

New Product Creativity Mediating the Relationship Between Organizational Bricolage and the Competitive Advantage of SMEs

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Abstract

It is well-documented in literature that one major challenge facing Small and Medium-sized Enterprises (SMEs) is resource constraints. This affects SMEs' potential for innovation, as innovation is resource-intensive. To survive the competition, it is expedient that SMEs find more creative and innovative ways to operate. This present study sought to ascertain how SMEs could adopt a bricolage strategy to achieve a competitive advantage. The study also sought to determine the mediating role of new product creativity in this relationship, which formed a key contribution. Data was gathered from 334 SMEs using a simple random sampling technique. The data was analyzed using the covariance-based structural equation modelling (CB-SEM) approach in Amos (v.23). Various validity and reliability tests were run before testing the significance of the various hypotheses of the study. It was concluded that bricolage had a direct positive effect on SMEs' competitive advantage. Bricolage further had a direct positive impact on new product creativity, while new product creativity had a direct positive effect on SMEs' competitive advantage. It was also realized that creativity had a partial mediating effect on the relationship between bricolage and SMEs' competitive advantage. Although this study did not directly assess the influence of the COVID-19 pandemic on business operations, the data for the study was gathered during the pandemic period, as such, the results of this present study could offer some practical clues on how firms could achieve competitive advantage during the outbreak of pandemics.

Keywords: bricolage, creativity, new product development, competitive advantage, SMEs

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1. INTRODUCTION

Coronavirus, formally called COVID-19, was first discovered in Wuhan (China) in December 2019 (WHO, 2020). The COVID-19 pandemic has caused a global economic meltdown, health,

tourism, trade (local and international), investments, employment, transportation, and education, have all been affected (Albulescu, 2020). Among the business ventures involved, Small and Medium Enterprises (SMEs) are most affected, as even in standard times, most SMEs struggle to survive. COVID-19 has therefore worsened the plight of SMEs by making them more vulnerable to collapse. Especially SMEs which are not into the production and delivery of products are considered essential during this pandemic. Financial institutions are also more likely to lend support to large organizations at the expense of SMEs since large firms are more likely to honor their financial obligations (loan repayments) during periods of economic hardships. SMEs, therefore largely rely on the government to lend financial and non-financial supports in the form of capital injection, tax rebates, government purchases from the firms, import restrictions, etc. (Sulkowski, 2020). However, the financial challenges of many African nations make it difficult for governments to offer the needed support to SMEs.

Despite these challenges, SMEs are known to be the driving force behind the growth of economies and have been the primary job creators. According to the report from OECD (2017), SMEs contribute to about 45 percent of total jobs and 33 percent towards GDP in emerging economies. In Europe, however, SMEs constitute 99 percent of all business and provide 85 percent of new jobs (European Commission, 2019). In periods of crises, the nature of SMEs' operations and management places them in a better position to quickly identify new market opportunities, adapt to these new opportunities, and commercialize these new market opportunities (Syriopoulos, 2020). This is, however, only possible when the SMEs have the needed resources to invest in new product development to take advantage of the new market opportunities. Developing a successful new product is crucial for achieving a competitive advantage (Prasetyo & Dzaki, 2020). However, in the turbulent technological and competitive market environment, SMEs are resource-constrained in developing a successful new product to achieve a competitive advantage. In overcoming this resource challenge, the concept of bricolage comes in handy (Senyard et al., 2014). Bricolage is defined as "making do with whatever is at hand by reuse and recombination" (Baker & Nelson, 2005).

Bricolage as a concept was introduced by Levi-Strauss (1962) when comparing engineers to bricoleurs. Engineering was considered as following laid down procedures in executing a task, while bricolage had to do with making use of 'whatever is at hand' (Levi-Strauss, 1962). Firms with bricolage capability can circumnavigate the challenges of resource constraints (Tsilika et al., 2020). The concept of bricolage is embedded in entrepreneurial processes such as opportunity development and exploitation (Janssen et al., 2018). Bricolage helps improvise when recombining resources, making do with what is available, actively addressing resource scarcity, and networking with external partners (Witell et al., 2017). Bricolage will help SMEs to improve during challenging times, to improve their creativity in the development of their new products for an enhanced competitive advantage (Safina et al., 2020). Bricolage enhances a firm's process and product knowledge, leading to creativity in new products (Merrey & Cook, 2012). We considered bricolage as making do with and creatively recombining existing organizational resources at hand for new unintended purposes. These resources because of their availability (investment already made), make them cheaper when creatively recombined for new purposes such as developing new products. This will thus lead the firm to enjoy a competitive advantage

among peers (Ungerman et al., 2018). This study thus argues that bricolage will induce creativity in new product development, which will, in turn, grant a competitive advantage to the firm. The main contribution of this study focuses on the mediating role of new product creativity in the relationship between bricolage and the competitive advantage of SMEs. Figure 1 presents the conceptual framework of the study.

2. THEORETICAL BACKGROUND

2.1. Bricolage and Competitive Advantage

Bricolage focuses on the process of structuring and bundling. Structuring refers to making do with the resources at hand for a new unintended task by developing resources internally instead of external acquisition. Bundling also deals with recombining existing resources for new unintended tasks, leading to the creation of new, enriched or extended resources and capabilities, which grants firms some competitive edge. Reiljan et al. (2000) defined competitiveness as the position of one economic entity in relation to other economic entities by comparing the superiority and inferiority of their activities or achievements. From the perspective of the resource-based view (RBV), having resources that are rare, valuable, non-substitutable, and imperfectly inimitable puts the firm in a better position to enjoy competitive advantage (Barney, 1991; Grant, 1991). These resources may be tangible (such as physical assets) or intangible (such as knowledge) (Barney, 1991). Bricolage will enhance a firm's competitive advantage in several ways. Firstly, the existing organizational resources may be valuable and unique, thereby making it difficult for other competitors to imitate perfectly (Nicolaidis & Kosta, 2011). Secondly, the competence or capability of a firm to recombine its existing resources for new purposes may also be unique and perfectly inimitable (Jannesson et al., 2016). Not all firms will have the requisite competence to recombine or reuse their existing resources for new purposes in the wake of challenging times. Also, recombining and reusing existing resources for new purposes will reduce production costs (Wu et al., 2017). Firms could therefore take the opportunity to charge the competitive price to achieve a competitive advantage. For example, the COVID-19 pandemic has led to nationwide lockdowns, behavioral change, loss in demand for non-essential goods, massive loss of jobs, etc. For the consumer in such crises, the price will therefore constitute a key element in the purchase decision, especially for non-essential goods. SMEs that find innovative approaches to reduce their production cost can thus afford to charge less to enjoy a competitive advantage (Hinterhuber & Liozu, 2014). The first hypothesis is thus proposed as follows:

H1: Bricolage has a direct positive effect on the competitive advantage of SMEs.

2.2. Bricolage and New Product Creativity

One of the often-cited real world or practical examples in the use of bricolage was the incident on Apollo 13 spaceship. When the lives of the three astronauts on board of the spacecraft were threatened by the explosion, they decided to use the materials readily available (for example, duct tape, plastic bags, etc.) to save their lives. The available materials were creatively put together and became an effective solution against the imminent threat. The solution was highly unplanned (not based on any contingency plan) and unorthodox but it ended up being effective at saving the

lives of the astronauts (Rerup, 2001). Thus, recombining existing resources and competencies leads to creativity in product or output. Florida (2012) defined creativity as the ability of an entity (individual or organization) to create meaningful new forms beyond the existing standards. It is the ability to develop novel and potentially valuable ideas or products through imaginative skill (Chibuzor, 2014).

We thus define new product creativity as a firm's ability to develop new products which have features or attributes beyond the ones available on the market, which is meant to satisfy an unmet need. Bricolage makes it possible for SMEs to reuse or recombine their existing resources in diverse ways to produce new products. Bricolage thus serves as a mechanism through which the discovery of innovations in the form of new products are achieved from existing resources (Baker & Nelson, 2005). The recombination and reuse of existing organizational resources provide distinctive knowledge that increases new product creativity (Senyard et al., 2014). As demonstrated by Banerjee & Campbell (2009), bricoleurs could adapt existing departments or industry networks to conceptualize and develop new products. Since new product development depends on adequate knowledge, using the existing knowledge domain will help SMEs creatively develop their new products. Also, new product development depends on testing various new product ideas and settling on the possible best option. As such, bricoleurs could experiment (trial-and-error learning) with existing resources till they get the ideal solution desired (Guo et al., 2015). Bricolage thus offers SMEs the opportunity to imbibe more creativity in the development of their new products. Experience in recombining existing resources (material, human, technology, knowledge, etc.) also decreases the potential of product development failure, thereby increasing new product creativity. We, therefore, proposed the following:

H2: Bricolage has a direct positive effect on SMEs' new product creativity.

2.3. New Product Creativity and Competitive Advantage

Creativity focuses on the ability to address more complex tasks by applying new working approaches and ideas. These are the application of novel, correct, useful, appropriate, and valuable strategies in delivering heuristic tasks. In an organization, the process of creativity is made up of the interrelationships between employees (person), tasks (job), and the organization itself. Fillis & Rentschler (2010) also considered creativity to develop new ideas or products with valuable potentials. Originality or novelty is a key attribute of creativity (Chibuzor, 2014). In a rapidly changing business environment and consumer preferences, creativity increases the potential for SME survival. The ability to inject creativity in developing new products is essential if SMEs will achieve a competitive advantage. Competitive advantage is said to be achieved when firms provide more superior offerings which are accepted on the market as more valuable or useful (Grant, 1991; Ivanová & Čepel, 2018). And from the perspective of RBV, SMEs' competence in developing innovative new products will enhance their chance of achieving competitive advantage (Barney, 1991; Halim & Mat, 2010). Creativity is thus an innovative strategy in winning the competition. SMEs could create a competitive advantage by developing innovative new products which offer superior value and quality (Ida, 2017). We, therefore, proposed the following:

H3: New product creativity has a direct positive effect on the competitive advantage of SMEs.

2.4. Mediating Role of New Product Creativity

SMEs are constantly confronted with the challenge of resource constraints, and firms choose to either address these constraints or avoid them. In the avoidance strategy, firms could decide to exit in the market, terminating projects or abandoning new opportunities. Choosing to address the challenge of resource constraints mean that firms search and adopt strategies that make them more creative in seizing opportunities where competitors find an obstacle. Bricolage, therefore, helps firms to be creative in using existing resources and competencies in developing new products for competitive advantage. Resource constraints characterizing SMEs compel them to find innovative ways to develop new products with limited available resources. Scarcity of resources causes SMEs to find creative ways of using or recombining existing resources to solve new problems (An et al., 2018). And this is what is termed bricolage (Baker & Nelson, 2005). Adopting the bricolage strategy has been identified as a potential differentiating factor among successful and unsuccessful SMEs when faced with resource limitations (Davidsson et al., 2018). The ability to exploit institutional, social or physical resources, which may have been neglected by competitors, enables firms to creatively develop new products to meet new market opportunities (Linna, 2013). A firm's competence in reusing or recombining existing resources for purposes other than their original intended purposes increases organizational creativity, which is reflected in their new products. New product creativity will, in turn, help SMEs to meet the changing market demand for an enhanced competitive advantage (Harwiki et al., 2018). The foundation for successful innovation is creativity, so creativity in new product development will help SMEs in achieving competitive advantage (Ferreira et al., 2020). Thus, bricolage is expected to enhance SMEs' new product creativity, which will, in turn, help the firms in achieving competitive advantage. We, therefore, proposed the following:

H4: New product creativity will mediate the relationship between bricolage and the competitive advantage of SMEs.

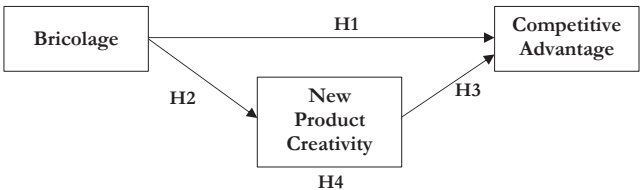


Fig. 1 – Theoretical Framework. Source: Own Research

3. RESEARCH OBJECTIVE, METHODOLOGY AND DATA

3.1. Research Objective

The objective of this study is to ascertain the mediating role of new product creativity in the relationship between bricolage and SMEs' competitive advantage. In addressing this, some specific relationships were looked at. The direct effect of bricolage on the competitive advantage of SMEs, the direct effect of bricolage on SMEs' new product creativity and the direct effect of new product creativity on the competitive advantage of SMEs were all studied.

3.2. Sample and Data Collection

The definition of SME varies across jurisdictions. Since the context of this study was Ghana, a definition by the National Board for Small Scale Industries (NBSSI, 1990) in Ghana was adopted. Although NBSSI (1990) defined SMEs using assets and number of employees, this study used the number of employees since that was easily accessible. NBSSI (1990) defined a Small enterprise as a firm with 6 – 29 employees and a Medium enterprise as a firm with 30 – 99 employees. The firms sampled for the study, therefore, had employees ranging from 6 to 99 (Table 1). The SMEs were grouped into either manufacturing or service, and from the analysis, it could be realized that manufacturing firms dominated the study (representing 64.67%). Medium-sized firms (30-99 employees) dominated the study, and the firms studied also had at least five years of operational experience (Table 1). Firms with at least five years of operational experience were selected because they were considered as having gathered enough operational experience, which will reflect in the reliability of the data or information they provide for the study.

The list of registered SMEs was obtained from NBSSI (1990), and this list had names of firms, period of registration, location, business contact and address, and the nature of business. With a simple random sampling technique, the study targeted 1000 registered SMEs. The respondents for this study were management members of the selected SMEs. Since the data was collected during the COVID-19 pandemic, e-questionnaire for the data collection. A cover letter detailing the purpose of the study was sent via e-mail to the SMEs, along with the link (web address) to the questionnaire. E-mail reminders and random phone calls were made to boost the response rate. After six weeks (5th October to 9th November 2020) of the data collection period, 344 SMEs appropriately completed the questionnaire. According to Kirby et al. (2002), with an estimated population of 10,000,000 (which is far less than the total SMEs in Ghana), with a 95 percent confidence level and a 5 percent margin of error, the sample size should be 384. Although the sample size for the present study was smaller (344), this was deemed reasonable, considering the data collection challenges brought about by the COVID-19 pandemic. Data analysis was also done by covariance-based structural equation modelling (CB-SEM), of which a minimum of 200 responses was necessary for reliable estimation (Dogbe et al., 2020b).

Tab. 1 – Firm characteristics. Source: own research

Firm Characteristics	Frequency	Percentages (%)
Industry	334	100
Manufacturing	216	64.67
Service	118	35.33
Size	334	100
6-29 employees	96	27.91
30-99 employees	248	72.09
Age of firm	334	100
5-10 years	61	17.73
11-15 years	112	32.56
15-20 years	103	29.94
Above 20 years	68	19.77

3.3. Survey Questionnaire and Measures

The study collected data using a structured questionnaire, which was initially pilot tested on 20 SMEs to assess the content validity. Pretesting helped to reword ambiguous questions. There were three main constructs (variables) in this study, which were bricolage (BRICOLAGE), new product creativity (CREATIVITY), and competitive advantage (COMP_ADV). The measurement items for bricolage were adapted from Salunke et al. (2013), those of new product creativity were adapted from Wu et al. (2016), while those of competitive advantage were also adapted from Liu (2017). The importance of using existing measurement scales from past research works is to enhance the reliability of the measurement scale. All these three constructs were measured on a Likert scale of 1-strongly disagree to 7-strongly agree. Table 2 presents the measurement items for the studied variables.

The study controlled for industry (0=manufacturing; 1=service), firm age (measured in the number of years) and firm size (measured by the number of employees). Although these variables were not of primary interest in the study, they were controlled for because they could affect SMEs' level of competitiveness.

3.4. Reliability and Validity of the Constructs

The study conducted Confirmatory Factor Analysis (CFA) using Amos (v.23). The CFA assessed how well the data fit our model, and the calculation was based on maximum likelihood. Using Hair et al. (2010) criteria, it was expected that Chi-Square/ Degree of Freedom (CMIN/DF) to be less than 3, Goodness of Fit Index (GFI) to be greater than 0.8, Normed Fit Index (NFI), Tukey-Lewis Index (TLI) and Comparative Fit Index (CFI) to be greater than 0.9, while Root Mean Square Error of Approximation (RMSEA) and Root Mean Square Residual (RMR) are also expected to be less than 0.08. The p-value for testing the null hypothesis that the population RMSEA is no greater than 0.05 (PClose) was also supposed to be greater than 0.05. It was evident from Table 2 that all our fit indices met their respective thresholds, and as such, concluded that our CFA model for the constructs appropriately fit the data. The average variance extracted (AVE) for all the constructs were also greater than 0.5 (the recommended threshold by Fornell & Larcker (1981), composite reliability (CR) and Cronbach's Alpha (CA) were also greater than 0.7 as expected (Brown, 2014). The minimum expected factor loading is 0.5, which was achieved for this study. From Table 2, the minimum factor loading was 0.547 (NPC1).

Tab. 2 – Confirmatory factor analysis. Source: own research

Model Fit Indices: CMIN=117.450; DF=56; CMIN/DF=2.097; GFI=0.950; NFI=0.939; CFI=0.967; TLI=0.954; RMR=0.044; RMSEA=0.057; PClose=0.191	Std. Factor Loading
Bricolage (BRICOLAGE): CA=0.765; CR=0.769; AVE=0.527	
My firm combines resources in ways that challenge conventional business practices (BRI1)	0.768
My firm combines resources in a manner that extracts value from under-utilized resources (BRI2)	0.759

My firm deploys resources in ways that allow for innovative solutions (BRI3)	0.644
New Product Creativity (CREATIVITY): CA=0.850; CR=0.851; AVE=0.539	
Our new products are very novel to our industry (NPC1)	0.547
Our new products offer new ideas to our industry (NPC2)	0.839
Our new products are creative (NPC3)	0.859
Our new products are interesting (NPC4)	0.751
We are capable of generating ideas for other products (NPC5)	0.625
Competitive Advantage (COMP_ADV): CA=0.821; CR=0.880; AVE=0.596	
Our firm is superior to competitors (COM1)	0.688
Our firm offers superior quality than that of the competitors (COM2)	0.748
Our services or products are differentiated from other competitors (COM3)	0.838
Our firm offers unique benefits than competitors (COM4)	0.864
Our services or products are more advanced than competitors in the same market (COM5)	0.706

3.5. Multicollinearity and Discriminant Validity

Two things are of concern in this section, multicollinearity and discriminant validity. Multicollinearity assessed the strength of the relationship among the exogenous variables (in this case, bricolage and new product creativity). The correlation coefficient of 0.7 and above is considered high, leading to multicollinearity. From Table 3, however, the correlation between bricolage and creativity was 0.376, which was moderate and posed no challenge of multicollinearity. The variance inflation factors (VIFs) presented also indicate no confounding effects among the variables, as scores were all less than 5 (Dogbe et al., 2020a).

Discriminant validity is also another important consideration when conducting studies of this nature. This is to ensure that the measurement items strictly measured their respective constructs and no other construct in the model. We checked for discriminant validity by comparing the squared root of the AVEs ($\sqrt{\text{AVEs}}$) with the inter-correlation scores. To claim discriminant validity, the $\sqrt{\text{AVEs}}$ are expected to be greater than the correlation scores (Pomegbe et al., 2020), which was achieved in this study (Table 3).

It was revealed that bricolage had the highest mean score of 5.889, followed by competitive advantage and new product creativity. The highest possible coefficient was 7, implying that the three studied variables were favorably responded to.

Tab. 3 – Discriminant validity and descriptive analysis. Source: own research

Variables	Mean	Std. Dev.	VIF	1	2	3
BRICOLAGE (1)	5.889	1.773	2.008	0.726		
CREATIVITY (2)	4.930	1.166	1.263	0.376**	0.734	
COMP_ADV (3)	5.595	1.458	1.081	0.311**	0.490**	0.772

** ~ P-value significant at 1% (0.01); $\sqrt{\text{AVE}}$ is bold

4. RESULTS AND DISCUSSION

The data analysis was run using a CB-SEM in Amos (v.23). From the results presented in Table 4 and Figure 2, it was realized that although age and size of the firm (as control variables) had positive effects on the competitive advantage among SMEs, these effects were not statistically significant. The age had a coefficient of 0.090 ($P > 0.05$), while the size had a coefficient of 0.021 ($P > 0.05$). The industry also had a negative and statistically insignificant effect on SMEs' competitive advantage. The industry had a coefficient of -0.138 ($P > 0.05$). The results suggest that if data were to be split based on industry, the results from the manufacturing sector were not going to be significantly different from the results of the sector. Results from both sectors were going to be similar.

Regarding the main paths, results indicated that the effect of bricolage on SMEs' competitive advantage was 0.135 ($P < 0.05$), meaning it had a significant positive effect. Although the coefficient may look small, this was statistically significant. H1: Bricolage has a direct positive effect on the competitive advantage of SMEs, which was supported by this study. Adopting a bricolage strategy helps SMEs to combine resources in ways that challenge conventional business practices and in a manner that extracts value from under-utilized resources, as well as the ability to deploy resources in ways that allow for innovative solutions. This is to explain that bricolage thus offered SMEs' the opportunity to be superior to competitors, provide superior quality than that of the competitors, offer differentiated products from other competitors, offer unique benefits than competitors, and to the opportunity to provide products which are more advanced than competitors in the same market. This was possible as the available organizational resources, which are recombined, may be unique and difficult to imitate by competitors (Nicolaidis & Kosta, 2011). The capability to effectively adopt bricolage strategy in itself presents firms with some unique advantages (Jannesson et al., 2016), and reusing existing resources for purposes other than their original purpose, helps to reduce the cost of production, which affects pricing policies (Wu et al., 2016). Baker et al. (2013) suggested that bricolage helps resource-constrained entrepreneurial firms to survive in a broader range of circumstances, while Salunke et al. (2013) indicated that bricolage is associated with a sustainable competitive advantage. Steffens & Senyard (2009) also indicated that bricolage puts firms in more advantageous strategic resource positions.

Further, it was identified that the effect of bricolage on new product creativity among SMEs was 0.131 ($P < 0.05$), meaning it had a significant positive effect. That is, the ability of SMEs to combine resources in ways that challenge conventional business practices, and in a manner that extracts value from under-utilized resources, as well as the ability to deploy resources in ways that allow for innovative solutions; enhanced the creativity in new product development by these firms. H2: Bricolage has a direct positive effect on SMEs' new product creativity, was thus supported. Adopting a bricolage strategy helps firms to develop new products that are full of creativity, very interesting, very novel to the industry, and offer new ideas to the industry. Bricolage also helped SMEs generate ideas for other products. Senyard et al. (2014) indicated that the process of bricolage provides firms with unique knowledge, which increases their creativity. Since successful new product development is born from multiple experimentations, Guo et al. (2015) suggest that bricolage offers firms the opportunity to experiment with the same resources

by recombining them to form different outcomes. The best and the most creative result is thus commercialized. Although this study found a direct positive relationship between bricolage and new product creativity, Wu et al. (2016) found a curvilinear relationship between bricolage and creativity. That is, at the initial stages, bricolage has a positive effect on creativity. This effect, however, turns negative at very high levels of bricolage. This is probably because recombination options may be depleted with the continuous use of bricolage.

Also, the effect of new product creativity on SMEs' competitive advantage was 0.372 ($P < 0.05$), meaning it had a significant positive effect. This coefficient was the largest among all the estimated paths, indicating the key role of new product creativity in enhancing a firm's competitive advantage. That is, SME's ability to develop new products that are very novel to the industry, very interesting, very creative, and offering new ideas to our industry enhancing the firm's competitive advantage over rivals. H3: New product creativity has a direct positive effect on the competitive advantage of SMEs, which was thus also supported by this study. Creativity in new products thus offered SMEs' the opportunity to be superior to competitors, provide superior quality than that of the competitors, offer differentiated products from other competitors, offer unique benefits than competitors, and the opportunity to provide products that are more advanced than competitors in the same market. In the tourism sector, for example, Teodorescu et al. (2015) found creativity as a source of competitive advantage in the value chain of tourism enterprises. Similarly, in the insurance industry, Epetimehin (2011) also found that creativity improves business performance and helps firms to achieve a competitive advantage. New product creativity was thus expected to also positively affect SMEs' competitive advantage (Ida, 2017). Creativity is crucial in organizational success.

Finally, the study also assessed the mediating role of new product creativity in the relationship between bricolage and SMEs' competitive advantage. The estimation was based on Bias-Corrected (BC) Percentile Method, with 5,000 Bootstrap samples and a 95% confidence level. The results as presented in Table 4 indicates that the mediating (indirect effect) was 0.049 ($P < 0.05$). The given significance is reached due to both lower and upper positive values of BCs (0.013 and 0.109, respectively). The means that, although bricolage had a direct effect on SMEs' competitive advantage, the effect of bricolage on competitive advantage could also be experienced through the mediating role of new product creativity. New product creativity, therefore, had a partial mediating effect. This result formed a key contribution of this study. The relationship between bricolage and organizational or competitive advantage have been largely reported by past studies as direct (Baker et al., 2013; Salunke et al., 2013; Steffens & Senyard, 2009). This study, however, found that the relationship is not just direct but also partially mediated by new product creativity. That is, bricolage strategy enhanced firms' new product creativity (Wu et al., 2016; Linna, 2013), which subsequently aids firms in enjoying competitive advantage (Harwiki et al., 2018; Teodorescu et al., 2015).

Tab. 4 – Path summary. Source: own research

Direct Paths	UnStd. Estimate	Std. Error	C.R.
INDUST → COMP_ADV	-0.138	0.083	-1.671
AGE → COMP_ADV	0.090	0.115	0.788

SIZE → COMP_ADV	0.021	0.081	0.256
BRICOLAGE → COMP_ADV	0.135	0.042	3.174
CREATIVITY → COMP_ADV	0.372	0.076	4.901
BRICOLAGE → CREATIVITY	0.131	0.051	2.575
Indirect Paths	UnStd. Estimate	Lower BC	Upper BC
BRICOLAGE → CREATIVITY → COMP_ADV	0.049	0.013	0.109

Bias-Corrected (BC) Percentile Method; 5000 Bootstrap sample; 95% Confidence level

** ~ P-value significant at 1% (0.01)

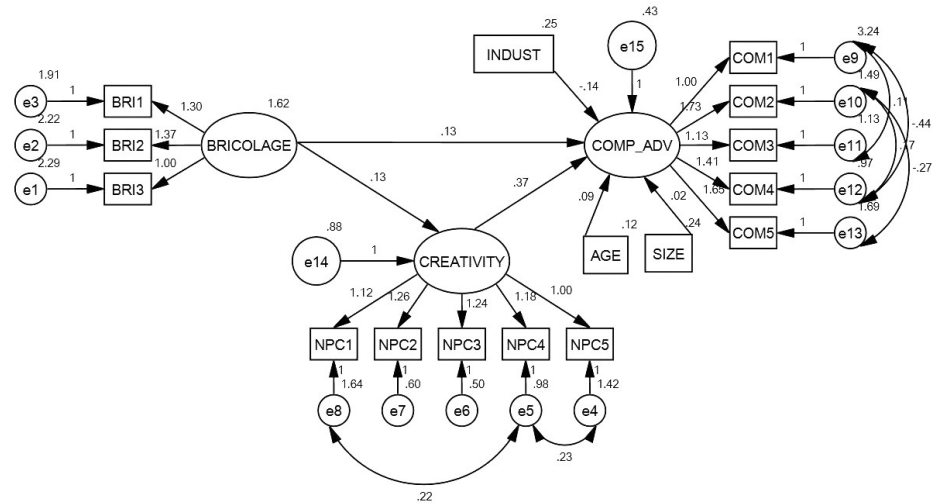


Fig. 2 – Structural equation model. Source: own research

5. CONCLUSION

It was concluded that bricolage had a direct positive effect on SMEs' competitive advantage. Bricolage further had a direct positive impact on new product creativity, while new product creativity had a direct positive effect on SMEs' competitive advantage. It was also realized that creativity had a partial mediating effect on the relationship between bricolage and SMEs' competitive advantage.

The study made a number of contributions to literature. First, previous studies have considered creativity as a precursor to bricolage (An et al., 2018). That is, a creative firm is able to effectively adopt bricolage strategy. This study, however, found that the effective adoption of bricolage rather enhanced firm's creativity, especially in the development of new products. Experimentation is key in the success of new product development. Bricolage will grant firm the opportunity to recombine existing resources in diverse ways (with limited cost incurred), to come out with the most innovative product for the market (Wu et al., 2016). That is, bricolage enables firms to be more creative in the development of its new products, as the cost of experimentation is less.

Secondly, the study found that new product creativity partially mediated the relationship between bricolage and SMEs' competitive advantage. This formed key contribution of the study, demonstrating that bricolage does not only have a direct effect on SMEs' competitive advantage, but this effect was also explained or facilitated by firm's new product creativity.

Practically, this study has also demonstrated to be very relevant, especially in this global COVID-19 pandemic. COVID-19 has had significant negative effect on the operations of many businesses, with some even folding up due to loss of market. The study found that bricolage was an effective strategy to adopt, in order to survive the business turmoil and gain competitive advantage over other firms. This is even more crucial for SMEs which are usually resource constrained. Bricolage is also essential for enhancing firm's new product creativity. Agencies like NBSSI (1990) are therefore expected to promote the concept of bricolage among SMEs, during training programs for these firms.

5.1. Limitations and Future Research Suggestions

The study was conducted in Ghana (a developing economy). Although the resource challenge fraught SMEs in Africa makes the study on bricolage very important, future studies could replicate this study in other developing countries with similar characteristics. By this, generalizing the results will be much more reliable.

Secondly, the study found a direct effect of bricolage on new product creativity. However, there may be some other potential variables to influence this relationship. For example, Wu et al. (2016) found technological turbulence to influence the relationship between bricolage and new product creativity. Competition or market turbulence could also be a potential moderating variable which future studies could look at.

The study was also based on cross-sectional data, which may not be very effective for causal relationships. Future studies could thus adopt secondary data to determine if there will be the same results. U-shape and inverted U-shape relationships should also be tested among the various relationships studied. There is the possibility that some of the relationships may not be constant but vary depending on the level of the independent variable.

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References

1. Albulescu, C. T. (2021). COVID-19 and the United States financial markets' volatility. *Finance Research Letters*, 38, 101699. <https://doi.org/10.1016/j.frl.2020.101699>
2. An, W., Zhang, J., You, C., & Guo, Z. (2018). Entrepreneur's creativity and firm-level innovation performance: bricolage as a mediator. *Technology Analysis & Strategic Management*, 30 (7), 838–851. <https://doi.org/10.1080/09537325.2017.1383979>
3. Baker, T., & Nelson, R. E. (2005). Creating something from nothing: Resource construction through entrepreneurial bricolage. *Administrative science quarterly*, 50 (3), 329–366.

4. Baker, T., Pollock, T. G., & Sapienza, H. J. (2013). Winning an unfair game: How a resource-constrained player uses bricolage to maneuver in a highly institutionalized field. *Entrepreneurial resourcefulness: competing with constraints* (Advances in Entrepreneurship, Firm Emergence and Growth, Vol. 15). Emerald Group Publishing Limited, 1–41. [https://doi.org/10.1108/S1074-7540\(2013\)0000015004](https://doi.org/10.1108/S1074-7540(2013)0000015004)
5. Banerjee, P. M., & Campbell, B. A. (2009). Inventor bricolage and firm technology research and development. *R&D Management*, 39 (5), 473–487. <https://doi.org/10.1111/j.1467-9310.2009.00572.x>
6. Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17 (1), 99–120. <https://doi.org/10.1177/014920639101700108>
7. Barney, J. (1991). Special theory forum the resource-based model of the firm: origins, implications, and prospects. *Journal of Management*, 17 (1), 97–98. <https://doi.org/10.1177/014920639101700107>
8. Brown, T. A. (2014). *Confirmatory factor analysis for applied research*. New York: Guilford Publications.
9. Chibuzor, A. N. (2014). Enhancing creativity in entrepreneurship through home economics education in Nigeria. *American International Journal of Contemporary Research*, 4 (6), 104–107.
10. Davidsson, P., Baker, T., & Senyard, J. M. (2017). A measure of entrepreneurial bricolage behavior. *International Journal of Entrepreneurial Behavior & Research*, 23 (1), 114–135. <https://doi.org/10.1108/IJEBR-11-2015-0256>
11. Dogbe, C. S. K., Tian, H. Y., Pomegbe, W. W. K., Sarsah, S. A., & Otoo, C. O. A. (2020a). Market orientation and new product superiority among small and medium-sized enterprises (SMEs): the moderating role of innovation capability. *International Journal of Innovation Management*, 24 (05), 2050043. <https://doi.org/10.1142/S1363919620500437>
12. Dogbe, C. S. K., Tian, H., Pomegbe, W. W. K., Sarsah, S. A., & Otoo, C. O. A. (2020b). Effect of network embeddedness on innovation performance of small and medium-sized enterprises. *Journal of Strategy and Management*, 13 (2), 181–197. <https://doi.org/10.1108/JSMA-07-2019-0126>
13. Epetimehin, F. M. (2011). Achieving competitive advantage in insurance industry: the impact of marketing innovation and creativity. *Journal of Emerging Trends in Economics and Management Sciences*, 2 (1), 18–21.
14. European Commission (2019). Entrepreneurship and small and medium-sized enterprises (SMEs). Accessed June 10, 2020. Available at https://ec.europa.eu/growth/smes_
15. Ferreira, J., Coelho, A., & Moutinho, L. (2020). Dynamic capabilities, creativity and innovation capability and their impact on competitive advantage and firm performance: The moderating role of entrepreneurial orientation. *Technovation*, 92–93, 102061. <https://doi.org/10.1016/j.technovation.2018.11.004>
16. Fillis, I., & Rentschler, R. (2010). The role of creativity in entrepreneurship. *Journal of Enterprising Culture*, 18 (01), 49–81.
17. Florida, R. (2012). *The Rise of the Creative Class Revisited*, New York: Basic Books

18. Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18 (1), 39–50. <https://doi.org/10.1177/002224378101800104>
19. Grant, R. M. (1991). The resource-based theory of competitive advantage: implications for strategy formulation. *California Management Review*, 33 (3), 114–135.
20. Guo, H., Su, Z., & Ahlstrom, D. (2016). Business model innovation: The effects of exploratory orientation, opportunity recognition, and entrepreneurial bricolage in an emerging economy. *Asia Pacific Journal of Management*, 33 (2), 533–549. <https://doi.org/10.1007/s10490-015-9428-x>
21. Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis: A global perspective (7th Ed.)*. Upper Saddle River, NJ: Pearson Education, Inc.
22. Halim, M. A. S. A., & Mat, A. C. (2010). Craftermakers: A significant study on entrepreneurial creativity and competitive advantage. *Canadian Social Science*, 6 (3), 59–66. <https://doi.org/10.3968/j.css.1923669720100603.007>
23. Harwiki, W., Choiron, A., & Hartini, S. (2018). Batik creative industry: Creativity, innovation and competitiveness to encounter global market. *Journal of Business and Finance in Emerging Markets*, 1 (2), 189–196. <https://doi.org/10.32770/jbfem.vol1189-196>
24. Hinterhuber, A., & Liozu, S. M. (2014). Is innovation in pricing your next source of competitive advantage? *Business Horizons*, 57 (3), 413–423. <https://doi.org/10.1016/j.bushor.2014.01.002>
25. Ida, E. (2017). The Role of Customers' Involvement in Value Co-creation Behaviour is Value Co-creation the Source of Competitive Advantage? *Journal of Competitiveness*, 9 (3), 51–66. <https://doi.org/10.7441/joc.2017.03.04>
26. Ivanová, E., & Čepel, M. (2018). The impact of innovation performance on the competitiveness of the Visegrad 4 countries. *Journal of Competitiveness*, 10 (1), 54. <https://doi.org/10.7441/joc.2018.01.04>
27. Jannesson, E., Nilsson, F., & Rapp, B. (2016). *Strategy, control and competitive advantage*. Berlin: Springer-Verlag.
28. Janssen, F., Fayolle, A., & Wuillaume, A. (2018). Researching bricolage in social entrepreneurship. *Entrepreneurship & Regional Development*, 30 (3–4), 450–470. <https://doi.org/10.1080/08985626.2017.1413769>
29. Kirby, A., Gebiski, V., & Keech, A. C. (2002). Determining the sample size in a clinical trial. *Medical journal of Australia*, 177 (5), 256–257.
30. Levi-Strauss, C. (1962). *The savage mind*. Chicago: University of Chicago Press.
31. Linna, P. (2013). Bricolage as a means of innovating in a resource-scarce environment: A study of innovator-entrepreneurs at the BOP. *Journal of Developmental Entrepreneurship*, 18 (03), 1350015. <https://doi.org/10.1142/S1084946713500155>
32. Liu, C. H. (2017). Creating competitive advantage: Linking perspectives of organisation learning, innovation behavior and intellectual capital. *International Journal of Hospitality Management*, 66, 13–23. <https://doi.org/10.1016/j.ijhm.2017.06.013>

33. Merrey, D. J., & Cook, S. E. (2012). Fostering institutional creativity at multiple levels: Towards facilitated institutional bricolage. *Water Alternatives*, 5 (1), 1–19
34. NBSSI. (1990). Supporting Micro & Small-Scale Enterprises. A handbook on Enterprise Development Part 1. NBSSI, Print Solutions, Accra.
35. Nicolaidis, C. S., & Kosta, G. C. (2011). Intrapreneurship as a unique competitive advantage. *World Academy of Science, Engineering and Technology*, 59 (5), 1121–1125.
36. OECD (2017). Meeting of the OECD council at ministerial level: enhancing the contributions of SMEs in a global and digitalised economy. Available at <https://www.oecd.org/mcm/documents/C-MIN-2017-8-EN.pdf> (Accessed June 10, 2020).
37. Pomegbe, W. W. K., Li, W., Dogbe, C. S. K., & Otoo, C. O. A. (2020). Enhancing the Innovation Performance of Small and Medium-Sized Enterprises Through Network Embeddedness. *Journal of Competitiveness*, 12 (3), 156–171. <https://doi.org/10.7441/joc.2020.03.09>
38. Prasetyo, P., & Dzaki, F. (2020). Institutional performance and new product development value chain for entrepreneurial competitive advantage. *Uncertain Supply Chain Management*, 8 (4), 753–760. <https://doi.org/10.5267/j.uscm.2020.7.004>
39. Reiljan, J., Hinrikus, M., & Ivanov, A. (2000). Key issues in defining and analysing the competitiveness of a country. University of Tartu Economics and Business Administration Working Paper No. 1. Available at: <http://dx.doi.org/10.2139/ssrn.418540>
40. Rerup, C. (2001). Houston, we have a problem? Anticipation and improvisation as sources of organizational resilience. *Comportamento Organizacional e Gestao*, 7 (1), 27–44.
41. Safina, A., Gaynullina, L., & Cherepanova, E. (2020). A work of art in the space of network culture: creativity as bricolage. *Creativity Studies*, 13 (2), 257–269. <https://doi.org/10.3846/cs.2020.12264>
42. Salunke, S., Weerawardena, J., & McColl-Kennedy, J. R. (2013). Competing through service innovation: The role of bricolage and entrepreneurship in project-oriented firms. *Journal of Business Research*, 66 (8), 1085–1097. <http://dx.doi.org/10.1016/j.jbusres.2012.03.005>
43. Senyard, J., Baker, T., Steffens, P., & Davidsson, P. (2014). Bricolage as a path to innovativeness for resource-constrained new firms. *Journal of Product Innovation Management*, 31 (2), 211–230. <https://doi.org/10.1111/jpim.12091>
44. Steffens, P., & Senyard, J. (2009). Linking resource acquisition and development processes to resource-based advantage: Bricolage and the resource-based view. In 2009 Babson College Entrepreneurship Research Conference, 4–6 June 2009, Boston.
45. Sulkowski, L. (2020). Covid-19 pandemic; recession, virtual revolution leading to de-globalization?. *Journal of Intercultural Management*, 12 (1), 1–11. <https://doi.org/10.2478/joim-2020-0029>
46. Syriopoulos, K. (2020). The Impact of Covid-19 on Entrepreneurship and SMEs. *Journal of the International Academy for Case Studies*, 26 (2), 1–2.
47. Teodorescu, N., Stăncioiu, A. F., Răvar, A. S., & Botos, A. (2015). Creativity and innovation-Sources of competitive advantage in the value chain of tourism enterprises. *Theoretical & Applied Economics*, 22 (1), 35–48.

48. Tsilika, T., Kakouris, A., Apostolopoulos, N., & Dermatis, Z. (2020). Entrepreneurial bricolage in the aftermath of a shock. Insights from Greek SMEs. *Journal of Small Business & Entrepreneurship*, 32 (6), 635–652. <https://doi.org/10.1080/08276331.2020.1764733>
49. Ungerman, O., Dedkova, J., & Gurinova, K. (2018). The impact of marketing innovation on the competitiveness of enterprises in the context of industry 4.0. *Journal of Competitiveness*, 10 (2), 132. <https://doi.org/10.7441/joc.2018.02.09>
50. Witell, L., Gebauer, H., Jaakkola, E., Hammedi, W., Patricio, L., & Perks, H. (2017). A bricolage perspective on service innovation. *Journal of Business Research*, 79, 290–298. <http://dx.doi.org/10.1016/j.jbusres.2017.03.0210>
51. WHO (2020). Novel Coronavirus (2019-nCoV) Situation Report – 1. Available at <https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200121-sitrep-1-2019-ncov.pdf>
52. Wu, L., Liu, H., & Zhang, J. (2016). Bricolage effects on new-product development speed and creativity: The moderating role of technological turbulence. *Journal of Business Research*, 70, 127–135. <http://dx.doi.org/10.1016/j.jbusres.2016.08.027>

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