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The Impact of Market Knowledge Acquisition on Product Innovation Performance in Small and Medium Scale Enterprises

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Abstract

This paper aimed to determine the relative impact of market knowledge acquisition (knowledge gained from customers, and competitors') acts on product innovation performance in smaller firms. Based on data collected through a convenience sampling technique, survey questions of 462 SME operators, and a review of user-generated content, this study provides a look into the market knowledge of Ghanaian manufacturing micro, small, and medium scale enterprises in the eastern sector. The traditional double-step model was used to evaluate the measurement model and then estimate the structural model using SPSS and Smart PLS (Partial Least Square). The outcome of the study revealed two [2] out of the four [4] hypotheses supported; the findings showed that market knowledge acquisition which comprised customers' and competitors' knowledge remains critical drivers of product innovation performance. Meanwhile, the study revealed firm absorptive capacity does not moderate market knowledge acquisition and product innovation performance.

Keywords: Market Knowledge Acquisition, Small Medium Scale Enterprises, Firm Absorptive Capacity, Product Innovation Performance, Ghana.

Introduction

Studies have discussed the importance of market knowledge, marketing capabilities, and the ability of firms to leverage it to enhance performance, meanwhile this issue which has earned limited research attention (Falasca et al., 2017; Hoe, 2008; Thongsri & Chang,

2019). Meanwhile, more research has concentrated on customer knowledge to the detriment of competitor knowledge (Dwyer & Gilmore, 2019), the inclusion of competitor knowledge in the SME context presents a unique area to explore. The main objective of this paper is to investigate the firm's market knowledge acquisition (MKA) comprising customer and competitor knowledge, the moderating effect of firm absorptive capacity (FAC), and product innovation performance (PIP). Such a research study will extend literature since no prior studies looked for each of these interactions at the same time Ghanaian manufacturing SME context.

A conceptual framework is presented to achieve the given research goal. Using survey instruments, the proposed interaction is examined and findings discussed. Review of literature, theoretical guidance, research hypotheses, methodology, results and findings are discussed accordingly. Conclusion, implications, and limitation paths are also addressed for future research.

Literature Review

Market Knowledge

Market-based knowledge acquisition refers to how the market behaves by understanding customers and competitors well to enhance firm capability in innovation (Evangelista & Mac, 2016). It thus concerns issues about the tastes, backgrounds, experiences of both customers and competitors in the market space and its effect has been explored by marketing researchers (Aminu, 2018; Leng, Liu, Tan, & Pang, 2015; Li, Xie, & Cheng, 2017; Taghizadeh et al., 2018; Verhees & Meulenbergh, 2004). Researchers' indicate that customer consumption patterns, and preferences are all linked to customer knowledge (Taghizadeh, et al., 2018). In the conceptualization of customer knowledge by Taghizadeh, Rahman, & Hossain (2018), they categorized customer knowledge into knowledge from the customer, for the customer, and about the customer. Knowledge from customer refers to knowledge which is sourced from the customers which could take the form of face to face means, knowledge for customer relates to the information and dataset that the firm offers in satisfaction of the customers' requirements and finally, knowledge about the customer explains customer desires, taste, needs and tastes to envisage their future needs and wants to inform themselves which will transcend into innovative steps being taken by the firm. Close interactions with customers and market activities are therefore an anchor in obtaining and utilizing knowledge in their everyday activities to enhance innovation (Dabrowski, 2019; Falasca et al., 2017; Herman, Hady, & Arafah, 2018; Uğurlu, Kurt, & Kurt, 2016).

Competitor knowledge acquisition, on the other hand, relates to a firm's capacity and desire to detect, evaluate, and predict competitors' acts (Dwyer & Gilmore, 2019). Competitors' initiatives, plans, and possible reactions may necessitate new product development particularly for companies competing in sectors with intensive and competitive markets (Wang & Wang, 2016). Changes in the market may lead firms to acquire competitor knowledge to respond accordingly (Liu & Atuahene-Gima, 2018). Subsequently, this research aims to study firm product innovation performance through market knowledge acquisition.

Product Innovation Performance (PIP)

The definition of firm performance remains unclear in the literature; it is a multi-dimensional construct (Tuan et.al. 2016). It is a multifaceted and complex construct (Expósito & Sanchis, 2019). That is, it tackles a range of interrelated metrics, such as growth results (Nastasiea & Mironeasa, 2015), quality, innovation and creativity (Wadho & Chaudhry, 2018),

personnel participation (Sinisammal et al., 2012; Sousa et al., 2018), customer satisfaction (Fong, Lo, & Ramayah, 2014) and even productivity (Kumar & Rahman, 2015; Fu et al., 2018). Also measures such as customers, efficiency, employees, systems, and procedures have been studied (Fong et al., 2014; ;Tuan et al., 2016). Writers have also suggested others such as underutilization of higher capacity is a crucial factor that hinders the growth of several SMEs in Africa (Ahiakpor, Asmah & Andoh, 2014). Consequently, organizational performance research is very wide and diverse and keeps expanding as multiple aspects of management practices are becoming more and more important to researchers (Kalay & Lynn, 2015).

Each enterprise has its own definition of business performance which depends on its context meanwhile, researchers have argue for a combination of performance measures (KSHATRIYA, et al., 2017; Maduekwe, et al., 2016). Estimating performance thus serves the purpose of ensuring that a firm pursues measures that will lead to the achievement of the overall goals and objectives (Fong et al., 2014). Measuring performance is thus varied, which could be based on a variety of factors.

It is however evident that the notion of performance has many interpretations for various researchers (Njoroge, 2016; Olaru, Pirnea, et al., 2014; Tuan et al., 2016). In light of this, the study therefore examines firms' PIP through new product lines, sales volume growth, production volume growth, and capacity utilization to assess PIP.

The Relation between Market Knowledge and Product Innovation Performance

In transforming new product designs/processes, customers are regarded as a wealth of knowledge resources available on the market (Storey & Larbig, 2018), innovation initiation process of firms by increasingly making inputs in the operations and innovation activities of firms for firms to meet the requirements and taste of the market (Dabrowski, 2019). The use of customer knowledge has evolved in the advancement of business activities, it has increasingly become a vital issue in today's dynamic environment (Schaarschmidt & Walsh, 2018; Yachin, 2018).

According to Evangelista & Mac, 2016, when firms interact with customers through customer inquiries, customer requests, customer preferences, complaints, or series of actions leading to responses; these presents opportunity for firms to acquire/ gain knowledge likewise when firms engage with competitors over time, it accumulates both explicit and tacit knowledge. In effect, customers are engaged in sharing their experience and knowledge between themselves and the firms. In the view of Zhang & Conchar, (2017), they indicate that firms' customer knowledge has a positive effects on product innovation. Likewise, Schaarschmidt & Walsh (2018) focusing on customer interaction in the B2B business, asserts beneficial customer interaction.

Firms can therefore take advantage of these exchange processes in employing innovative measures to ensure firm sustainability.

Storey & Larbig, (2018) have however argued that customer involvement on its own cannot guarantee success. Refusal to understand competitors, on either side will render SMEs oblivious of the extent and effect of competitor activities, and how knowledge of competing companies can be an enabler of competitiveness (Dwyer & Gilmore, 2019). Given that SMEs are generally creative in their use of creative methods to solve the limitations imposed by their size, paying significant attention to market knowledge to gaining innovativeness is a sure way (Dabrowski, 2019; Mostafiz, MdImtiaz, et al., 2019). The ongoing discussions lead the study to hypothesize that:

H₀₁: *Customer knowledge acquisition is positively related to SME product innovation performance.*

H₀₂: *Competitor knowledge acquisition is positively related to SME product innovation performance.*

Moderating Role of Firm Absorptive Capacity

Given that organizations need to be as efficacious and innovative as possible, they need to fully integrate new knowledge from both outlets (Lewandowska, 2015). The firm becomes more knowledgeable in seeking, gaining, and incorporating information through direct exposure and interaction in market activities (Cohen & Levinthal, 1990; Liao & Barnes, 2015; Mensah, 2019; Salehi, 2017; Shane, 2000) especially among smaller enterprises (Hilmersson & Johanson, 2020; Liao & Barnes, 2015). The theory of absorptive capacity has been used in some research to evaluate the technological as well as innovation capabilities of firms (Aljanabi, 2018; Flor, Cooper, & Oltra, 2018; Najafi-Tavani et al., 2018; Vlačić, Dabić, Daim, & Vlačić, 2019).

There is a strong indication of R&D investments boosting a firm's knowledge and innovative abilities (Ferraris et al., 2019; Flor et al., 2018; Hameed et al., 2018). That notwithstanding, SMEs minimal R&D activities (Davicik et al., 2020; Santoro, Ferraris et al., 2019; Thomä & Zimmermann, 2020), leads the study to adapt human capital dimension which is thought to be more appropriate (AlQershi, et al., 2020; Ferreira & Franco, 2019; He, et al., 2020; Flatten et al., 2011).

Drawing on the tenets of SME human capital, this study drew on the customer and competitor knowledge experience of the management team as well as the firm's relevant formal training or university degree. Given that, firm absorptive capacity enables the adaptation of knowledge in value creation (Carson, et al., 2020; Varadarajan, 2020). The expected moderating effect of FAC in the interaction between MKA (CUK and COK) and firm PIP is captured in the hypotheses below:

H_{03a}: *FAC moderates the relationship between Customer knowledge acquisition and SME Product Innovation Performance.*

H_{03b}: *FAC moderates the relationship between Competitor knowledge acquisition and SME Product Innovation Performance.*

The hypotheses is shown in Figure 1 below:

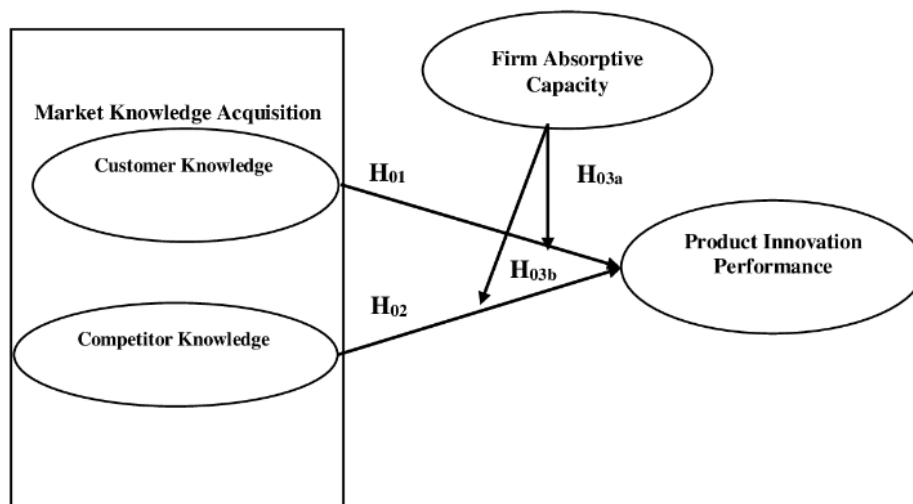


Figure 1: Research Model

Research Instrument: The study employed a survey method of data collection. The conceptual model was tested empirically in the SME manufacturing setting via a survey questionnaire. The questionnaire was sent directly to the owners, owner-managers, managers, and/or proxies of 500 manufacturing firms in the eastern region of Ghana to SME manufacturing operators. It included 14 items comprising to the three main variables used, in addition nine items were used to assess the demographic characteristics. Using a five-point Likert scale, each item was measured. Seven items adapted from Bojica & Fuentes-fuentes, (2019); Wang & Wang (2016), MKA was utilized. Questions on customer knowledge acquisition are shown in the initial three items, followed by competitor knowledge acquisition. The MKA scale score was determined by adding the responses for each of the seven items. FAC was determined by three items modified from the works of Evangelista & Mac, (2016); Muscio, (2007). Four items from Lin, & Chen, (2007) were used to operationalize the last scale, PIP questions on the introduction of new product lines, sales volume growth, production volume growth, and capacity utilization.

Sample and Data Collection: With a study sample of 500 manufacturing SMEs in the eastern region of Ghana, a total of 320 were distributed to respondents at their workplaces while the remaining were administered via online-based questionnaires. Some 7.5 percent of the 500 questionnaires were excluded because of incomplete answers. The study received 462 valid responses, yielding a response rate of 92 percent. Using the time trend method, non-response bias was evaluated (Armstrong and Overton, 1977). A comparison-of-means analysis was performed on the data collected from the early, mid, and late respondents (roughly two weeks apart). The research instrument underwent additional pre-testing using 25 respondents to ensure content validity as well as enhancing the practical relevance and applicability.

Data Analysis: Smart PLS 3 software and the Statistical Package for Social Sciences (SPSS) version 23 were utilized to conduct inferential statistics and descriptive statistics respectively. The data collected was coded, cleaned, and prepared for analysis. SEM's stoutness makes it an appropriate tool capable of testing the entire model simultaneously and assessing measurement errors (Awang, 2012). PLS-SEM algorithm's iterative procedure was utilized using-500 selected value based on the maximum number of iterations to obtain

final results. The study's hypotheses were examined based on the measurement model's confidence level.

Cross loading and Fornell and Larcker criterion were used to determine discriminant validity (Hair et al., 2014). Hetero trait-Mono trait (HTMT), was also developed to arrest the insensitivity of the Fornell and Larcker and cross-loading criterion of ratio (Henseler, Ringer & Sarstedt, 2015). The variance-inflated factor was used to determine collinearity among latent variance. The threshold value included $VIF \geq 5$ to depict potential collinearity problems (Hair et al., 2011).

Results

Demographic Characteristics of Respondents

The responses indicates majority are male (278) representing 60.2% and 184 representing 39.8% are females. This implies that more males are in the SME manufacturing sector than their female counterparts. 206 respondents (44.6%) fall within the 31–40 years followed by 164 (35.5%) fell between 18 - 30 years. Ninety (90) respondents representing 19.5% were between 41-50 years. Only 2 out of 462 respondents were above 50 years; representing 4%. This implies majority of the Ghanaian SMEs are in their youth. A number of SME operators' educational backgrounds fell within Diploma and Bachelor Degree holders with a few having BECE and below. In other words, while 282 people made up 61% of the survey, have above Bachelor Degree, only 48 representing 10.3 percent having BECE and below in the manufacturing sector. This indicates that more educated people in Ghana are venturing into the SME manufacturing sector. And with the majority of the manufacturing SMEs having between 6-10 years of manufacturing experience, it affirms more manufacturing SMEs in Ghana operating over the years; while 154 depicting 33.3% has operated between 6-10 years, 80 representing 17.3 percent have operated between 11-15 years, 30 respondents which represent 6.5 percent of the respondents have accumulated experience of 16 years and above, and finally, 198 representing 42.9 percent have 5 years and below work experience. This confirms the dominance of businesses in Ghana with less than 5 years of existence and experience. Further demographic information is presented in table 1 below.

Table 1: Demographic Characteristics of Respondents

Variables	Category	Frequency	Percent
Gender	Female	184	39.8
	Male	278	60.2
Age	18-30 years	164	35.5
	31-40 years	206	44.6
	41-50 years	90	19.5
	Above 50 years	2	.4
Education	Bachelor Degree	136	29.4
	Diploma	146	31.6
	Graduate Studies (Master and Ph.D.)	32	6.9
	Junior High School (BECE)	46	9.9
	Primary education	2	.4
	Senior High School	100	21.6
Position	Business Owner	164	35.5
	Business Owner & Manager	120	26.0
	Employee (proxy)	40	8.6
	Manager	90	19.5
	Production Manager	48	10.4
Experience	1 - 5 years	198	42.9
	11 – 15 years	80	17.3
	16 years and above	30	6.5
	6 - 10 years	154	33.3
Number of Employees	1- 5 employees	222	48.1
	100 or more employees	14	3.0
	30 – 99 employees	28	6.1
	6 – 29 employees	198	42.9
Product	1-2 Products	126	27.3
	3-5 Products	142	30.7
	More than 5 Products	194	42.0
Years of Operation	1 to 5 years	158	34.2
	6 to 10 years	198	42.9
	More than 10 years	106	22.9
Business Type	Cosmetics	34	7.4
	Fashion	72	15.6
	Food Processing	100	21.6
	Metal Fabrication	58	12.6
	Pharmaceuticals	42	9.1
	Poultry	68	14.7
	Textiles	48	10.4
	Others	40	8.7
	Total		462

Descriptive and Correlation Analyses

Table 1 also showed that Customer Knowledge Acquisition scored (Mean = 4.18; SD=0.647). Competitor Knowledge Acquisition scored (Mean = 3.95; SD=0.786). Firm Absorptive Capacity scored (Mean = 3.65; SD=0.808) and Product Innovation Performance scored (Mean =4.21; SD=0.747). The descriptive analysis shows that Market Knowledge Acquisition (Customer Knowledge and Competitor Knowledge) and Firm Absorptive Capacity scored mean above 3.50 indicating that these factors play important role in enhancing Product Innovation Performance among SMEs in Ghana. Table 2 further shows that the correlation analysis showed a significant positive association between all the constructs (Customer Knowledge, Competitor Knowledge and Absorptive Capacity) and Product Innovation Performance among SMEs in Ghana ($r=.414$, $P<.01$; $r=.224$, $P<.01$ and $r=.382$, $P<.01$) respectively. Thus, the higher level of Customer Knowledge, Competitor Knowledge, and Absorptive Capacity is associated with higher Product Innovation Performance among SMEs in Ghana. Again, the highest correlation among the independent variables is $r=.538$, hence indicating the absence of multicollinearity.

Table 2 Descriptive Statistics and Correlation Analysis

Constructs	Mean	Std. Deviation				
			1	2	3	4
1. PIP	4.21	.747	1			
2. CUK	4.18	.647	.414**	1		
3. COK	3.95	.786	.224**	.538**	1	
4. ABC	3.65	.808	.382**	.388**	.390**	1

** . Correlation is significant at the 0.01 level (2-tailed).

CUK=Customer Knowledge; COK=Competitor Knowledge; FAC=Firm Absorptive Capacity and PIP=Product Innovation Performance

Structural Equation Modelling (SEM)

The study employed Structural Equation Modelling (SEM) using Smart PLS as a statistical method to examine the behaviour/ nature of relationship that exist among the constructs used in the study (Hair et al.,2017; Wong et al.,2019). The result comprised structural model assessment and the model measurement assessment. While the model measurement explores the relationship among the latent constructs and observed variables and to provide validity and reliability of the variables used in this study, the structural model examines the direction and strength of the path.

Measurement Model Assessment

In the quest to establish model measurement quality, confirmatory factor analysis was conducted. The CFA was done to ascertain the validity and reliability of the constructs used in the study. As per the recommendations of previous studies (Voorhees, Brady, Calantone & Ramirez, 2016; Ab Hamid, Sami& Sidek, 2017), it remain imperative to establish the validity and reliability of the study constructs before proceeding to any hypotheses testing. The authors used reliability, convergent validity and divergent validity to test the measurement model quality and to confirm the stability of the latent constructs. The results of the measurement model assessment are discussed below in Table 4.

Table 3: Validity and Reliability

Constructs	Items	Loadings	CA	rho_A	CR	AVE	VIF
Absorptive Capacity	FAC1	0.896	0.708	0.716	0.872	0.773	1.428
	FAC2	0.862					1.428
Customer Knowledge	CUK1	0.750	0.666	0.672	0.816	0.597	1.371
	CUK3	0.790					1.332
	CUK4	0.777					1.228
Competitor Knowledge	COM1	0.760	0.787	0.849	0.868	0.688	1.774
	COM2	0.857					1.894
	COM3	0.867					1.466
Product Innovation Performance	PIP1	0.741	0.790	0.801	0.865	0.616	1.511
	PIP2	0.862					2.073
	PIP3	0.803					1.610
	PIP4	0.725					1.567

Table 4: Discriminant Validity

Constructs	1	2	3	4
1. Firm Absorptive Capacity	0.879			
2. Competitor Knowledge	0.436	0.829		
3. Customer Knowledge	0.446	0.610	0.772	
4. Product Innovation Performance	0.540	0.364	0.595	0.785

Table 5: Heterotrait-Monotrait Ratio (HTMT)

Constructs	1	2	3	4
1. Firm Absorptive Capacity				
2. Competitor Knowledge	0.569			
3. Customer Knowledge	0.638	0.798		
4. Product Innovation Performance	0.718	0.431	0.803	

The study employed CFA to assess the validity and reliability of the constructs used in the study. The study used composite reliability. The result showed good construct reliability. All the latent variables showed CR values above 0.7 as recommended by Hair et al. (2010). The study further explored internal consistency of the latent variables using Cronbach Alpha. The result as presented in Table 2 revealed that all the latent variables recorded CA values above 0.6 threshold recommended by (Huang et al., 2017; Nuanally and Berntein, 1994). AVE was further employed to examine convergent validity. The result of the AVE showed that all the constructs scored AVE values above 0.5 as recommended by (Hair et al., 2010; Henseler et al., 2016b). Additionally, discriminant validity was explored using the Fornell-Lacker (1981)

criterion and the HTMT test as suggested by (Henseler et al. 2015). Both tests as shown in Table 3 and 4 respectively, confirming the existence of discriminant validity in the constructs.

Structural Model Assessment

The hypothesis and construct relationship were tested using the standardized path coefficients. The path's significance level was calculated through the bootstrap resampling procedure (Henseler et al., 2009). The study initially examined the direct effect model (without the moderator) before testing the interaction models (with the moderator). This was done to determine the moderator effects. Results of the two (2) direct effects and the moderator model are presented in table 5 below.

The study hypothesized two (2) direct effects; thus, the study hypothesized that market knowledge acquisition which comprised of Customer Knowledge and Competitor Knowledge has a statistically significant effect on product innovation performance (PIP). The result indicates all the two (2) hypotheses were supported. Specifically, Customer Knowledge and Competitor Knowledge were discovered to have a statistically significant effect on product innovation performance (PIP) (B=0.604; t=17.670; B=0.402; t=8.846). However, the indirect relationship (moderator) did not show a statistically significant effect on the Customer Knowledge and Competitor Knowledge relationship.

Despite the improvement of the coefficient of determination (R^2) as a result of including the moderator in the model, the effect was statistically insignificant. Thus, adding the Customer Knowledge to the model improved the strength of the model from 36% to 44%, however, the effect was not statistically significant. Again, including Competitor Knowledge in the model also improved the model from 16% to 31%, however, the effect was not statistically significant. The study additionally examined the change in R^2 to evaluate the interaction effect using the Cohen's f^2 as shown below:

$$\text{Cohen's } f^2 == \frac{\text{Rsq (interaction model)} - \text{Rsq (main effect model)}}{1 - \text{Rsq (interaction model)}}$$

According to Cohen (1988), the f^2 value of 0.002 indicates that the moderating effect is small, 0.15 is medium while 0.35 is considered significant. Based on the result of Cohen's f^2 statistic, the effect size of the Firm Absorptive Capacity as a whole on Customer knowledge and Product Innovation Performance with the value of 0.182 has a moderate effect size. Also, the effect size of the Firm Absorptive Capacity as a whole on Competitor knowledge and Product Innovation Performance with the value of 0.260 has a moderate effect size.

Table 6: Hypotheses Testing

Hypotheses	DIRECT EFFECT			MODERATOR EFFECT		
	Path Coefficient	T Statistics	R^2	Path Coefficient	T Statistics	R^2
H ₀ 1: CUK -> PIP	0.604	17.670	.358	-	-	-
H ₀ 2:COK -> PIP	0.402	8.846	.158	-	-	-
H ₀ 3a : FAC x CUK -> PIP	-	-		-.022	.676	.439
H ₀ 3b:FAC x COK -> PIP	-	-		-.044	1.110	.310

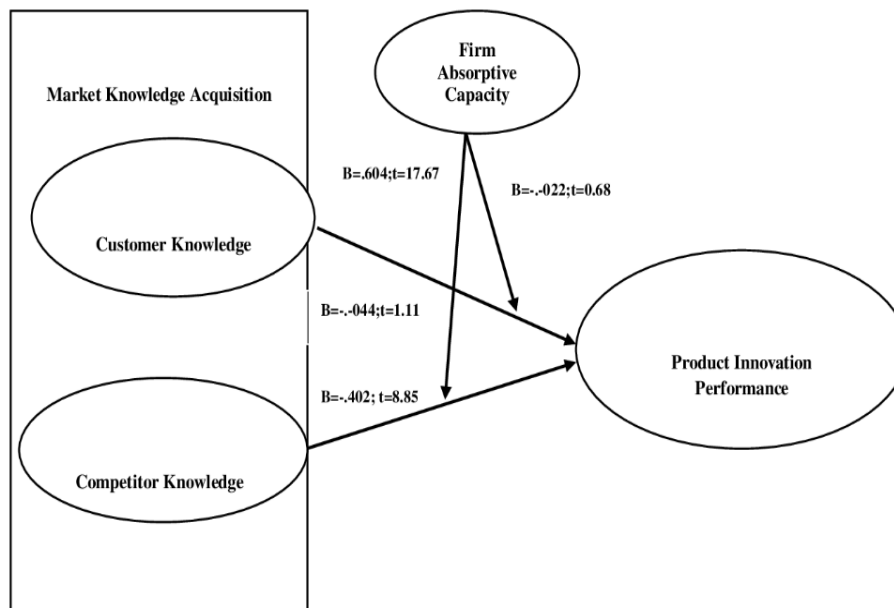


Figure 2: Measurement Model for SMEs Product Innovation Performance

Findings and Conclusion

The research outcome has unveiled the relevance of market knowledge in SME product innovation performance in Ghana. Firstly, *Market Knowledge Acquisition* which comprised of *Customer Knowledge* and *Competitor Knowledge* revealed a statistically significant effect on *Product Innovation Performance*. The study's main objective which is to investigate the firm's market knowledge acquisition (MKA) comprising customer and competitor knowledge, the moderating effect of firm absorptive capacity (FAC), and product innovation performance (PIP) was unravelled by correlation analysis of findings indicating a positive association between all the constructs (Customer Knowledge, Competitor Knowledge and Absorptive Capacity) and Product Innovation Performance among SMEs in Ghana ($r=.414, P<.01$; $r=.224, P<.01$ and $r=.382, P<.01$) respectively. The mean indications as per the descriptive analysis conducted, shows that Market Knowledge Acquisition (Customer Knowledge and Competitor Knowledge) and Firm Absorptive Capacity scored means of (CUK Mean = 4.18; SD=0.647; COK Mean = 3.95; SD=0.786; FAC Mean = 3.65; SD=0.808; PIP Mean = 4.21; SD=0.747). All the means were above 3.50 indicating that these factors play significant role in enhancing Product Innovation Performance among SMEs in Ghana. Thus, the higher level of customer knowledge, competitor Knowledge, and absorptive capacity is associated with higher product innovation performance among SMEs in Ghana.

The outcome brings to bear firms knowledge in market perspective can perceive timely and rapid changes in the market in improving their offerings. It is therefore evident from the current study that firms reporting increasing knowledge acquisition, such as combining issues in dealing with customers, competitors, market's participation report high levels of product innovation performance (Conceição et.al., 2017). Besides, SME market knowledge acquisition ensures an upper hand of the market dynamics in influencing innovation. The initial outcome of this study is not different from previous studies of (Conceição et al., 2017; Dwyer & Gilmore, 2019; Evangelista & Mac, 2016; Falasca et. al., 2017; Johansson, Raddats, & Witell, 2019; Liu & Atuahene-gima, 2018; Mostafiz, et al., 2019; Mostaghel, et al., 2019; Schaarschmidt & Walsh, 2018; Secundo et al., 2020) which show that firms' market knowledge positively affects their innovation ability. This gives room for SME

operators to focus more on acquiring knowledge through customer and competitor perspectives to influence their innovation drive (Deshpande, 2017).

Again, the study hypothesized that *FAC moderates the relationship between Customer and Competitor Knowledge Acquisition and SME Product Innovation Performance*. The result however indicated that Absorptive Capacity had an insignificant effect on the relationship in the context of SME operators. The study observed the improvement of the coefficient of determination (R^2) as a result of including the moderator in the model, the effect was statistically insignificant. Thus, adding the Customer Knowledge to the model improved the strength of the model from 36% to 44%, however, the effect was not statistically significant. Again, including Competitor Knowledge in the model also improved the model from 16% to 31%, however, the effect was not statistically significant. Firm Absorptive Capacity as a whole on Customer knowledge and Product Innovation Performance with the value of 0.182 had a moderate effect size. Also, the effect size of the Firm Absorptive Capacity as a whole on Competitor knowledge and Product Innovation Performance with the value of 0.260 has a moderate effect size. This position does not come as a surprise as the majority of Ghanaian SMEs fail to make a human capital investment (Bandari, 2020) in enhancing growth in their firms.

Though the results of the first two direct effects which hypothesized that customer knowledge and competitor knowledge has a statistically significant effect on product innovation performance (PIP) were supported. That notwithstanding, the Absorptive Capacity of SMEs which was presented as a moderating variable in the study did not show a statistically significant effect on the customer knowledge and competitor knowledge relationship. Thus it is less impactful of SMEs *Product Innovation Performance* (Mubarik, Devadason, & Govindaraju, 2020; Song, Gnyawali, Srivastava, & Asgari, 2018; Tian, Dogbe, Pomegbe, Sarsah, & Otoo, 2020).

SME operators would have to refocus and put in measure to absorb adequately the knowledge acquired (García-Sánchez, García-Morales, & Martín-Rojas, 2018) to have a lasting bearing on the firm performance. It is therefore important to emphasize that though some businesses may have the potential to absorb new knowledge, they are unable to use the knowledge to stimulate the envisaged growth (Limaj & Bernroider, 2019). The study, therefore, cautions against a direct generalization of absorption capacity of firms, especially the effects of absorption capacity through knowledge experience of SME operators on product innovation performance.

The current research makes several possibly beneficial insights, first, the effect of customer knowledge acquisition on SME product innovation performance has been measured, analyzed, and evaluated with competitor knowledge acquisition. This demonstrates to have never been done before, particularly the in Ghanaian manufacturing SMEs. Second, the absorptive capacity measurements used and evaluated in this study reveal the type and degree to which smaller manufacturing firms use diverse interpretation and declaration methods. Third, this is among the few studies that present statistically validated convincing proof interaction among customer and competitor information acquisition on the one side, as well as absorptive ability on the other, and how well the aforementioned contributes to the improvement of Ghanaian manufacturing SMEs. This work has effectively established a foundation for future studies on SME absorptive potential in achieving maximum market knowledge acquisition benefits. Finally, this study has demonstrated the other side of SME knowledge acquisition and knowledge absorptive ability under knowledge management topic, which still needs to be explored further in the case of developing nations.

Limitations and Future Research

It would be worthwhile to look at how market knowledge acquisition can be done in non-manufacturing fields, and also how it can connect with product innovation capabilities.

Also, while this current sample size is comparable to the minimum required for this form of research, future research should attempt to reach a larger sample size to improve external validity. Again, the cross-sectional nature of the study presents the study only in the context within which it is presented. Other industries can be researched to expand literature in knowledge management. In addition, other dimensions of FAC on product innovation performance can be investigated.

Finally, government participation by can be researched to examine its influence on the relationship.

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