these programs, researchers have recently questioned the diversity of findings on impacts that has ranged from positive, negative, and to no impact at all (Angelucci *et al.*, 2013; Ganle *et al.*, 2015). In an attempt to explain the diversity of findings on the impacts of microfinance programs, Armendáriz *et al.* (2005) alluded to differing contextual elements such as financial service providers, enterprise development, population density, group-cohesion, financial literacy, attitudes to debt, among others. In Malaysia, microfinance plays a crucial role in the socio-economic development of low-income households. Earlier studies found that microfinance initiatives can increase microenterprise assets of the hardcore poor households (Al Mamun *et al.*, 2011a) and increase employment and income generating opportunities at community and household levels (Al Mamun *et al.*, 2011a). Researchers also found the positive impact of microfinance
programs on total productive assets and number of gainfully employed (Al Mamun et al., 2011b), and that it is significantly related to performance of medium-sized enterprises (Mahmood and Mohd Rosli, 2013). Another study reported the said programs to have increased entrepreneur income, positively affect business, and able to fulfill the basic needs of entrepreneurs (Hassan and Ibrahim, 2015).

Besides microfinance programs, training programs could be offered by development organizations or any entities, impact business performance. Previous studies found positive effects of business trainings, in the form of private training, e-learning and on-the-job training, on business performance (Jones et al., 2013). Specifically, enterprise development trainings provided by development organizations have played a major role in improving the socio-economic well-being of low-income households and microenterprises. A study comparing the effects of training among micro and small enterprises between two groups of people, distinguished by those who received and those who did not receive training, found that the former had higher level of sales and assets (Kessy and Temu, 2010). It is encouraging that a large number of low-income households, through microcredit programs, has turned into owners of microenterprises (Al Mamun et al., 2011a) with outcomes of improved earning capacity, socio-economic growth and living standards.

As noted by Miranda and Miranda (2018), microenterprises are vital to dispersing new industries to the countryside and stimulating employment. Based on the Organization for Economic Co-operation and Development (OECD) The OECD Policy Briefs (2000), which has been repeatedly cited in recent studies (Kachkar, 2018; Zhou and Ma, 2018), small and microenterprises appear to be more prone to external shocks, in comparison to medium and large firms.

As such, the OECD has suggested firms to further upgrade management skills, information gathering and technology usage. Accordingly, an empirical study focusing on women micro-entrepreneurs in Malaysia by Zainol et al. (2017) found that the participants of development programs, who received training apart from financial assistance, have higher level of entrepreneurial competencies. In a more recent study that involved Kelantanese micro-entrepreneurs, Mustapa et al. (2018a) discovered that the number of hours spent on training programs positively affected household income, while negatively influenced their level of economic vulnerability. Particularly in light of microenterprises, training sessions, total number of training hours received, and center meetings or discussions attended displayed a significant impact on firm performance (Mustapa et al., 2018b).

Nevertheless, empirical evidences that investigate the integration of enterprise development training programs and entrepreneurial competencies at firm level are scant. Hence, in the attempt to address this gap, this study investigated the impact of enterprise development training programs on entrepreneurial competencies among beneficiaries of various development organizations in Peninsular Malaysia. The outcome has been expected to shed light on the relationship and the subsequent effects of enterprise development training programs and entrepreneurial competencies, along with several significant implications for policymakers, as well as entities involved in the development of microenterprises and micro-entrepreneurs.

**Literature review**

This study attempts to empirically examine the effect of enterprise development training programs on entrepreneurial competencies. Entrepreneurial competencies is the aggregate ability towards successful job role performance (Man et al., 2002; Bird, 1995; Man et al., 2008). Barazandeh et al. (2015) and Al Mamun et al. (2016), among others, found that entrepreneurial competencies positively impacts firm performance. This phenomenon can
be explained by the resource-based view (RBV). RBV stipulates that resources, which are owned and managed, can serve to create and implement strategies to improve effectiveness and efficiency (Barney, 1991). In this context, entrepreneurial competencies are the resources (capabilities, traits and skills) inherent within the entrepreneur that are channeled towards increasing firm performance. Furthermore, Barney (1991) suggests that a firm’s value creation process solely lies in the owner-manager’s ability in acquiring the resources. Therefore, fitting into the Barney’s RBV and based on prior studies that focused on micro-entrepreneurship within a similar context, it can be assumed that entrepreneurial competencies of owner-managers of firms that identify and acquire resources can lead to superior firm performance, wherein such required competencies are triggered by relevant training programs (Zainol et al., 2017; Mustapa et al., 2018a, 2018b; Al Mamun et al., 2018).

Training and entrepreneurial competency

Commitment competency is the sustained drive or motivation of the entrepreneur to move ahead with the business (Man and Lau, 2000). This competency leads entrepreneurs to set a long-term direction for the firm thus ensuring sustained performance. Researchers noted that entrepreneurs with a high level of commitment competency demonstrate devotion of their time, hard work and commitment to personal beliefs, values and goals (Man and Lau, 2000). As participation in development programs leads to an increase in entrepreneurial competency (Zainol et al., 2017), this study expects enterprise development training programs to improve commitment competency. Thus, the following hypothesis is suggested:

**H1.** Enterprise development training programs lead to an improvement in commitment competency among the participating microentrepreneurs.

Conceptual competency is the ability to understand different concepts which are reflected in the behaviors of the entrepreneur (Man and Lau, 2000). Accordingly, conceptual competency helps in the formation of the firm’s competitive scope. This competency represents a suite of abilities possessed by entrepreneurs such as intuitive thinking, innovativeness, assessment of risks and tackling issues from different angles (Man and Lau, 2000). Following a research that reported participation in development programs improves entrepreneurial competency (Zainol et al., 2017), this study expects enterprise development training programs to improve conceptual competency. Thus, the following hypothesis is suggested:

**H2.** Enterprise development training programs lead to an improvement in conceptual competency among the participating microentrepreneurs.

Opportunity Recognition Competency is the ability to recognize market opportunities through various means and forms to scope the firm’s competitiveness (Man and Lau, 2000). As mentioned by Cho and Lee (2018), to start a business, an entrepreneur should have an ability to identify entrepreneurial opportunities at the beginning. This competency enables entrepreneurs to identify, assess and seek business opportunities. Hence, an entrepreneur that is competent in recognizing opportunities can effectively identify and assess market conditions such as gaps and changes, then respond by seeking new business opportunities through marketing and promotion towards eventual sustained performance (Man and Lau, 2000). Therefore, this study refers to a research that supports the positive link between participation in development programs and an entrepreneurial competency (Zainol et al., 2017). This study seeks to affirm that enterprise development training programs positively affects opportunity recognition competency. Thus, the following hypothesis is suggested:
**H3.** Enterprise development training programs lead to an improvement in opportunity recognition competency among the participating microentrepreneurs.

**Organizing competency** is the suite of resource management encompassing internal and external human, physical, financial and technological resources (Man and Lau, 2000). Organizing competency refers to an entrepreneur’s ability to plan, organize, lead, motivate, delegate and control the said resources. This competency is crucial for any entrepreneur as it involves managing daily operations such as planning daily operations, acquiring and allocating resources, delegating and establishing rules and regulations, as well as leading and motivating employees. This ensures smooth daily operations and sustained performance (Man and Lau, 2000). This study extends the research that reported participation in development programs contributes towards incremental entrepreneurial competency (Zainol et al., 2017). Therefore, this study proposes that enterprise development training programs lead to an improvement in organizing competency. Thus, the following hypothesis is suggested:

**H4.** Enterprise development training programs lead to an improvement in organizing competency among the participating microentrepreneurs.

**Relationship competency** refers to the ability of interacting at one-to-one and individual-to-group levels in a way that enriches organizational capabilities and the competitive scope of firms (Man and Lau, 2000). It means that an entrepreneur that possesses relationship competency has the ability to build and maintain networking relationships with existing and potential stakeholders, and then tap into these networking relationships to acquire and strengthen resources and business opportunities. Additionally, during times of conflict, the entrepreneur would be able to communicate, negotiate and manage issues effectively (Man and Lau, 2000). The importance of this competency underscores the value of good working relationships between the entrepreneur and the existing and potential stakeholders in ensuring long-term performance (Man and Lau, 2000). With reference to the study that participation in development programs leads to an increase in entrepreneurial competency (Zainol et al., 2017), this study formulates the following hypothesis that examines the link between enterprise development training programs and relationship competency, as follows:

**H5.** Enterprise development training programs lead to an improvement in relationship competency among the participating microentrepreneurs.

**Strategic competency** encompasses and transcends firm level understanding. This competency is related to the ability of an entrepreneur to set, evaluate and implement the strategies of the firm (Man and Lau, 2000). Also, strategic competency reflects behaviors of goal-setting and proactive action to attain short and long-term goals, all of which are done through forming and creating the firm’s competitive scope and organizational capabilities (Man and Lau, 2000). In comparison with the earlier said competencies, this competency is regarded as the most important as it brings together two aspects of entrepreneurial tasks: forming and creating the firm’s competitive scope and organizational capabilities (Man and Lau, 2000). Again, this study refers to the research of Zainol et al. (2017) that found the positive effect of participation in development programs on entrepreneurial competency. Thus, this study concentrates on the link between enterprise development training programs and strategic competency as follows:
H6. Enterprise development training programs lead to an improvement in strategic competency among the participating microentrepreneurs.

Research methodology
This study adopted cross-sectional design in the collection of quantitative data. Structured interview was conducted to assess the impact of enterprise development initiatives, in particular those that focused on access to financial services and microenterprise development training programs targeted at low-income households. The respondents were participants of development programs listed in eKasih National Poverty Data Bank. Complete information regarding the development organizations, participants, and list of low-income and poor households were obtained from eKasih National Poverty Data Bank. This process provided a list of 400 randomly selected low-income and poor households from the four states of Kelantan, Terengganu, Kedah, and Perlis. A total of 300 respondents agreed to participate in the research survey and consented the research team to conduct interviews in their residents.

Sample size
The sample size for this study was calculated using G-Power version 3.1. Based on the power of 0.95, effect size of 0.15, the required a sample size of 89 to test the model. However, to avoid any possible complications arising from a small sample size, this study collected data from 300 microentrepreneurs residing in four states in Peninsular Malaysia.

Research instrument
Using questions from Man et al. (2008), the instrument measured commitment competency, conceptual competency, organizing competency, opportunity recognition competency, relationship competency and strategic competency. The questionnaire was carefully modified and designed in simple structures with unbiased wording. This is to ease the respondents’ understanding towards them providing perceptive answers.

Data analysis method
The p-value of Mardia’s multivariate kurtosis was less than 0.05, confirming the absence of multivariate normality. The findings of this analysis are reported as recommended by Hair et al. (2014) for PLS modeling, includes reliability, convergent validity, discriminant validity, average variance extracted (AVE) and path coefficients. The models in PLS-SEM are tested using two stages in which Cronbach’s alpha (α) and composite reliability (CR) are used to report the intern consistency of the constructs. The recommended scores for α and CR are 0.70 or above (Chin, 2010). However the CR is considered a good indicator of the internal reliability than α. The AVE value must be 0.50 or above for every construct (Hair et al., 2014). The variance inflation factor (VIF) represents the inflation of variance due to the presence of multicollinearity within the constructs (Chin, 2010). The discriminant validity in PLS-SEM is verified using cross-loading, Fornell–Larcker and heterotrait–monotrait ratio (HTMT). The Fornell–Larcker criterion needs to be above 0.700 to provide evidence of discriminate validity. However, a new test of HTMT is suggested for the discriminate validity and the values must be less than 0.90. The measurement model is represented with $r^2$ that denotes the explanation power of endogenous variables with exogenous variables. The effect size ($f^2$) and $Q^2$ are the estimates of the measurement model. The effect size ($f^2$)
signifies the effect of each exogenous variable on the endogenous variable. Cohen (1988) offered the guidelines to means the ($f^2$). The effect sizes of 0.30, 0.15, and 0.02 represent large, medium, and small effects respectively. The $Q^2$ values of 0.02, 0.15, and 0.35 indicate small, medium, and large predictive relevancy of the model respectively (Hair et al., 2014).

Summary of findings

Demographic characteristics

The demographic characteristics of the respondents were presented in Table I. The data for this study had been gathered from 300 low-income households residing in Kelantan, Terengganu, Kedah and Perlis, Malaysia with most of the respondents (53.7 per cent) being males. A total of 111 (37.0 per cent) of the respondents were in the age range of 31 to 40 years old, followed by 85 (28.3 per cent) within the age range of 41 to 50 years old, and 66 (22.0 per cent) in the age range between 51 and 60 years old. Nevertheless, only 10 (3.3 per cent) respondents were between 20 and 30 years old. As for marital status, 243 (81.0 per cent) of the respondents were married, while the remaining were widowed (7 per cent) and separated from their partners (1.3 per cent). As for the number of full time employees, a total of 170 (56.7 per cent) micro-enterprises has no full time employee, 105 (35 per cent) micro-enterprises has

<table>
<thead>
<tr>
<th>Categories</th>
<th>n</th>
<th>(%)</th>
<th>Categories</th>
<th>n</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td>Number of gainfully employed members/household</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>161</td>
<td>53.7</td>
<td>One</td>
<td>69</td>
<td>23.0</td>
</tr>
<tr>
<td>Female</td>
<td>139</td>
<td>46.3</td>
<td>Two</td>
<td>200</td>
<td>66.7</td>
</tr>
<tr>
<td>Total</td>
<td>300</td>
<td>100.0</td>
<td>Three</td>
<td>30</td>
<td>10.0</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td>Four</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>20 to 30 years</td>
<td>10</td>
<td>3.3</td>
<td>Total</td>
<td>300</td>
<td>100.0</td>
</tr>
<tr>
<td>31 to 40 years</td>
<td>111</td>
<td>37.0</td>
<td>Business type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>41 to 50 years</td>
<td>85</td>
<td>28.3</td>
<td>Manufacturing</td>
<td>31</td>
<td>10.3</td>
</tr>
<tr>
<td>51 to 60 years</td>
<td>66</td>
<td>22.0</td>
<td>Retailing</td>
<td>89</td>
<td>29.7</td>
</tr>
<tr>
<td>61 years and above</td>
<td>28</td>
<td>9.3</td>
<td>Wholesales</td>
<td>29</td>
<td>9.7</td>
</tr>
<tr>
<td>Total</td>
<td>300</td>
<td>100.0</td>
<td>Agricultural</td>
<td>53</td>
<td>17.7</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
<td>Livestock</td>
<td>26</td>
<td>8.7</td>
</tr>
<tr>
<td>Married</td>
<td>243</td>
<td>81.0</td>
<td>Poultry</td>
<td>25</td>
<td>8.3</td>
</tr>
<tr>
<td>Single</td>
<td>16</td>
<td>5.3</td>
<td>Service</td>
<td>47</td>
<td>15.7</td>
</tr>
<tr>
<td>Separated</td>
<td>4</td>
<td>1.3</td>
<td>Total</td>
<td>300</td>
<td>100.0</td>
</tr>
<tr>
<td>Divorced</td>
<td>16</td>
<td>5.3</td>
<td>Firm established</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Widowed</td>
<td>21</td>
<td>7.0</td>
<td>1 to 5 years</td>
<td>39</td>
<td>13.0</td>
</tr>
<tr>
<td>Total</td>
<td>300</td>
<td>100.0</td>
<td>6 to 10 years</td>
<td>159</td>
<td>53.0</td>
</tr>
<tr>
<td>Number of full time employees</td>
<td></td>
<td></td>
<td>11 to 15 years</td>
<td>44</td>
<td>14.7</td>
</tr>
<tr>
<td>None</td>
<td>170</td>
<td>56.7</td>
<td>16 to 20 years</td>
<td>33</td>
<td>11.0</td>
</tr>
<tr>
<td>One</td>
<td>105</td>
<td>35.0</td>
<td>More than 20 years</td>
<td>25</td>
<td>8.3</td>
</tr>
<tr>
<td>Two</td>
<td>23</td>
<td>7.7</td>
<td>Total</td>
<td>300</td>
<td>100.0</td>
</tr>
<tr>
<td>Three</td>
<td>2</td>
<td>0.7</td>
<td>Number of part-time employees</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>300</td>
<td>100.0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table I.
Profile of the respondent

Source: Author (s) own compilation
one full time employee and 25 (8.4 per cent) micro-enterprises has more than one employees. As for the number of part time employees, a total of 216 (72 per cent) micro-enterprises has no part time employee, 81 (27 per cent) micro-enterprises has one part time employee and 3 (1 per cent) micro-enterprises has more than one part time employee. In respect of number of gainfully employed member per households, around 77 per cent households has at least two gainfully employed members in their household. As for the type of micro-enterprises, highest proportion of households (29.7 per cent) engaged in retailing, followed by agriculture (17.7 per cent), service (15.7 per cent), manufacturing (10.3 per cent), wholesales (9.7 per cent), livestock (8.7 per cent), and poultry (8.3 per cent). Among the 300 micro-enterprises owned and/or managed by respondents, highest proportion of micro-enterprises (53 per cent) established 6 to 10 years ago; followed by 11 to 15 years (14.7 per cent), 1 to 5 years (13 per cent), 16 to 20 years (11 per cent) and more than 20 years (8.3 per cent).

Reliability and validity
The mean and standard deviation of all the variables are presented in Table II. The mean value for all the variables is considered high with low standard deviation. The mean value for enterprise development training program is 40.48 with standard deviation of 26.76. This means, on average, the microentrepreneurs, as respondents in this study, received 40 hours of training. The Cronbach’s alpha reliability analysis shows that all variables have values of more than 0.7, indicating that all the items are reliable. The composite reliability values for all variables are more than 0.75, indicating reliability. The Dillon-Goldstein rho values for all indicators are more than 0.65, confirming the items’ reliability. Finally, the AVE values for all constructs are higher than 0.50, which indicate acceptable convergent validity. Looking at the cross-loadings in Table III, all indicators’ loadings are higher than the total cross-loadings, confirming discriminant validity. Moreover, the Fornell-Larcker test was used to assess the discriminant validity at the construct level. The Fornell-Larcker criterion in Table III did not detect any lack of discriminant validity. The heterotrait–monotrait ratio (HTMT) value of 0.9 was used the threshold, and this study confirmed that there was no lack of discriminant validity.

Path analysis
The first two hypotheses reported negative effects. The path coefficients, as noted in Table IV, show that the coefficient value for enterprise development training programs on conceptual competency (H1) is −0.096, with a p-value of 0.208. This indicates that enterprise development training programs have a significant negative effect on conceptual competency. The coefficients for other variables are also presented in Table IV.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Items</th>
<th>Mean</th>
<th>SD</th>
<th>CA</th>
<th>DG rho</th>
<th>CR</th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONC</td>
<td>4</td>
<td>4.236</td>
<td>0.604</td>
<td>0.888</td>
<td>0.964</td>
<td>0.915</td>
<td>0.730</td>
</tr>
<tr>
<td>COMC</td>
<td>3</td>
<td>3.877</td>
<td>0.697</td>
<td>0.832</td>
<td>0.850</td>
<td>0.859</td>
<td>0.674</td>
</tr>
<tr>
<td>OPPC</td>
<td>4</td>
<td>3.863</td>
<td>0.692</td>
<td>0.847</td>
<td>0.960</td>
<td>0.881</td>
<td>0.654</td>
</tr>
<tr>
<td>ORGC</td>
<td>3</td>
<td>3.746</td>
<td>0.791</td>
<td>0.839</td>
<td>0.840</td>
<td>0.903</td>
<td>0.756</td>
</tr>
<tr>
<td>RELC</td>
<td>3</td>
<td>4.032</td>
<td>0.650</td>
<td>0.861</td>
<td>0.884</td>
<td>0.914</td>
<td>0.780</td>
</tr>
<tr>
<td>STRC</td>
<td>3</td>
<td>4.122</td>
<td>0.468</td>
<td>0.704</td>
<td>0.828</td>
<td>0.826</td>
<td>0.615</td>
</tr>
<tr>
<td>EDTP</td>
<td>1</td>
<td>40.48</td>
<td>26.76</td>
<td>—</td>
<td>1.000</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

Notes: enterprise development training programs (EDTP); conceptual competency (CONC); commitment competency (COMC); opportunity recognition competency (OPPC); organizing competency (ORGC); relationship competency (RELC); strategic competency (STRC); standard deviation (SD); Cronbach’s alpha (CA); Dillon-Goldstein’s rho (DG rho); composite reliability (CR); average variance extracted (AVE); variance inflation factors (VIF)

Table II. Reliability and validity
training programs has an insignificant negative effect on microentrepreneur’s conceptual competency. For $H2$, the coefficient value for enterprise development training programs on commitment competency is $-0.111$ with a $p$-value of 0.177, thus indicating that enterprise development training programs has an insignificant negative effect on commitment competency.

However, positive effects were found for the other competencies. The coefficient for enterprise development training programs shows a positive ($\beta = 0.246$) and significant

<table>
<thead>
<tr>
<th></th>
<th>CONC</th>
<th>COMC</th>
<th>OPPC</th>
<th>RELC</th>
<th>ORGC</th>
<th>STRC</th>
<th>EDTP</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONC – 1</td>
<td>0.912</td>
<td>-0.169</td>
<td>0.070</td>
<td>-0.053</td>
<td>0.155</td>
<td>0.027</td>
<td>-0.108</td>
</tr>
<tr>
<td>CONC – 2</td>
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<td>0.159</td>
<td>0.130</td>
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Fornell–Larcker Criterion

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| EDTP | -0.096| -0.120| 0.244| 0.159| 0.130| -0.070| -

Heterotrait–monotrait ratio (HTMT)

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<td>EDTP</td>
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Table III.
Loadings and cross loading

Notes: enterprise development training programs (EDTP); conceptual competency (CONC); commitment competency (COMC); opportunity recognition competency (OPPC); organizing competency (ORGC); relationship competency (RELC); strategic competency (STRC). The Italic values in the matrix above are the item loadings and others are cross-loadings

Source: Author’s data analysis
(p-value of 0.000 < 0.05) effect on opportunity recognition competency (H3). For H4, the path coefficient value for enterprise development training programs on organizing competency is 0.155 with a p-value of 0.026. This indicates that enterprise development training programs significantly and positively affect organizing competency. For H5, the coefficient for enterprise development training programs shows a positive (β = 0.169) and significant (p-value of 0.001 < 0.05) effect on relationship competency. Inversely, the path coefficient value for enterprise development training programs on strategic competency (H6) is −0.068 with a p-value of 0.525, towards an indication that enterprise development training programs has an insignificant negative effect on strategic competency.

**Discussion and conclusion**

It is widely accepted that microenterprise development programs are recognized to have a major role in increasing enterprise performance and entrepreneurial competencies. These programs are specially designed to help micro entrepreneurs better execute business tasks. The purpose of the present study was to examine the effect of microenterprise development training programs on entrepreneurial competencies among microentrepreneurs. The findings from the study revealed that training programs has a positive and significant effect on opportunity recognition competency, organizing competency, and relationship competency among microentrepreneurs in Malaysia (H3, H4 and H5). This indicates that training programs and initiatives of concerned entities may enhance the ability amongst micro-entrepreneurs to recognize (identify, assess and seek) market opportunities, along with their ability to plan, organize, lead, motivate and delegate resources (e.g. human, physical, financial and technological), as well as their capacity to interact and establish networks both on one-to-one and group bases.

Conversely, the study also found that training programs has an unpredicted negative effect on conceptual competency, commitment competency and strategic competency (H1, H2 and H6), although not statistically significant. This suggests that training initiatives of developmental organizations, such as micro-credit institutions, are neither required for micro-entrepreneurs’ sustained drive for business, for their understanding of business-related concepts, nor for their ability to set, evaluate, and implement goal-setting and proactive actions to attain short- and long-term strategies for their microenterprises. Overall, the findings seem to be in line with the previous findings of Angelucci *et al.* (2013), as well as Ganle *et al.* (2015), where development initiatives and programs reported a diversity of results, ranging from positive, negative, and even to no impact.

Theoretically, this study contributes by partially supporting the existing literature concerning human capital theory by presenting valuable empirical evidence, which explains
that activities such as schooling, training and information acquisition, among others, affect the present and/or future well-being (Becker, 1962). The reason for the insignificant effect on the three dimensions of entrepreneurial competencies remains unanswered. As the hypotheses tested in this study are not found in the literature, the positive effects are worth mentioning given that training remains an important factor in enhancing entrepreneurial competencies. This is crucial enrichment for the existing body of knowledge, advocating specific entrepreneurial competencies as significant factors in determining the success of entrepreneurship and enterprise performance.

Implication wise, this study reveals significant insights for policymakers, entities involved in the development of microenterprises, and micro-entrepreneurs. Based on the findings, it is recommended that developmental organizations, such as TEKUN Nasional or Majlis Amanah Rakyat (MARA), and government agencies (and policymakers) should aggressively promote the competitiveness of microenterprises by making avail effective training programs to wider and diverse audiences, particularly amongst micro-entrepreneurs from the low-income communities in Malaysia (or other emerging nations). In particular, concerned entities should make training programs (e.g. private training, e-learning on-the-job training) a compulsory prerequisite to avail their services, such as microcredit facilities. It may also be fruitful if the government and the developmental entities offer various incentives for micro-entrepreneurs attending such training programs. These policies and strategies are bound to improve participation amongst poor micro-entrepreneurs in training programs, hence instilling the necessary and crucial competencies among them.

As for the microenterprise owners (micro-entrepreneurs) and managers, operating in the current competitive business world, this study implies that they should find ways to sign up for enterprise development training programs, such development initiatives, discussions and group or center meetings to take their entrepreneurial competencies to the next level. As the present study only investigated the effect of training on entrepreneurial competencies among micro-entrepreneurs, its findings could have limitations and not generalizable completely in case of larger firms. Future researchers should therefore include larger-sized enterprises to confirm if the findings of the present study are being reflected there as well.

References


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The effects of technology acceptance and use behaviour on women’s entrepreneurship motivation factors

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Abstract

Purpose – The purpose of this paper is to determine the effects of factors affecting the acceptance and use of technology on the factors affecting women’s entrepreneurship motivation.

Design/methodology/approach – This study was conducted with 156 women entrepreneurs in Turkey in February 2019. A mixed method evaluation design has been adopted in the study.

Findings – The findings revealed that effort expectancy was negatively associated with behaviour intention and push factor and positively associated with pull factor. Performance expectancy was positively associated with balance factor, push factor and behaviour intention. Hedonic motivation was positively associated with behaviour intention and emotional factor. Behaviour intention was negatively associated with use behaviour. Facilitating conditions was positively associated with push factor. Habit was positively associated with behaviour intention and negatively associated with pull, push, balance and emotional factors. Necessities and habit were not motivation factors for women entrepreneurs.

Research limitations/implications – The sample was restricted to women entrepreneurs, limiting the generalizability of the findings.

Practical implications – The practical implications of the study show that effort expectancy, performance expectancy, hedonic motivation, facilitating conditions and habit are the key factors for the women’s entrepreneurship motivation. Women’s entrepreneurship commissions to be established in chambers of commerce and industry can improve entrepreneurial motivation.

Originality/value – This is the first study that reveals the effects of technology acceptance and use behaviours on women’s entrepreneurship motivation. Theoretical background, discussion, managerial implications, limitations and recommendations for future studies are discussed.

Keywords Entrepreneurship, Technology acceptance, Women’s entrepreneurship, Technology use, Entrepreneurship motivation

Paper type Research paper

Introduction

Women have an important place in the formation of social and family roles of human being, which is the basic building block of society. The fact that women are a pioneer in the transference and protection of cultural values between societies has revealed the importance
of social values. The unequal status that emerged from the transformation of the matriarchal structure to the patriarchal structure developed against the woman. In this process, the developing economy and changing environmental conditions have caused the decline in the place of women in the society.

In carrying out the entrepreneurship process of organizations, it is necessary to protect the social balance, to adopt the sense of justice, to ensure the belief in the organization. This policy increases the commitment of stakeholders to the organization and increases the contribution to total productivity. Organizations can contribute to the organizational vision with varied views and perspectives via focusing on the diversity management. Individuals with various race and gender contributing to productivity and entrepreneurship within the organization constitute the organizational spirit. Thus, the organization becomes able to increase the total contribution by offering equal opportunities and resources to individuals with various characteristics via a fair management approach. Women’s entrepreneurship is one of these approaches.

**Literature review and hypotheses development**

*Women’s entrepreneurship*

Women’s entrepreneurship is not a “female entrepreneurship” as stated by some authors in the literature (Rugina, 2019; Nguyen et al., 2014; Danish and Smith, 2012). Entrepreneurship is not a process that varies by gender or race. In this context, women entrepreneurship is not a type of entrepreneurship. Women entrepreneur identified as an individual who creates business idea, evaluates the best opportunity, producing innovative business ideas, combines the factors of production, considers the possible risks and takes these risks, aims to earn profit, creates emotional difference and transforms this difference into creative design in products and services (Özsungur, 2019). Women’s entrepreneurship is an intellectual action, not developed against men’s entrepreneurship, but an idea designed to promote entrepreneurship.

The reason why this entrepreneurship is called women’s entrepreneurship is that women have emotional motivation, their world views and their creativity are different vis-à-vis men. Creative design ideas about implementation reveal the entrepreneurial spirit of women in the process of the evaluation of opportunities. The woman accomplishes her ideas by enriching her own essence with her emotions and considering the details. According to women, mission and vision are not concepts with definite limits. The aim and the target are considered by the woman as a whole. Visuality, presentation, quality and benefit are important for women. Although the main purpose is income, women also take into consideration other objectives. Owing to the biological and physiological structure of the woman, emotional, maternity, family and values are always at the forefront. Therefore, women do not ignore these factors in production, marketing, design and offering service. The service does not end with the service delivery according to the woman. The sustainability of the service after offering and maintaining relations are important issues in women entrepreneurship.

*Technology acceptance and use of women entrepreneurs*

Technology is a constantly changing factor that must be taken into account in entrepreneurship. To ensure the sustainability of the enterprises and not enter into the decline process called “rigor mortis”, sustainable innovations should be followed (Wright, 1987). The most important innovation required by the era is technology. Technology is a fundamental innovation that helps human power, facilitates daily life and ensures the flow of life in every field. The facilities provided by technology for business life, the international dimension through innovations in communication and transportation via technology demonstrate the
importance of acceptance and use behaviour. Advertising, marketing, production, services, information, communication, transportation and many other fields of technology are indispensable in entrepreneurship. Considering this crucial aspect in women’s entrepreneurship is necessary in terms of benefit and efficiency. This process occurs with the adoption and use of technology.

Technology acceptance is the operational output of positive and negative emotions, with the perceived use and ease of use in the process of adaptation to technological devices and technological innovations. The use of a technological device affects the individual behaviour to use and adopt an innovation in a technological instrument (Davis, 1989). Perceptions, expectations, performances and emotions play an important role in the acceptance of a technological product together with its innovations (Venkatesh, 2000). For these reasons, technology acceptance is the sum of cognitive and action processes consisting of perception, expectations and emotions, which have been put forward until the use behaviour of technological products and services and the adoption of innovations by individuals and in the process of adaptation.

It is likely that a woman entrepreneur who can adapt to the changing environment will offer more productive outcomes and contribute to the economy. It is necessary to reveal the importance on the association between the factors that motivate women to entrepreneurship and technology and to understand the women entrepreneurs. It is important for women to contribute to the economy by revealing their creative ideas with their emotional characteristics and to develop their interactions with technology, policymakers and women entrepreneurship.

H1. Facilitating conditions (FC) subscale is significantly associated with technology use behaviour.

H2. Behaviour intention (BI) subscale is significantly associated with technology use behaviour.

H3. Technology acceptance behaviour subscales [effort expectancy (EE), performance expectancy (PE), social influence (SI), facilitating conditions (FC), hedonic motivation (HM), price value (PV), habit (HT), behaviour intention (BI)] are significantly associated with technology use behaviour.

Motivating factors for women entrepreneurs. Women’s entrepreneurship has emerged on the basis of social learning theory. The father’s entrepreneurship, childhood economic status and the effects of the social environment in the family are the main reasons for the emergence of entrepreneurship. The motive of entrepreneurship, which emerged on the basis of this theory, pushed the woman into action. Environment, emotional and many other factors have pushed or attracted/pulled women to entrepreneurship. These factors are categorized under four main headings: emotional, push, pull and balance. Ismail et al. (2012) defined two factors as positive and negative. On the other hand, these factors were also expressed as pull and push factors (Kjeldsen and Nielson, 2000).

Pull factors are the factors that motivate women entrepreneur and provide positive emotions to be entrepreneurs in the cognitive process, which has a positive effect on women entrepreneurs. For instance, freedom and great independence (financial and others) provide opportunities for education, family safety, business opportunity, request for additional income for the family, reputation in traditional family businesses, demand for social status at a high level, creativity, non-complex and high profit (Kjeldsen and Nielson, 2000).

Push factors are the motivations of entrepreneurship in women entrepreneurs as a result of compelling reasons such as perceptions of necessity and social pressure. This motivation
causes women entrepreneurs to undertake the entrepreneurial action. Deprivation and frustration, dissatisfaction with current job, loss of job, tired of job, immigrant, finished training, family pressure/father profession, economic deficiencies are the main examples of this motivation type (Ismail et al., 2012).

It was revealed that emotional motivation factors, such as work commitment, loyalty, workplace commitment, solidarity, need for social networking, family and personal support, discrimination and humiliation, were effective on women entrepreneurs (Fineman, 2000). Emotional factors are a kind of motivation directed towards entrepreneurship by the values and judgments that arise because of the emotional aspects of women.

The woman, who has to redress a balance between family and work, has an important conflict between maternity responsibilities and work life. This situation shows that the woman entrepreneur is under the influence of balance factors. Job–family balance, work at home (flexible working hours), share time between work and family are the examples of this motivation type.

The fact that technology is an indispensable element in the present requires the querying of its association with motivation factors in entrepreneurship. The main purpose of this study is to determine the effects of factors affecting the acceptance and use of technology on the factors affecting women’s entrepreneurship motivation. Further, crucial objectives are to reveal the current situation of the thoughts of women entrepreneurs on the basis of gender diversity and discrimination, the services offered by the chambers of commerce and industry to women entrepreneurs. Such studies, which have been carried out to reveal the current situation of women entrepreneurs in developing countries, will provide crucial predictions to policymakers in preparing the way for women’s entrepreneurship. The comparison of technology interaction and motivation in women’s entrepreneurship has never been studied in the literature before. In addition, the lack of studies in which the chambers of commerce and industry in the previous studies have been proposed in terms of women entrepreneurs also reveal the importance of this study.

H4. Technology acceptance and use behaviour subscales are significantly associated with women’s entrepreneurship motivation subscales [Pull factor (PF), Push factor (PUF), Balance factor (BF), Emotional factor (EF)].

Methods

Participant
According to the women entrepreneurs’ council data obtained from the Union of Chambers and Commodity Exchanges of Turkey, there were 218 women entrepreneurs in Adana and a total of 6,792 in Turkey. Participants’ business enterprises (n = 156) were affiliated to the Chamber of Commerce and Chamber of Industry in Turkey in February 2019. Surveys were administered in Turkish by two interviewers. The reason why there are not too many interviewers in the research is to reduce the impact of different personal characteristics in the responses to the qualitative questions. Participants were announced to be subject to voluntary participation in the survey. The survey was not conducted with individuals who did not want to participate.

Measures
The questionnaire consists of 75 items in total. Demographic variables consist of nine items under the heading of “personal/sector characteristics”. This first section includes the
following information: age, marital status, education level, grant support, business segment, total number of employees, trademark, patent, utility model.

The second section consists of four parts and 26 items by using five-point Likert scale under the heading “women’s entrepreneurship motivation (WEM)”. (1) strongly disagree, (2) disagree, (3) neither agree or disagree, (4) agree, (5) strongly agree. WEM consists of 4 dimensions/subscales and 26 items in total. “Pull factors” consist of nine items (Kjeldsen and Nielson, 2000), “push factors” consist of eight items (Ismail et al., 2012; Braga et al., 2014), balance factors consist of three items (Mohanty, 2007) and the final subscale of emotional factors consist of six items (Fineman, 2000). The scale was previously conducted by Özsungur (2019) with 132 women entrepreneurs. Validity and reliability of the scale were performed by the author: Cronbach’s alpha values were as pull (0.832), push (0.766), balance (0.819) and emotional (0.738).

The third section consists of eight parts under the heading “unified technology acceptance and use theory 2 (UTAUT2)” developed by Venkatesh et al. (2012). This scale consisted of 38 items and eight subscales regarding EE: effort expectancy (4 items); PE: performance expectancy (4 items); SI: social influence (3 items); FC: facilitating conditions (4 items); HM: hedonic motivation (3 items); PV: price value (3 items); HT: habit (4 items); BI: behaviour intention (3 items). The UTAUT2 items were measured by using seven-point Likert Scale, where 1 = strongly disagree and 7 = strongly agree.

The fourth section consists of ten items under the heading “UTAUT2 use behaviour (USE)” developed by Venkatesh et al. (2012). The original USE scale consisted of underlying six items: SMS, MMS, ringtone and logo download, java games, browse websites, and mobile e-mail. The current study survey included the following 10 items measuring frequency of mobile internet use: receiving e-mail, reservation (hotels; services), banking operations, web search for health-related knowledge, news and current issues, online shopping, financial transactions, using social media applications (Facebook, Instagram, Twitter, etc.) and chat rooms. Ten popular mobile internet applications in Turkey were provided from Turkish Statistical Institute reports [information and communication technology (ICT) usage in households and by individuals statistics]. Respondents were asked for their mobile internet use frequency for each application. USE measured by using seven-point Likert scale and the frequency ranged from “never” to “many times” per day. (Venkatesh et al., 2012). The original scale items were adapted to mobile internet use.

The validity and reliability of the Turkish version of UTAUT2 was tested by Yilmaz and Kavanoz (2017) with 723 students between 18 and 47 years. The scale was found to be valid and reliable.

The final section consists of two parts and two open-ended questions given as follows:

OEQ1. What is the most important issue that differs according to gender in business life?

OEQ2. What are your important suggestions to the chambers of commerce/chambers of industry for providing quality services to women entrepreneurs?

Mixed method evaluation design has been adopted in the study, which includes quantitative and qualitative analysis methods (Onwuegbuzie and Leech, 2004). Conceptualization, classification and component analysis were applied in data analysis (Spradley, 1980). The validity and reliability of measurement tools were measured by confirmatory factor analysis (CFA). It is necessary to determine the model fit values by analyzing the predicted model revealed by AMOS (Hu and Bentler, 1999).
Results

Demographics

Demographic variables were given in Table I.

A total of 34 per cent of the participants were between 48 and 60, 20.5 per cent were between 42 and 47 and 15.4 per cent were between 30 and 35 age range. 56.4 per cent of the participants were married and 33.6 per cent were single. According to the level of education, 48.7 per cent of the participants had bachelor’s degree and 19.2 per cent had master’s degree. 71.6 per cent of the participants did not received grant support. 74.4 per cent of the women entrepreneurs were operating in the service sector. 66.7 per cent of the participants employed 1-9 employees. Of the participants, 62.8 per cent did not have trademark, 77.6 per cent did not have patent, and 85.3 per cent did not have the utility model.

Confirmatory factor analysis

CFA was used for construct validity of the scales. CFA is a type of analysis that tries to prove that latent variable is measured by the observed variables. Estimated model of CFA is as follows.

During CFA, the model did not show a good fit. Initial model fit values are shown in Table II. The comparison of the fit coefficients of the model according to the threshold values in respect to the literature is given in Table II. When the values in Table II are examined, it is seen that the model has good fit values.

The model was tested as one factor model, the model fit coefficients produced by two models (initial and modified model) test results were given in Table II. To determine whether there was a significant difference between the one-factor model and the three-factor model, the \( \chi^2 \) values were tested and the difference was significant (\( \Delta \chi^2 = 3835.933; p < 0.01 \)). This finding indicated that there were no common method bias (MacKenzie and Podsakoff, 2012) (Table III).

In terms of discriminant validity, it is expected that the sub-factors’ values must be greater than all the correlation values (Fornell and Larcker, 1981). The model met this criteria. For the discriminant validity of the correlation value found among the factors, the average variance extracted (AVE) values of each latent variable must be less than the square root of AVE value (Fornell and Larcker, 1981). In the light of these results, it can be said that the observed items have convergent and discriminant validity to measure the research scales. All subscales were found to be valid and reliable.

Direct effects

According to the findings obtained by structural equation model (SEM) analysis with AMOS, EE was negatively associated with BI and PUF, and positively associated with PF. PE was positively associated with BF, PUF and BI. HM was positively associated with BI and EF. BI was negatively associated with use behaviour. FC was positively associated with PUF. HT was positively associated with BI, and negatively associated with PF, PUF, BF and EF (Table IV). According to the research findings, other effects were found to be insignificant (Table IV).

Qualitative findings

Participants were asked for the basic gender problems in business life. The responses of these questions were examined according to the upper and lower classifications obtained by the traditional method. According to the obtained results, the issues stated are as follows: family (8.4 per cent), arising from men (2.6 per cent), no difference (30.7 per cent), cultural
<table>
<thead>
<tr>
<th>Demographic variables</th>
<th></th>
<th>Sectoral variables</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
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<td><strong>Business segment</strong></td>
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</tr>
<tr>
<td>18-23</td>
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<td>Textile</td>
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<td>24-29</td>
<td>14</td>
<td>Metal-machine</td>
<td>19</td>
</tr>
<tr>
<td>30-35</td>
<td>24</td>
<td>Building and construction</td>
<td>13</td>
</tr>
<tr>
<td>36-41</td>
<td>22</td>
<td>Consultancy</td>
<td>24</td>
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<tr>
<td>42-47</td>
<td>32</td>
<td>Other (service industry)</td>
<td>92</td>
</tr>
<tr>
<td>48-60</td>
<td>53</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td><strong>Total number of employees</strong></td>
<td></td>
</tr>
<tr>
<td>Single</td>
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<td>1-9</td>
<td>104</td>
</tr>
<tr>
<td>Married</td>
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<td>10-49</td>
<td>28</td>
</tr>
<tr>
<td>Divorced</td>
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<td>50 and over</td>
<td>24</td>
</tr>
<tr>
<td>Education level</td>
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<td>Associate’s Degree</td>
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</tr>
<tr>
<td>Bachelor’s degree</td>
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<td><strong>Patent</strong></td>
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<tr>
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<td>35</td>
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<td></td>
<td></td>
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<td>Grant support</td>
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<td><strong>Utility model</strong></td>
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<td>Yes</td>
<td>23</td>
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<tr>
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<td>112</td>
<td>N/A</td>
<td>133</td>
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</table>

Table I. Personal/sector characteristics.
<table>
<thead>
<tr>
<th>Fit index</th>
<th>Notes</th>
<th>Modified model values</th>
<th>Initial model values</th>
<th>Acceptable model fit levels</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\chi^2$</td>
<td></td>
<td>3,399.122; $p = 0.000$</td>
<td>2,393; $p = 0.000$</td>
<td>$\chi^2$/df &lt; 2, $p &gt; 0.05$</td>
<td>Hooper et al. (2008)</td>
</tr>
<tr>
<td>$\chi^2$/df</td>
<td></td>
<td>1.762</td>
<td>1.462</td>
<td></td>
<td>Tabachnick and Fidell (2007)</td>
</tr>
<tr>
<td>RMSEA</td>
<td></td>
<td>0.055</td>
<td>0.124</td>
<td>RMSEA &lt; 0.08</td>
<td>Hu and Bentler (1999)</td>
</tr>
<tr>
<td>GFI</td>
<td></td>
<td>0.596</td>
<td>0.29</td>
<td>GFI ≤ 0.80, GFI ≤ 0.90</td>
<td>Miles and Shevlin (2007)</td>
</tr>
<tr>
<td>CFI</td>
<td></td>
<td>0.872</td>
<td>0.592</td>
<td>CFI ≤ 0.95</td>
<td>Hu and Bentler (1999)</td>
</tr>
</tbody>
</table>

Notes: $\chi^2$/df (chi square/degrees of freedom); RMSEA (root mean square of error approximation); GFI (goodness of fit index); CFI (comparative fit index); TLI (Tucker-Lewis index).

Table II. Model fit coefficients
| CR | AVE | MaxR(H) | BI | PF | PUF | BF | EF | USE | EE | PE | SI | FC | HM | PV | HT |
|----|-----|---------|----|----|-----|----|----|-----|----|----|----|----|----|----|----|----|
| BI | 0.981 | 0.945 | 0.989 | 0.972* |     |     |     |     |     |     |     |     |     |     |     |     |
| PF | 0.722 | 0.329 | 0.829 | 0.032* | 0.573* |     |     |     |     |     |     |     |     |     |     |     |
| PUF | 0.742 | 0.286 | 0.836 | −0.045* | −0.193* | 0.544* |     |     |     |     |     |     |     |     |     |     |
| BF | 0.811 | 0.594 | 0.852 | 0.060* | −0.200* | 0.397 | 0.771* |     |     |     |     |     |     |     |     |     |
| EF | 0.730 | 0.383 | 0.884 | 0.063* | −0.548* | 0.206* | 0.508* | 0.619* |     |     |     |     |     |     |     |     |
| USE | 0.950 | 0.661 | 0.974 | −0.833* | 0.021* | 0.015* | −0.083* | −0.104* | 0.813* |     |     |     |     |     |     |     |
| EE | 0.871 | 0.723 | 0.986 | 0.873* | −0.083* | 0.011* | 0.069* | 0.092* | −0.700* | 0.851* |     |     |     |     |     |     |
| PE | 0.996 | 0.986 | 0.997 | 0.923* | −0.059* | 0.040* | 0.099* | 0.091* | −0.782* | 0.941* | 0.933* |     |     |     |     |     |
| SI | 0.915 | 0.783 | 0.926 | 0.740* | −0.004* | 0.018* | 0.084* | 0.079* | −0.625* | 0.710* | 0.779* | 0.885* |     |     |     |
| SC | 0.957 | 0.849 | 0.961 | 0.916* | −0.048* | 0.018* | 0.070* | 0.054* | −0.758* | 0.936* | 0.971* | 0.756* | 0.922* |     |     |
| HM | 0.970 | 0.916 | 0.983 | 0.892* | −0.018* | −0.018* | 0.067* | 0.076* | −0.769* | 0.876* | 0.884* | 0.708* | 0.889* | 0.957* |     |
| PV | 0.707 | 0.512 | 0.881 | 0.686* | −0.049* | −0.076* | 0.066* | 0.021* | −0.662* | 0.610* | 0.637* | 0.568* | 0.686* | 0.675* | 0.716* |
| HT | 0.883 | 0.670 | 0.940 | 0.931* | 0.052* | −0.090* | 0.045* | 0.012* | −0.829* | 0.829* | 0.854* | 0.736* | 0.874* | 0.845* | 0.824* | 0.818* |

Notes: CR = composite reliability; AVE = average variance extracted; MaxR(H) = maximum reliability; Square root of AVE value; Pearson correlation; AVE is significant over the 0.50 level, the acceptable value of CR is 0.7 and above; EE: effort expectancy; PE: performance expectancy; SI: social influence; FC: facilitating conditions; HM: hedonic motivation; PV: price value; HT: habit; BI: behaviour intention; PF: pull factor; PUF: push factor; BF: balance factor; EF: emotional factor.
structure/social structure (15.3 per cent), arising from women (10.9 per cent), inequalities in business life (32.1 per cent).

The concepts of financial support ($n=2$; 1.3 per cent), roles/family–work balance ($n=9$; 5.8 per cent), training support ($n=2$; 1.3 per cent) were clustered under the family theme. Women entrepreneurs reported that they subjected to gender discrimination ($n=4$; 2.6 per cent). Social pressure, cultural structure and treatment as a second-class citizen by the society are the biggest obstacles for women entrepreneurs ($n=24$; 15.3 per cent). Participants stated that some characteristics arising from women caused inequality ($n=17$; 10.9 per cent). Personal characteristics such as risk taking, motivation and perseverance are the components that women entrepreneurs must have to eliminate inequality. However, despite these factors, there were also participants who argued that there was no difference according to gender ($n=48$; 30.7 per cent).

Unfair practices against women in appointments to managers and top executives ($n=13$; 8.3 per cent), physical power perception ($n=8$; 5.2 per cent), Sectoral–occupational discrimination ($n=10$; 6.4 per cent), unfairness in income ($n=7$; 4.5 per cent) and unfair distribution of resources ($n=12$; 7.7 per cent) were stated as the most important inequalities experienced by women in business life.

Participants were asked for recommendations of women entrepreneurs on chambers of commerce and chambers of industry. The responses of this question were examined according to the head and sub-concepts obtained by the traditional method. According to the obtained results, the suggestions stated are as follows: knowledge sharing (16 per cent), establishment of a unit (3.2 per cent), support/resource allocation (41.7 per cent), active participation in management (12.2 per cent) and to be considered (26.9 per cent).

Participants suggested enacting entrepreneurship oriented knowledge sharing ($n=9$; 5.8 per cent) and recognizing the woman entrepreneur ($n=16$; 10.2 per cent) in the relations of the chambers of commerce and industry with women entrepreneurs. The establishment of

<table>
<thead>
<tr>
<th>Factors</th>
<th>Lower bounds</th>
<th>Upper bounds</th>
<th>$t$(1560)</th>
<th>$\beta$</th>
<th>$p$</th>
<th>Direct effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE → BI</td>
<td>-0.309</td>
<td>0.081</td>
<td>-3.39</td>
<td>-0.118</td>
<td>**</td>
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<tr>
<td>EE → PUF</td>
<td>-0.442</td>
<td>0.245</td>
<td>-2.86</td>
<td>-0.181</td>
<td>0.004*</td>
<td>Negative</td>
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<tr>
<td>EE → PF</td>
<td>0.018</td>
<td>0.617</td>
<td>5.16</td>
<td>0.357</td>
<td>**</td>
<td>Positive</td>
</tr>
<tr>
<td>PE → BF</td>
<td>-0.297</td>
<td>0.597</td>
<td>3.07</td>
<td>0.230</td>
<td>0.002*</td>
<td>Positive</td>
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<tr>
<td>PE → PUF</td>
<td>-0.071</td>
<td>0.665</td>
<td>6.03</td>
<td>0.382</td>
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<tr>
<td>PE → BI</td>
<td>0.532</td>
<td>0.912</td>
<td>23.60</td>
<td>0.776</td>
<td>**</td>
<td>Positive</td>
</tr>
<tr>
<td>HM → BI</td>
<td>0.033</td>
<td>0.485</td>
<td>7.343</td>
<td>0.241</td>
<td>**</td>
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<tr>
<td>HM → EF</td>
<td>-0.176</td>
<td>0.432</td>
<td>2.12</td>
<td>0.161</td>
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<tr>
<td>BI → Use</td>
<td>-0.845</td>
<td>-0.540</td>
<td>-13.2</td>
<td>-0.729</td>
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<tr>
<td>FC → PUF</td>
<td>-0.128</td>
<td>0.584</td>
<td>3.84</td>
<td>0.242</td>
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<tr>
<td>HT → BI</td>
<td>0.204</td>
<td>0.598</td>
<td>11.87</td>
<td>0.390</td>
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<tr>
<td>HT → PF</td>
<td>-0.533</td>
<td>-0.133</td>
<td>-4.90</td>
<td>-0.340</td>
<td>**</td>
<td>Negative</td>
</tr>
<tr>
<td>HT → PUF</td>
<td>-0.552</td>
<td>-0.177</td>
<td>-5.65</td>
<td>-0.357</td>
<td>**</td>
<td>Negative</td>
</tr>
<tr>
<td>HT → BF</td>
<td>-0.508</td>
<td>-0.046</td>
<td>-3.59</td>
<td>-0.269</td>
<td>**</td>
<td>Negative</td>
</tr>
<tr>
<td>HT → EF</td>
<td>-0.464</td>
<td>-0.016</td>
<td>-3.14</td>
<td>-0.239</td>
<td>0.002*</td>
<td>Negative</td>
</tr>
<tr>
<td>Use → EF</td>
<td>-0.542</td>
<td>-0.081</td>
<td>-2.39</td>
<td>-0.256</td>
<td>0.017</td>
<td>Negative</td>
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</table>

Notes: *$p$ is significant at 0.05 (two tailed); **$p$ is significant at 0.01(two tailed); The confidence interval values for direct effects were calculated by bootstrap with $n=1560$. Bias-corrected confidence intervals: 95%. If zero (0) does not match within the confidence interval values, the direct effect is significant; $\beta$, Standard Beta; $t$: Critical ratio

Table IV.
SEM analysis findings
the units \((n = 5; 3.2 \text{ per cent})\) to provide consultancy to women entrepreneurs in the chambers was suggested by the participants. Supports for education \((n = 22; 14.1 \text{ per cent})\), financial \((n = 19; 12.2 \text{ per cent})\) and entrepreneurship (project, legal, innovation etc.) \((n = 17; 10.9 \text{ per cent})\) were seen as a significant deficiency in the women’s entrepreneurship. Women entrepreneurs desire to actively participate in the management of the chambers \((n = 19; 12.2 \text{ per cent})\). Assembly membership, appointment to the board of directors and women’s employment are among the suggestions. Finally, the participants stated that their suggestions were ignored by the authorities of the chambers \((n = 42; 26.9 \text{ per cent})\).

**Discussion**

According to a study with women entrepreneurs, PE, EE and SI significantly affected the BI to use e-commerce and FC and BI positively affected use behaviour (Goswami and Dutta, 2016). A study in Malaysia conducted with 1,200 entrepreneurs revealed that perceived desirability and perceived feasibility had significant effects on entrepreneurs’ intention to adopt and use innovations (Moghavvemi, Salleh and Standing, 2016). Previous studies showed that PE, FC, HM and HT had positive effects on BI (Macedo, 2017; Nägle and Schmidt, 2012). On the other hand, the findings of the study showed that EE had negative effect on BI, while HT had positive effect on BI. These results revealed that EE has an adverse effect on women entrepreneurs’ intention for technology use. BI decreases as the degree of convenience associated with the use of the technological system increases. BI increases as addiction, necessity and habit level increase.

According to the research conducted by Nägle and Schmidt (2012), although there were no findings supporting the fact that PE had a significant effect on BI, it was found that FC had a significant effect on BI. According to the research findings of Hoque and Sorwar (2017), while the positive effect of PE on BI was determined, the positive effect of FC could not be determined. However, there is no research relevant to the effects of UTAUT2 and its sub-dimensions on WEM. Macedo (2017) found that EE and SI had a positive effect on BI. According to the study conducted by Nägle and Schmidt (2012), it was found that there was no association between BI and EE. Macedo (2017) found that PV did not significantly predict BI and habit positively affected technology use behaviour. Previous studies found that FC did not affect the use behaviour positively (Macedo, 2017; Hoque and Sorwar, 2017). Further, studies showed that BI had a positive effect on the use behaviour (Macedo, 2017; Hoque and Sorwar, 2017). However, the research findings revealed a negative effect of BI on technology use behaviour.

As the women entrepreneurial behaviour intention increases, the level of technology use behaviour decreases. Considering the spiritual dimensions, willingness and perseverance of entrepreneurship, it is thought that women entrepreneurs who want to get rid of necessities and habits desire innovative behaviour. The main reason why women entrepreneurs cannot perform their behaviours despite the increase in behaviour intentions is that they cannot access the resources sufficiently. The qualitative research data reveal the reason for the negative results of the quantitative study. The lack of support of women entrepreneurs in unfair practices, financial, education and entrepreneurship in business life adversely affects women entrepreneurs’ use of technology despite their positive intentions.

According to the results of the study, EE had a negative effect on PUF, had a positive effect on PF. As the degree of ease of use of the technological system increases, the pull factors level that motivate women’s entrepreneurship increases and the push factors level decreases. This is because of the push factors involve necessity, pull factors and EE have volunteering.
PE has a positive effect on PUF and BF. The degree to which one believes that the use of the technological system will help women to gain performance in business positively increases push and balance factors. Because according to women entrepreneurs, factors that affect the belief of obtaining business performance in entrepreneurship are associated with balanced and compelling/extrinsic motivation.

HM has a positive effect on EF. The level of perceived use of technology as fun and entertainment emotionally motivates women entrepreneurs. FC has positive effect on PUF. As the degree of believing that there is an organizational and technical infrastructure to support the use of a technological system, women are pushed towards entrepreneurship positively. Technology use behaviour has negative effect on EF. As the technology use level increases, the emotional effects that motivate women to entrepreneurship decrease.

HT has a negative effect on PF, PUF, BF and EF. As addiction, necessity and habit level increase, women entrepreneurial motivation decreases. This finding is actually a reaction. These results show that women entrepreneurs do not want to be obligatory, they want to realize entrepreneurship on a voluntary basis and they desire to execute the behaviour faithfully. These findings are supported by qualitative data. It was determined via the interview that risk taking, motivation and perseverance were the basic gender problems in business life arising from women. According to these findings, women entrepreneurs do not see necessity and habit as a factor to be motivated. In the policies that women entrepreneurship is supported, it should not be included in the practices where women feel unfairness, under pressure by the society, being a second class citizens and weak. Regardless of the type of women’s entrepreneurship motivation, it is recommended to undertake the necessary initiatives to transform the negative effects of technology on women entrepreneurs into positive effects. Discrimination, inequality, unfairness, role conflict, social isolation that women have experienced for years can cause negative reactive movements in their behaviours and actions. With this study, it is obvious that women entrepreneurs reflect these reactions to technology use behaviours.

Limitations and recommendations for future studies
This study was carried out to determine the effects of factors affecting the technology acceptance and use behaviours of women entrepreneurs on women’s entrepreneurship motivation factors. The low number of women entrepreneurs caused the number of samples to be low. Therefore generalizability is the most crucial limitation of this study. In addition, unfair practices that women have experienced may also cause responses to be reactive. To eliminate this problem, each scale was placed in separate sections and tried to eliminate the common method variance as much as possible.

It is recommended that this study model, which is examined in the context of the interaction of women entrepreneurship with technology, should be carried out with mediating variables such as leadership types, burn out or bore out. It is recommended that this study model on mobile internet should be examined in the context of other technologies. Qualitative research results reveal the expectations of women entrepreneurs. These expectations generally focus on financial and social support and fairness practices. For this reason, it is recommended that WEM should be evaluated with various model studies for future research in this regard. Lack of financial and social support and fairness practices issues regarding women entrepreneurs should be considered by policymakers. It is recommended that commissions should be established for the women’s entrepreneurship in the chambers of commerce and industry.
References


Spradley, J.P. (1980), Participant Observation, Harcourt, Orlando, FL.

Further reading

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Fahri Özsungur can be contacted at: ticaretsicili@gmail.com

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