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KNOWLEDGE MANAGEMENT AND PERFORMANCE OF SMALL AND MEDIUM-SIZED ENTERPRISES: LESSONS FROM TANZANIAN BAKERIES

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Abstract

Small and Medium-sized Enterprises around the globe have for years been struggling to realize competitiveness. Literature proposes knowledge management as one of the drivers of their performance. However, most of these SMEs still face challenges in ascertaining the right knowledge management strategies that would influence their performance and competitiveness. The study seeks to find the contribution of knowledge management strategies on SME performance. It intends to draw lessons from the operations and practices of small and medium-sized bakeries in Tanzania. It has adopted a mixed research methods, and a multi-stage sampling technique and ultimately received responses from 161 questionnaires, and 20 in depth interviews from bakery owners/managers throughout Tanzania. By employing a moderator analysis which is preceded by principal component analysis, and the qualitative content analysis (manifest analysis), the study is able to establish that both the owner/manager's education, and business experience, moderate the relationship between knowledge management strategies and SME performance. This study's argument lies in the fact that the knowledge management practices need to be enhanced in order to drive SME competitiveness. The study also argues that the initiatives to enhance these practices need the support of all relevant players in SME development, including the policy development practitioners from both public and private sectors.

Keywords: Knowledge Management, SME Performance, Bakeries, Tanzania

1. Introduction

For years, SMEs have been regarded as engines of economic growth in both developed and developing countries including Sub-Saharan Africa (Fjose *et al.* 2010), particularly Tanzania (URT, 2012). The contribution of SMEs to economic growth needs to be sustainable. SMEs need capabilities to compete in order to drive sustainable development. These capabilities are defined by the commitment of SMEs in the acquisition, sharing, and utilization of knowledge from both internal and external environments (Azyabi, 2017). Although the knowledge management practices such as the acquisition, sharing, and utilization are greatly informal in SMEs (Talebi, 2009), these practices need to be integrated with SMEs' business operations and strategies in order to realize growth and competitiveness (Kalui and Mulinge, 2016).

Competitiveness is greatly influenced by the SMEs' commitment to transform individual knowledge into organizational knowledge (Handzic, 2004). The transformation can be facilitated by a working environment defined by effective reward systems (Supyuenyong *et al.* 2007), management style (Uzelac *et al.* 2018), supportive culture and structure (Byukusenge and Munene, 2017), trust, teamwork spirit (Supyuenyong *et al.* 2007), business processes, and learning environment (Handzic, 2004; Byukusenge and Munene, 2017). However, in most of the developing economies, knowledge management is still a new business concept especially in SMEs that face challenges to establish the contribution of knowledge management on business performance (Choochote, 2013). One of the developing economies is Tanzania. In Tanzania, SMEs play a vital role in poverty reduction (URT, 2012). However, there has been little research that has attempted to establish the role of knowledge management on SME performance in Tanzania. In this regard, Tanzanian SMEs need to understand the knowledge management strategies that work in order to realize their competitiveness and therefore influence socio-economic developments. A model that links the knowledge management strategies and SME performance is crucial in enlightening the strategies that can be adopted by SMEs to enable them compete. Since Tanzania's agriculture sector contributes significantly to the country's economic development (Chongela, 2015), and that the sector impacts the Tanzanian food industry, this study seeks to establish the contribution of knowledge management strategies on SME performance based on the operations and practices of small and medium-sized bakeries. Additionally, studies on knowledge management and SME performance in Tanzania's bakeries are not prevalent while the demand of bakery products is growing at a burgeoning pace (Bennett *et al.* 2012).

To a great extent, literature confirms that knowledge management can be characterized as knowledge acquisition, knowledge sharing, and knowledge application (Gharakhani and Mousakhani, 2012; Ha *et al.* 2016; Daud and Yusoff, 2010; Byukusenge *et al*. 2016; Valdez-Juarez *et al.* 2016). There are, however, several practices and initiatives under the three categories of knowledge management. This study seeks to define the practices and initiatives characterizing each of the three categories before establishing their contribution on SME performance. The aim of amplifying these strategies is to enlighten a deeper understanding of the knowledge management strategies that can be applied in the SME environment. Therefore, this study encompasses the three common categories of knowledge management strategies and finds whether they influence SME performance. Specifically, the study seeks to determine the contribution of knowledge creation, knowledge sharing, and knowledge utilization on both cost level and production/output level of Tanzania-based small and medium-sized bakeries. In this regard, the study seeks to answer the following questions: do knowledge creation, knowledge sharing, and knowledge utilization influence the cost level, and output level of Tanzania-based bakeries under the moderation of both the owner/manager's education, and business experience respectively?

The contribution of this study is apparent. As noted earlier, knowledge management is vital in influencing the competitiveness of SMEs. However, knowledge management practices in SMEs are to a great, extent informal. Defining these strategies is of paramount importance. A study that analyzes their contribution on the performance of SMEs will help members of the academia, and researchers to understand the characteristics and application of knowledge management strategies in SMEs' business environments and use it to develop knowledge management theories, models, and practices that work in SMEs from different sectors and industries. Based on this study, their studies can also focus on enhancing the best knowledge management practices reflecting the business environment of small and medium-sized bakeries in Tanzania and beyond. Nevertheless, the policy makers are likely to use this study in developing policies and plans that seek to simplify the operations of SME bakeries, and other categories of SMEs in Tanzania and other related economies. These policies may aim at addressing the challenges facing the designing and implementation of useful knowledge management strategies in SMEs. The relevant practitioners, particularly the bakery owners/managers, are likely to benefit from this study especially in understanding the well defined knowledge management strategies that can be used to foster their SMEs' performance. In this regard, based on their business environments, the application of their knowledge

management practices has been enlightened and simplified. Therefore, the commitment to advance this study, create relevant favorable policies, and apply the study in SMEs' business operations and practices, will ultimately improve the performance, growth, and sustainability of SMEs.

The paper is organized into six sections. The introduction section explains about the aim of this study and its expected contribution. The literature review starts by integrating the two relevant theories with SMEs' operations and practices. These are the organizational knowledge creation theory and the knowledge-based view. Nevertheless, the literature review section attempts to create a link between knowledge management and SME performance. It also provides details of the knowledge management practices in bakeries, and ultimately presents the conceptual framework. It precedes the methodology whose parts include the research design and sampling, data collection and analysis, variables and measurements, validity and reliability, and testing for assumptions. Thereafter, the findings, and discussion sections are mainly presented based on the demand of each objective and research question. These sections precede the conclusion section whose presentation includes the recommendations as well.

2. Literature review

2.1. Organizational knowledge creation in SMEs

The organization competitiveness is mainly driven by knowledge creation (Bratianu and Orzea, 2010). Knowledge sharing is a driver of new ideas that become the basis of knowledge creation in organizations (Yi and Jayasingam, 2012). The knowledge management practices such as knowledge creation, sharing, and utilization, are influenced by the interactions and actions of individuals (de Castro and Montoro, 2013) who initiate new knowledge to develop the foundation of organizational knowledge (Nonaka, 1991). Therefore, organizational resources are needed in transforming information and ideas into organizational knowledge (de Castro and Montoro, 2013). Conducive knowledge environment is needed to support the creation of both tacit knowledge and explicit knowledge. Tacit knowledge is defined by Nonaka and Takeuchi (1995, p. 7) as "personal knowledge embedded in individual experience and involves intangible factors such as personal belief, perspective and value system". Explicit knowledge is formal and systematic. According to Nonaka and Takeuchi (1995, p. 8), explicit knowledge "can be articulated in formal language including grammatical statements, mathematical expressions, specifications, manuals and so forth". Through the Nonaka and Takeuchi's (1995) model of knowledge creation and transfer, new tacit knowledge is transformed through shared practices and experience. The transformation is mainly supported by social interaction (Nonaka and Toyama, 2003). Also, the model involves the conversion of tacit knowledge into explicit knowledge so that it can be easily shared by organization or team members. The model also involves a process that uses the existing explicit knowledge in creating a new explicit knowledge (Berraies and Chaher, 2014) that can be shared through information systems (Ramirez *et al.* 2011). On the other hand, the model expresses a stage in which explicit knowledge is converted into new tacit knowledge (Oye *et al.* 2011). In this stage, explicit knowledge is shared among members and internalized to become one's own tacit knowledge (Nonaka and Toyama, 2003). Knowledge creation is essential in SMEs so that through it, strategic decisions influencing their competitiveness can be made (Gholami *et al.* 2013). Through knowledge management, SMEs can develop solutions, and innovative products that facilitate efficiency and effectiveness, and both growth and sustainability (Cerchione *et al.* 2015). Therefore, knowledge capabilities in SMEs need to be enhanced. This can be in terms of acquiring relevant resources that reflect their operating environment (Ngah and Jusoff, 2009), and the creation of learning environment (Laeeque and Babar, 2017) that will facilitate the creation of both tacit knowledge and explicit knowledge, despite the fact that the great amount of knowledge in SMEs tends to be tacit (Durst and Leyer, 2014). It has been noted that informal interactions have played a great role in generating tacit knowledge in SMEs (Solek-Borowska, 2017). However, SMEs have the responsibility of establishing supportive environment, culture,

and structure that influence their members to participate in the execution of knowledge management practices (Laeeque and Babar, 2017).

2.2. Knowledge-based view in SMEs

The knowledge-based view advocates that the firm's existence is mainly driven by knowledge creation practices, efficient knowledge, and information sharing (Kogut and Zander, 1992). These practices and initiatives enable firms to integrate their information networks with the employees' knowledge in order to foster value addition (Moayer and Gardner, 2012). According to Grant (1996), such interdependence is crucial in organization development. This is because; interactions among organization members drive the creation, and sharing of knowledge (Kogut and Zander, 1992). Therefore, organizations that seek to become knowledge-based entities have the responsibility of creating, safeguarding, integrating, and sharing knowledge (Perez-Bustamante, 1999) in order to drive customer satisfaction and efficiency (Lee, 2009). Their knowledge resources need to be utilized in order to enhance their competitive advantages (Wiklund and Shepherd, 2003). The competitiveness and survival chances of SMEs depend on effective knowledge management practices. These practices are the foundation of entrepreneurial spirit in SMEs (De Clercq *et al.* 2015). They also play a vital role in managing markets, competition, customers (Carraresi *et al.* 2012), and SME innovation performance particularly the service innovation (Mennens *et al*. 2018). These initiatives can be well managed if SMEs develop knowledge capabilities. These capabilities are the major drivers of knowledge processes (Chan *et al.* 2016). SMEs need to ensure that employees are involved in these processes, particularly the decision making process, and demonstrate commitment in seeking support from both internal and external environments (Farace and Mazzotta, 2015). The support from the business environment enhances knowledge capabilities (Mennens *et al.* 2018). Again, a supportive culture should be enhanced by SMEs in order to foster the participation of employees in knowledge management initiatives (Price *et al.* 2013). The supportive culture is reflected through effective rewarding systems and informal meetings (Terziovski, 2010), a conducive environment that enhances open knowledge-sharing in SMEs (De Clercq *et al.* 2015).

2.3. Knowledge management and SME performance

Studies on the relationship between knowledge management and SME performance have been prevalent in the literature. As noted earlier, these studies have mainly characterized knowledge management as acquisition, sharing, and application. Other tenets such as training, culture, strategies, and policies can be regarded as the major facilitators of knowledge management practices in SMEs (Daud and Yusoff, 2010; Byukusenge *et al.* 2016; Valdez-Juarez *et al.* 2016). Knowledge management has been regarded as a driver of competitive advantage and SME performance (Jabeen *et al.* 2014; Ngah and Ibrahim, 2010). Mainly, knowledge management encompasses knowledge creation, sharing, and utilization. Nevertheless, in order to understand knowledge management strategies that work, the creation, sharing, and utilization practices need to be expounded, to reflect the operating environment of SMEs particularly the bakeries from a developing economy. Little research has targeted the bakery industry. This study seeks to find the contribution of knowledge management strategies: knowledge creation, knowledge sharing, and knowledge utilization, with bakery performance: level of operating and production costs, and production/output level. It moderates these relationships using the owner/manager's education level, and business experience respectively. The study considers the owners/managers as respondents representing their SMEs, and adopted large samples based on Jabeen *et al.* (2014), Byukusenge *et al.* (2016), Valdez-Juarez *et al.* (2016), Daud and Yusoff (2010), and Ngah and Ibrahim (2010). This study also involved stratified sampling based on Valdez-Juarez *et al.* (2016), and simple random sampling that was also adopted by Byukusenge *et al.* (2016).

2.4. Knowledge management practices in bakeries

Bakeries have the responsibility of investing in creating innovative environments in order to influence the level of knowledge stock, and acquisition capabilities (Abdelshafy, 2017). The knowledge acquisition in food enterprises such as bakeries takes place in both internal and external business environments (Beljic *et al.* 2013). It has been observed that bakeries need both tacit knowledge and implicit knowledge (Kuk, 2006) that can be acquired from their employees through well developed procedures and processes including formal and informal interactions (Ogiwara *et al.* 2010). These interactions have been regarded as major sources of knowledge (Beljic *et al.* 2013). For example, bakeries can interact with customers in order to understand their preferences (Ogiwara *et al.* 2010). They can also use interviews to acquire tacit knowledge (Beljic *et al*. 2013) particularly when their systems facilitate their interaction with their stakeholders (Kuk, 2006). Training has also been regarded as a major source of knowledge in bakeries (Quaye *et al.* 2018). Training enhances employees' capabilities in managing bakery operations, processes and technology (Malaysian-German Chamber of Commerce and Industry, 2016; Durst *et al.* 2015). It also motivates employees to learn and acquire new knowledge (Ogiwara *et al.* 2010). However, there should be a connection between employee skills with the bakery's working environments so that idea generation and new knowledge can be acquired (Ferencikova and Hrdlickova, 2017).

The knowledge sharing practices are facilitated by structures, culture, and communication resources (Ferencikova and Hrdlickova, 2017). All these define an effective knowledge sharing environment. Bakeries need knowledge environments that foster team spirit. This spirit influences the generation and sharing of new ideas and information (Aaltonen and Hytti, 2014) especially through frequent informal dialogues (Heimonen *et al.* 2015), meetings, interactions, and experiences (Durst *et al.* 2015). These interactions should take place at all levels, and bakeries have the responsibility of sharing the relevant information among all employees. The sharing of relevant information can be in form of management feedback to other employees. Although most of the food enterprises prefer face-to-face communication, in which managers tend to discuss matters with their employees (Beljic *et al.* 2013), literature confirms that documentation is also a crucial knowledge sharing tactic among food enterprises (Durst *et al.* 2015).

The capabilities to transform knowledge into innovative products are crucial in influencing firm performance and competitiveness (Heimonen *et al.* 2015). Knowledge utilization in bakeries is defined by the commitment of bakeries in integrating ideas, concepts, and thoughts into bakery operations (Ozor *et al.* 2015). For example, it can be in terms of commitment to use customer feedback in improving products, productivity, and production processes. These commitments target both customer satisfaction, and employee development (Ogiwara *et al*. 2010). This is because customer interests such as consuming nutritional bakery products (Dilhari and Wijesinghe, 2014), or an interest in whole-grain bread (Nuobariene *et al.* 2014), sweet or wheat bread (Fitriana *et al.* 2017), yeast breads (Ali *et al.* 2012) or concern on health issues such as baking soda consumption (Rostam *et al.* 2013) trigger improvements in bakery products, and operations. For example, the use of modern storage facilities and effective packaging may be adopted after the bakeries have internalized customer's interests in fresh products (Pastukhov and Danin, 2011). However, all the improvements in bakeries should conform to the relevant standards such as safety and health standards in order to influence effective and efficient operation processes (Perdan *et al.* 2018) that prevent wrongdoings and encourage transparency (Cheung and Leung, 2016).

2.5. Conceptual framework

The study has defined its independent variables characterizing knowledge creation as the commitment of bakeries in ensuring that their employees always develop ideas that will improve their products, or processes, or operating environment (KC1); the commitment of bakeries in ensuring that their working environments allow employees to generate ideas with regard to the improvement of their products, or processes, or operating environment (KC2); the commitment

of bakeries in regularly training their employees regarding analyzing of information from the customers, suppliers, agents, or business partners (KC3); the commitment of bakeries to link the employee-given ideas with those given by customers, suppliers, agents, or business partners in order to acquire a common ground (KC4); and the commitment of bakeries to put mechanisms on how to receive suggestions, complaints, ideas, or any relevant information from their customers, suppliers, agents, or business partners (KC5). Under the knowledge sharing aspect, the study has defined independent variables as the commitment of bakeries to ensure that their employees share any idea, or information that can improve their products, or processes, or operating environment (KS1); the commitment of bakeries to ensure that all information or ideas with regard to the improvement of their products, or processes, or operating environment are openly discussed by all staff (KS2); the commitment of bakeries to ensure that their working environments allow employees to share, and discuss ideas or information regarding the improvement of their products, or processes, or operating environment (KS3); the commitment of bakeries to ensure that there is a maximum interaction between employees and customers, suppliers, agents, or business partners (KS4); and the commitment of bakeries to ensure that the feedback on the progress of the employee-given/generated information is given timely (KS5). Under the knowledge utilization, the study has defined the independent variables as the commitment of bakeries to ensure that their employees apply any ideas, or information from their colleagues to improve bakery products, or processes, or operating environment (KU1); the commitment of bakeries to rely on the information or ideas given by customers, suppliers, agents, or business partners (KU2); the commitment of bakeries to regularly train their employees regarding reporting of information to the customers, suppliers, agents, or business partners (KU3); the capabilities of bakeries to store, retrieve and use data in improving their products, or processes, or operating environment (KU4); and the commitment of bakeries to ensure that after applying the generated ideas or given information, they frequently evaluate their impact on the improvement of their products, processes or operating environment (KU5). The moderator variables include the bakery owner/manager's education (E), and the bakery owner/manager's business experience (X). The dependent variables are the cost level (CT), and output level (OT) as shown in Figure 1.

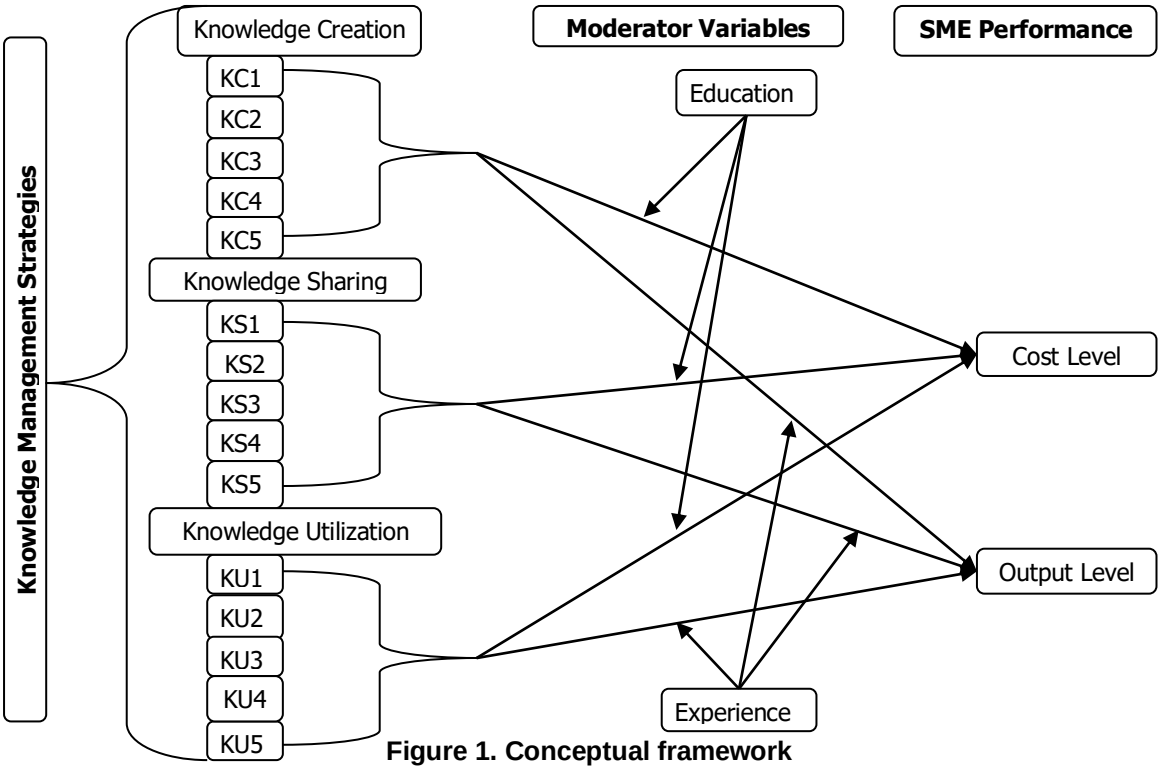

Figure 1. Conceptual framework

3. Methodology

3.1. Research design and sampling

The study adopted a concurrent nested design (Almeida, 2018) in which both quantitative and qualitative data were collected concurrently (Santos *et al.* 2017). However, the quantitative approach was predominant. The study took place in the United Republic of Tanzania and based in Mainland Tanzania where the then Tanzania Food and Drugs Authority (TFDA) was responsible in registering and regulating the operations of bakeries before the Finance Act of 2019 introduced the new changes that brought the Tanzania Medicines and Medical Devices Authority (TMDA). The new changes have shifted the administration of bakery operations to the Tanzania Bureau of Standards (TBS). The study population comprised of 359 registered small and medium-sized bakeries operating in Mainland Tanzania. The study relied on Krejcie and Morgan's (1970) table to determine a sample size of 186 registered small and medium-sized bakeries. It also adopted a multi-stage sampling technique in which all the 26 regions of Mainland Tanzania were stratified into 7 geographical zones based on TFDA's zone classification. It thereafter adopted the probability proportional to size in order to establish the number of bakeries incorporated in the sample from each zone. Afterwards, it adopted the simple random sampling technique in order to identify bakeries from each zone. This resulted to 21 bakeries from Central Zone, 94 bakeries from Eastern Zone, 23 bakeries from Lake Zone, 23 bakeries from Northern Zone, 9 bakeries from Southern Zone, 12 bakeries from Southern Highlands Zone, and 4 bakeries from Western Zone.

3.2. Data collection and analysis

A total of 186 questionnaires were distributed to the owners/managers of the bakeries. Each bakery received a questionnaire. The study received a positive response from 161 bakeries as follows: 19 bakeries from Central Zone, 78 bakeries from Eastern Zone, 19 bakeries from Lake Zone, 22 bakeries from Northern Zone, 7 bakeries from Southern Zone, 12 bakeries from Southern Highlands Zone, and 4 bakeries from Western Zone. Additionally, the study carried out in-depth interviews to 20 bakeries as follows: 3 bakeries from Central Zone, 10 bakeries from Eastern Zone, 3 bakeries from Lake Zone, 3 bakeries from Northern Zone, and 1 bakery from Southern Highlands Zone. The data collection took place from November 2018 to February 2019. The responses based on the operations and practices that have been taking place in bakeries for a period of three years. The study used the principal component analysis and the moderator analysis to establish the study validity, and in analyzing the relationship between knowledge management strategies and bakery performance respectively. The principal component analysis was also supplemented by the qualitative content analysis (manifest analysis).

3.3. Variables and measurements

The responses of both the independent, and dependent variables were collected using the seven-point Likert scale. The moderator variables were grouped to form dichotomous variables. E is categorized as advanced education (AE), and basic education (BE). It is measured as AE (E≥diploma level), and BE (E<diploma level). X is categorized as advanced business experience (AX), and basic business experience (BX). It is measured as AX (A>10years), and BX (A≤10years).

3.4. Validity and reliability

We ran the principal component analysis with all variables associated with knowledge management strategies and confirmed that all variables had at least one correlation with another variable; where $r \geq 0.3$. The overall KMO measure was 0.889, and the Bartlett's Test of Sphericity was statistically significant, $p = 0.000$ ($p < 0.0005$) confirming that there was adequacy of sampling. Additionally, the rotated component matrix appeared to be a simple

structure in which each variable had only one component that loads strongly on it. Also, each component loaded strongly on at least three variables. Therefore, validity was confirmed. On the other hand, the values of Cronbach's alpha were 0.741 (knowledge creation), 0.816 (knowledge sharing), and 0.820 (knowledge utilization). All these values were at least 0.700 signifying that in all cases, the scale was found to have a good level of internal consistency (Kline, 2005).

3.5. Testing for assumptions

We tested the major assumptions such as linearity, multicollinearity, unusual points, homoscedasticity, and normality. Linearity was established by visual inspection of a scatterplot between a dependent variable and an independent variable. On the other hand, the study found that there was no evidence of multicollinearity. All the tolerance values were greater than 0.1. All their corresponding VIF values were less than 10. Also, there were neither outliers nor influential case. This is because there was no any standard deviations >±3, no leverage value >0.04969, and no cook's distance>1. It was also found that there was homoscedasticity based on the visual inspection of the studentized residuals plotted against the predicted values for bakeries with AE and BE between cost level and each of the knowledge creation, sharing, and utilization strategies. There was also homoscedasticity based on the visual inspection of the studentized residuals plotted against the predicted values for bakeries with AX and BX between output level and each of the knowledge creation, sharing, and utilization strategies. Additionally, in all cases, the Normal Q-Q Plot of Studentized Residual was used and found that studentized residuals were normally distributed.

4. Findings

As mentioned earlier, this study employed the principal component analysis to confirm variables that explain the knowledge creation, knowledge sharing, and knowledge utilization. The principal component analysis was run with all variables associated with knowledge management strategies and the findings reveal that all variables had at least one correlation with another variable. It was also revealed that the Bartlett's Test of Sphericity was statistically significant. The anti-image correlation matrix informed that all variables had KMO values greater than 0.830 (the lowest is 0.835), thus confirming adequacy of sampling. Three components, based on their Eigenvalues being greater than 1, were retained, despite the fact that they explained 59.241% (less than 60%) of the total variance. Although 59.241% is very close to 60% (lower criterion), the decision to retain three components was supported by the visual inspection of the Scree Plot that suggested the retention of three components as well. Additionally, the decision to retain three components was also influenced by the fact that the Rotated Component Matrix appeared to be a simple structure, whereby each variable had only one component that loaded strongly on it. Furthermore, the structure revealed that each component loaded strongly on at least three variables. On the other hand, and based on the qualitative content analysis (manifest analysis), the interviews confirmed that bakeries were involving their employees in developing ideas that could be useful in managing bakery operations, processes, and practices. The bakeries also confirmed that they were encouraging their employees to develop ideas and they were strongly supporting the implementation of the generated ideas in order to encourage other members of the bakery to create knowledge. The bakeries also confirmed that they were training their employees on matters pertaining to idea generation, analysis and implementation as a way of advancing knowledge creation in their enterprises. Additionally, in order to create more knowledge, most of the bakeries confirmed that they were putting mechanisms that would allow them to receive information such as suggestion box, or using their publicly known contacts, particularly their mobile phones. Also, according to the interviews, bakeries were encouraging their employees to discuss challenges, opportunities, and best practices pertaining to bakery operations as a way of sharing knowledge within the bakery. These discussions were being done openly. It was revealed that bakery owners/managers were sometimes participating in these discussions in order to encourage their

employees to share their experiences as well. According to the interviews, these discussions were also open between members of the bakery and other interested bakery stakeholders such as customers, suppliers, business partners, and agents whenever an opportunity would arise. Also, according to the interviews, bakeries were encouraging all members of the bakery to generate ideas and become part of the implementation chain. The motive behind was to involve members of the bakery in owning ideas generated by their fellow employees in order to increase productivity. They were also ready to share their experiences and cooperate in implementing useful ideas given by the bakery stakeholders such as customers, suppliers, agents, and business partners. In addition, bakery owners/managers were the champions in supporting the training of their employees in order to successfully implement the useful generated ideas. However, as it was noted, only few bakeries were documenting the implementation process of the generated ideas.

4.1. Knowledge creation and bakery performance

As shown in Table 1, a hierarchical multiple regression was run to assess the increase in variation explained by the addition of an interaction term between an independent variable and a moderator variable to a main effects model.

Table 1. Knowledge creation and bakery performance

IV	MV	DV	R Square Change	F Change	Sig. F Change	Simple Slopes Analysis		Coefficient of the Interaction Term
KC1	E	CT	3.7%	$F(1, 157) = 6.267$	$p=0.013$	AE (0.107 ± 0.102), $p = 0.293$	BE (-0.362 ± 0.158), $p = 0.023$	(0.469 ± 0.188), $p = 0.013$
KC1	X	OT	3.5%	$F(1, 157) = 6.172$	$p=0.014$	AX (0.086 ± 0.106), $p = 0.420$	BX (0.443 ± 0.097), $p = 0.000$ ($p < 0.0005$)	(0.357 ± 0.144), $p = 0.014$
KC2	E	CT	3.4%	$F(1, 157) = 5.883$	$p=0.016$	AE (0.173 ± 0.129), $p = 0.182$	BE (-0.274 ± 0.131), $p = 0.039$	(0.448 ± 0.184), $p = 0.016$
KC2	X	OT	4.2%	$F(1, 157) = 7.706$	$p=0.006$	AX (0.031 ± 0.113), $p = 0.781$	BX (0.419 ± 0.083), $p = 0.000$ ($p < 0.0005$)	(0.388 ± 0.140), $p = 0.006$
KC3	E	CT	3.9%	$F(1, 157) = 6.744$	$p=0.010$	AE (0.148 ± 0.121), $p = 0.224$	BE (-0.334 ± 0.141), $p = 0.019$	(0.482 ± 0.185), $p = 0.010$
KC3	X	OT	10.8%	$F(1, 157) = 21.350$	$p=0.000$ ($p<0.0005$)	AX (-0.059 ± 0.103), $p = 0.570$	BX (0.581 ± 0.092), $p = 0.000$ ($p < 0.0005$)	(0.640 ± 0.138), $p = 0.000$ ($p < 0.0005$)
KC4	E	CT	3.8%	$F(1, 157) = 6.537$	$p=0.012$	AE (0.157 ± 0.124), $p = 0.208$	BE (-0.336 ± 0.148), $p = 0.024$	(0.493 ± 0.193), $p = 0.012$
KC4	X	OT	3.4%	$F(1, 157) = 6.030$	$p=0.015$	AX (0.048 ± 0.123), $p = 0.695$	BX (0.426 ± 0.092), $p = 0.000$ ($p < 0.0005$)	(0.378 ± 0.154), $p = 0.015$
KC5	E	CT	4.1%	$F(1, 157) = 7.165$	$p=0.008$	AE (0.176 ± 0.121), $p = 0.150$	BE (-0.315 ± 0.137), $p = 0.023$	(0.490 ± 0.183), $p = 0.008$
KC5	X	OT	12.5%	$F(1, 157) = 23.729$	$p=0.000$ ($p<0.0005$)	AX (-0.120 ± 0.099), $p = 0.228$	BX (0.589 ± 0.106), $p = 0.000$ ($p < 0.0005$)	(0.709 ± 0.146), $p = 0.000$ ($p < 0.0005$)

E moderates the effect of each of the five knowledge creation strategies (KC1, KC2, KC3, KC4, KC5) on CT. The simple slopes analyses revealed that the linear relationships between CT and each of the five knowledge creation strategies in bakeries with BE were statistically significant. All the relationships were negative. However, the simple slopes analyses

revealed that the linear relationships between CT and each of the five knowledge creation strategies in bakeries with AE were not statistically significant. All the coefficients of the interaction terms were statistically significant indicating that E moderates the relationships between CT and each of the five knowledge creation strategies. Again, a hierarchical multiple regression analysis reveals that X moderates the effect of each of the five knowledge creation strategies on OT. The simple slopes analyses revealed that the linear relationships between OT and each of the five knowledge creation strategies in bakeries with BX were statistically significant. However, the simple slopes analyses revealed that the linear relationships between OT and each of the five knowledge creation strategies in bakeries with AX were not statistically significant. All the coefficients of the interaction terms were statistically significant indicating that X moderates the relationships between OT and each of the five knowledge creation strategies.

4.2. Knowledge sharing and bakery performance

As shown in Table 2, a hierarchical multiple regression was run to assess the increase in variation explained by the addition of an interaction term between an independent variable and a moderator variable to a main effects model.

Table 2. Knowledge sharing and bakery performance

IV	MV	DV	R Square Change	F Change	Sig. F Change	Simple Slopes Analysis		Coefficient of the Interaction Term
KS1	E	CT	2.8%	$F(1, 157) = 4.989$	$p=0.027$	AE (0.079 ± 0.125), $p = 0.528$	BE (-0.330 ± 0.134), $p = 0.015$	(0.409 ± 0.183), $p = 0.027$
KS1	X	OT	3.2%	$F(1, 157) = 5.695$	$p=0.018$	AX (0.006 ± 0.121), $p = 0.962$	BX (0.357 ± 0.085), $p = 0.000$ ($p < 0.0005$)	(0.352 ± 0.147), $p = 0.018$
KS2	E	CT	3.4%	$F(1, 157) = 5.959$	$p=0.016$	AE (0.023 ± 0.127), $p = 0.854$	BE (-0.423 ± 0.132), $p = 0.002$	(0.446 ± 0.183), $p = 0.016$
KS2	X	OT	5.9%	$F(1, 157) = 18.609$	$p=0.000$ ($p<0.0005$)	AX (0.370 ± 0.088), $p = 0.000$ ($p < 0.0005$)	BX (0.863 ± 0.073), $p = 0.000$ ($p < 0.0005$)	(0.492 ± 0.114), $p = 0.000$ ($p < 0.0005$)
KS3	E	CT	3.6%	$F(1, 157) = 6.175$	$p=0.014$	AE (0.095 ± 0.115), $p = 0.410$	BE (-0.349 ± 0.137), $p = 0.012$	(0.444 ± 0.178), $p = 0.014$
KS3	X	OT	2.9%	$F(1, 157) = 5.617$	$p=0.019$	AX (0.193 ± 0.103), $p = 0.063$	BX (0.520 ± 0.092), $p = 0.000$ ($p < 0.0005$)	(0.328 ± 0.138), $p = 0.019$
KS4	E	CT	3.4%	$F(1, 157) = 5.811$	$p=0.017$	AE (0.073 ± 0.116), $p = 0.533$	BE (-0.363 ± 0.138), $p = 0.010$	(0.436 ± 0.181), $p = 0.017$
KS4	X	OT	3.2%	$F(1, 157) = 5.469$	$p=0.021$	AX (0.080 ± 0.127), $p = 0.533$	BX (0.496 ± 0.124), $p = 0.000$ ($p < 0.0005$)	(0.416 ± 0.178), $p = 0.021$
KS5	E	CT	3.2%	$F(1, 157) = 5.460$	$p=0.021$	AE (0.101 ± 0.119), $p = 0.399$	BE (-0.352 ± 0.153), $p = 0.022$	(0.453 ± 0.194), $p = 0.021$
KS5	X	OT	3.3%	$F(1, 157) = 5.935$	$p=0.016$	AX (0.132 ± 0.110), $p = 0.232$	BX (0.508 ± 0.109), $p = 0.000$ ($p < 0.0005$)	(0.377 ± 0.155), $p = 0.016$

E moderates the effect of each of the five knowledge sharing strategies (KS1, KS2, KS3, KS4, KS5) on CT. The simple slopes analyses revealed that the linear relationships between CT and each of the five knowledge sharing strategies in bakeries with BE were statistically significant. All the relationships were negative. However, the simple slopes analyses revealed that the linear relationships between CT and each of the five knowledge sharing strategies in bakeries with AE were not statistically significant. All the coefficients of the interaction terms were statistically significant indicating that E moderates the relationships between CT and each of the five knowledge sharing strategies. Again, a hierarchical multiple regression analysis reveals that X moderates the effect of each of the five knowledge sharing strategies on OT. The simple slopes analyses revealed that the linear relationships between OT and each of the five knowledge sharing strategies in bakeries with BX were statistically significant. However, the simple slopes analyses revealed that the linear relationships between OT and each of the four knowledge sharing strategies (KS1, KS3, KS4, KS5) in bakeries with AX were not statistically significant. On the contrary, the simple slopes analysis revealed that the linear relationship between OT and KS2 in bakeries with AX was statistically significant. All the coefficients of the interaction terms were statistically significant indicating that X moderates the relationships between OT and each of the five knowledge sharing strategies.

4.3. Knowledge utilization and bakery performance

As shown in Table 3, a hierarchical multiple regression was run to assess the increase in variation explained by the addition of an interaction term between an independent variable and a moderator variable to a main effects model.

Table 3. Knowledge utilization and bakery performance

IV	MV	DV	R Square Change	F Change	Sig. F Change	Simple Slopes Analysis		Coefficient of the Interaction Term
KU1	E	CT	4.4%	$F(1, 157) = 7.682$	$p=0.006$	AE (0.177 ± 0.130), $p = 0.175$	BE (-0.350 ± 0.139), $p = 0.013$	(0.527 ± 0.190), $p = 0.006$
KU1	X	OT	3.7%	$F(1, 157) = 6.467$	$p=0.012$	AX (0.028 ± 0.125), $p = 0.820$	BX (0.434 ± 0.099), $p = 0.000$ ($p < 0.0005$)	(0.405 ± 0.159), $p = 0.012$
KU2	E	CT	3.6%	$F(1, 157) = 6.200$	$p=0.014$	AE (0.160 ± 0.132), $p = 0.229$	BE (-0.328 ± 0.144), $p = 0.024$	(0.488 ± 0.196), $p = 0.014$
KU2	X	OT	3.1%	$F(1, 157) = 5.288$	$p=0.023$	AX (-0.034 ± 0.131), $p = 0.793$	BX (0.344 ± 0.100), $p = 0.001$	(0.379 ± 0.165), $p = 0.023$
KU3	E	CT	3.0%	$F(1, 157) = 5.414$	$p=0.021$	AE (0.030 ± 0.123), $p = 0.805$	BE (-0.386 ± 0.130), $p = 0.003$	(0.416 ± 0.179), $p = 0.021$
KU3	X	OT	3.2%	$F(1, 157) = 5.463$	$p=0.021$	AX (0.046 ± 0.117), $p = 0.692$	BX (0.436 ± 0.119), $p = 0.000$ ($p < 0.0005$)	(0.390 ± 0.167), $p = 0.021$
KU4	E	CT	3.4%	$F(1, 157) = 5.943$	$p=0.016$	AE (0.123 ± 0.122), $p = 0.317$	BE (-0.327 ± 0.138), $p = 0.019$	(0.450 ± 0.185), $p = 0.016$
KU4	X	OT	5.2%	$F(1, 157) = 9.010$	$p=0.003$	AX (-0.013 ± 0.114), $p = 0.909$	BX (0.466 ± 0.112), $p = 0.000$ ($p < 0.0005$)	(0.479 ± 0.160), $p = 0.003$
KU5	E	CT	5.3%	$F(1, 157) = 9.321$	$p = 0.003$	AE (0.218 ± 0.123), $p = 0.079$	BE (-0.332 ± 0.131), $p = 0.012$	(0.550 ± 0.180), $p = 0.003$
KU5	X	OT	4.1%	$F(1, 157) = 7.022$	$p=0.009$	AX (-0.019 ± 0.089), $p = 0.832$	BX (0.300 ± 0.081), $p = 0.000$ ($p < 0.0005$)	(0.319 ± 0.120), $p = 0.009$

E moderates the effect of each of the five knowledge utilization strategies (KU1, KU2, KU3, KU4, KU5) on CT. The simple slopes analyses revealed that the linear relationships between CT and each of the five knowledge utilization strategies in bakeries with BE were statistically significant. All the relationships were negative. However, the simple slopes analyses revealed that the linear relationships between CT and each of the five knowledge utilization strategies in bakeries with AE were not statistically significant. All the coefficients of the interaction terms were statistically significant indicating that E moderates the relationships between CT and each of the five knowledge utilization strategies. Again, a hierarchical multiple regression analysis reveals that X moderates the effect of each of the five knowledge utilization strategies on OT. The simple slopes analyses revealed that the linear relationships between OT and each of the five knowledge utilization strategies in bakeries with BX were statistically significant. However, the simple slopes analyses revealed that the linear relationships between OT and each of the five knowledge utilization strategies in bakeries with AX were not statistically significant. All the coefficients of the interaction terms were statistically significant indicating that X moderates the relationships between OT and each of the five knowledge utilization strategies.

5. Discussion

5.1. Knowledge creation and bakery performance

The findings tell that the education level of the owner/manager of the bakery moderates the relationship between knowledge creation strategies and the cost level. All these relationships exist more in bakeries with owners/managers whose education level is basic than in bakeries whose owners/managers have advanced education level. This tells that by having owners/managers with basic level of education, bakeries are likely to employ their commitment in enhancing their knowledge creation practices than in bakeries whose owners/managers have advanced education level, and ultimately reduce their production and operation costs. On the other hand, the findings tell that the business experience of the bakery owner/manager moderates the relationship between knowledge creation strategies and the production/output level. All these relationships exist in bakeries whose owners/managers have basic business experience. This tells that the commitment of bakeries enhancing their knowledge creation practices influences production/output performance in bakeries whose owners/managers have basic business experience than in those with highly experienced owners/managers. All these results corroborate with the fact that the innovative behavior of employees is translated into their idea development initiatives (Lukes and Stephan, 2017). They also confirm that the ownership and management structure significantly influence knowledge management processes in SMEs (Supyuenyong *et al.* 2009). Therefore, successful knowledge management initiatives are those which enhance the linkage between people, processes, and technology (Omotayo, 2015). Generally, effective knowledge management practices and systems should be able to facilitate the collection of information from external sources (Attafar *et al.* 2013). Based on these findings, we argue that employee training is central to successful knowledge management practices. An employee training drives the employee's competency in addressing challenges and increasing productivity (Sherwani and Mohammed, 2015).

5.2. Knowledge sharing and bakery performance

The findings tell that the education level of the owner/manager of the bakery moderates the relationship between knowledge sharing strategies and the cost level. All these relationships exist more in bakeries with owners/managers whose education level is basic than in bakeries whose owners/managers have advanced education level. This means that by having owners/managers with basic level of education, bakeries are likely to employ more of their commitment in enhancing their knowledge sharing practices, than in bakeries whose owners/managers have advanced education level, and ultimately reduce their production and operation costs. On the other hand, the findings tell that the business experience of the bakery

owner/manager moderates the relationship between knowledge sharing strategies and the production/output level. Mainly, all these relationships exist in bakeries whose owners/managers have basic business experience. To a great extent, we find that the commitment of bakeries in enhancing their knowledge sharing practices, influences more production/output performance in bakeries whose owners/managers have basic business experience than in those with highly experienced owners/managers. All these results corroborate with the fact that the knowledge management practices within the firm influence employee's knowledge management behavior (Detlor *et al.* 2006). SMEs are likely to foster an effective knowledge sharing culture once motivation and trust among their members increase (Eze *et al.* 2013). This trust can be influenced by SMEs' commitment to timely provide feedback to their employees. Literature confirms that members of SMEs that do not share knowledge are automatically preventing the incoming knowledge (Bozbura, 2007). Through open discussions; particularly face-to-face communication (Edvardsson, 2006; Hudcova, 2014) one's idea is expanded and developed in order to benefit an SME. All these are done in pleasant working environments. That is why, the components of an appealing working environment such as reward and incentives had for years been regarded as a stimulator of knowledge generation initiatives in SMEs (Handzic, 2004).

5.3. Knowledge utilization and bakery performance

The findings tell that the education level of the owner/manager of the bakery moderates the relationship between knowledge utilization and the cost level. All these relationships exist more in bakeries with owners/managers whose education level is basic than in bakeries whose owners/managers have advanced education level. This tells that by having owners/managers with basic level of education, bakeries are more likely to employ their commitment in enhancing their knowledge utilization practices, than in bakeries whose owners/managers have advanced education level, and ultimately reduce their production and operation costs. In this regard, basic education particularly in managing knowledge processes can be utilized effectively by bakeries in managing their production and operation costs. On the other hand, the findings tell that the business experience of the bakery owner/manager moderates the relationship between knowledge utilization and the production/output level. All these relationships exist in bakeries whose owners/managers have basic business experience. This tells that the commitment of bakeries in enhancing knowledge utilization practices, influences production/output performance in bakeries whose owners/managers have basic business experience than in those with highly experienced owners/managers. All these results corroborate with the fact that effective application of knowledge management triggers competitiveness (Mohajan, 2017). This is due to the fact that knowledge processes influence firm performance (Imran *et al.* 2018). However, all key knowledge management stakeholders need to be involved in knowledge processes. This is due to the fact that business stakeholders are regarded as one of the major sources of essential resources and drivers of business performance (Matuleviciene and Stravinskiene, 2015). Therefore, bakeries need to develop creative mechanisms to efficiently utilize the available resources so that they can effectively manage knowledge (Desouza and Awazu, 2006). These mechanisms can work in an environment that embraces effective communication systems. This is because; communication is an essential facet of knowledge management (Tingoy and Kurt, 2009).

6. Conclusion

The study has revealed that both the education level and business experience of the SME owners/managers moderate the relationship between knowledge creation strategies; and the cost level, and production/output level respectively. It has revealed that both the education level and business experience of the SME owners/managers moderate the relationship between knowledge sharing strategies; and the cost level, and production/output level respectively. Similarly, the study has revealed that both the education level and business experience of the SME owners/managers moderate the relationship between knowledge utilization strategies; and

the cost level, and production/output level respectively. This study recommends that SMEs with owners/managers who are neither highly educated nor highly experienced need to employ their commitment in enhancing their knowledge management practices in order to drive their competitiveness. This is due to the fact that the knowledge management practices influence competitiveness (Xu *et al.* 2014), and productivity (Zargar and Rezaee, 2013). Also, there has been a direct link between knowledge management initiatives and firm performance (Mardani *et al.* 2018). Therefore, we strongly recommend that the competency of owners/managers in managing knowledge management initiatives in order to influence SME performance is of paramount importance (Byukusenge *et al.* 2016). This is because organizations that make proper investment in knowledge management initiatives are likely to influence their performance (Al-Qarioti, 2015). However, an intention to enhance these initiatives needs the support of all relevant players in SME development, including the policy development practitioners from both public and private sectors.

7. Limitations

The respondents of this study were the owners/managers of the bakeries involved in the management of the bakery operations, and development and execution of business strategies including knowledge management. However, they could not understand each and specific details regarding the involvement of their employees in knowledge practices. In this regard, the study argues that some specific information and detailed practices especially from the employees greatly involved in the development and implementation of knowledge management strategies would broaden the understanding of the contribution of knowledge management on SME performance. The study also proposes that similar studies may take place in different industries and in both developed and developing countries, and involve different respondents such as employees, customers, suppliers, agents, rivals, lenders, and relevant business partners.

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