



AN INVESTIGATION INTO THE RELATIONSHIP BETWEEN
ENTREPRENEURIAL ORIENTATION AND STRATEGIC LEARNING
CAPABILITY IN THE SELECTED NIGERIAN PUBLIC SECTOR

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Received: 08.09.2021 Accepted: 22.12.2021

Date of Publication: December, 2021

Abstract: This study examines the association between entrepreneurial orientation and strategic learning capability using organic structure, market responsiveness and mode of strategy formation as mediating variable. It explicates how public organisations generate strategic knowledge and use such knowledge to enhance their business operations. Using a survey design, 450 questionnaires were distributed among 12 governmental agencies and 228 questionnaires were retrieved. The data were analyzed using regression analysis. The findings indicate a strong association between entrepreneurial orientation and strategic learning capability. Also, when the mediating variables were simultaneously entered with the independent variable as a predictor of strategic learning capability, they all made the criterion variable stronger and show that the relationships are statistically significant. The study concludes that being entrepreneurially oriented in public organisations will lead to strategic learning capability and recommends that managers consciously and actively encourage policies and actions that are entrepreneurial in order to foster strategic learning capability, strategic change and organisational effectiveness.

Keywords: Entrepreneurial orientation, Strategic learning capability, Organic structure, Market responsiveness, Mode of strategy formation.

Introduction

Public sector organisations pursue goals that have more far-reaching consequences

on the society than organisations that deal directly with customers, and they are being constantly scrutinized and called to account for the indirect consequences of

their actions (Bernier, 2014). They control resources (land, building, and budgets) and also use their capabilities to administer, govern and transform the resources (Klein, Mahoney, McGahan, & Pitelis, 2013). However, many public organisations have been found to be grossly inefficient and unproductive (Ogunsiji & Ladanu, 2017). To promote efficient delivery of public services, private sector practices, ideas and values are being encouraged in public sector organisations by many countries (Ifere & Ebegetale, 2021). Public organisations can become efficient economic institutions if they can allow entrepreneurship to exist and be allowed to innovatively contribute to economic development (Bernier, 2014). Such entrepreneurial activities, which promote value creation and business growth, can be explained through entrepreneurial orientation (EO) and sustained through the development of learning capability and creation of knowledge (Altinay, Madanoglu, De Vita, Arasli, & Ekinci, 2016). However, there is scarcity of empirical research on strategic entrepreneurship in public sector organisations (Klein et al 2013). The combination of environmental turbulence and scarcity of resource have also created the growing recognition of how entrepreneurial actions among public managers can influence public value performance (Kearney & Meynhardt, 2016). While EO has received considerable attention in research, how learning capability can sustain those entrepreneurial activities in Sub-Saharan African public sectors lacks empirical studies (Martens, Lacerda, Belfort, & de Freitas, 2016). Several public organisations, especially in the Nigerian

context, have failed to attain sustainability in market and value creation due to intra-organisational conflicts, ambiguity in objective and functions, and deficiencies in strategic learning capabilities (Klein et al., 2013). In the Nigerian public organisations, innovation tends to be crippled because there are guidelines to performance that make the system efficiently insolvent (Ogunsiji & Ladanu, 2017). This study will, therefore, focus on entrepreneurial orientation and strategic learning capability in Nigerian public sector organisations.

Entrepreneurial orientation, a main component of entrepreneurship strategy and research (Kearney & Meynhardt, 2016), and has gained attention in the literature (Covin & Lumpkin, 2011). Entrepreneurial orientation (Miller, 1983) is simply about the strategic posture of a firm, i.e. the innovative, proactive, and risk taking behaviour and management philosophies of a firm (Anderson, Covin, & Slevin, 2009). Public sector managers are supposed to be more embracing to entrepreneurial orientation because they pursue numerous goals that vary and are difficult to prioritize (Bernier, 2014). Studies have shown that public sector organisations that embrace entrepreneurial orientation perform better than those that are conservative (Anderson et al., 2009; Kearney & Meynhardt, 2016; Rauch, Wiklund, Lumpkin & Frese, 2009). However, whether public sector organisations have become better learners as a result of their entrepreneurial behaviour is an area that is new in research.

Strategic learning capability, a rubric of organisational learning, has started attracting much scholarly attention,

capturing how a firm proficiently derives knowledge from past strategic actions and then uses that knowledge to adapt firm's strategy (Anderson et al., 2009). The role of learning in entrepreneurship is not contested but the specific mechanisms through which organisational learning is enhanced remains a challenge which scholars believe can be addressed through entrepreneurial orientation (Kreiser, 2011). Entrepreneurially oriented managers are capable of creating a learning organisation with a high learning capacity that improves performance (Fernández-Mesa & Alegre, 2015).

More so, organisations that place premium on strategic learning capability may find it easier to identify new market opportunities and thereby increasing its level of entrepreneurial orientation (Altinay et al., 2016; Anderson et al., 2009).

Studies have investigated the relationship between entrepreneurial orientation and organisational learning capability (Anderson et al., 2009; Fernández-Mesa & Alegre, 2015; Hakala, Wincent & Grichnik, 2017; Luo & Shi, 2002; Paik, Kang & Seamans, 2019; Wang, 2008). However, within the Nigerian context, there appears to be no study that examines this relationship in public sector organisations that have embraced private sector practices, ideas and values. This gap provides opportunity for insightful context-based contribution from Nigeria to the literature on the topic. This study also expands the literature by examining the mediating role of other organisational phenomena (organic structure, market responsiveness, and mode of strategy formation) in the relationship between entrepreneurial orientation and strategic learning capability. Therefore, the two

main research questions this study attempts to answer are: 1) whether the entrepreneurial orientations of managers in Nigerian public sector organisations impact their strategic learning capability? 2) If other organisational phenomena (organic structure, market responsiveness, and mode of strategy formation) mediate the relationship between predictive and criterion variables of this study?

The remaining sections of this study focus on theoretical framework and hypotheses development, empirical review of the literature and conceptual model, the research method, data analyses and discussion of findings, conclusion and recommendation as well as implications for theory and practice, limitations, and directions for future research.

Literature review

Entrepreneurial orientation theory

This most commonly adopted theory of entrepreneurial orientation was introduced by Miller (1983) and later popularized by Covin and Slevin (1989). The researchers see entrepreneurial orientation as a strong firm-level attribute driven by innovativeness, pro-activeness and risk-taking, and influenced by organic structure, market responsiveness and mode of strategy formation. These viewpoints collectively provide useful insight when researching the relationship between entrepreneurial orientation and strategic learning capability (Kreizer, 2011).

As organisations advances in entrepreneurial orientation, it generates enough experience and creates an environment for learning whereby the most sustainable strategic initiatives are retained through entrepreneurial activities (Jelenc, Pisapia & Ivanusic, 2015; Kreizer, 2011; Siren, Hakala, Wincent & Grichnik, 2017).

In line with this perspective, Lan and Wu (2010) argue that in order for organisations to become industrial leaders and increase their competitiveness, they need to be entrepreneurially oriented through participation and problem-solving behaviour. As an organisation can only be regarded as being entrepreneurially oriented provided such organisation has been known to have consistently and sustainably engaged in entrepreneurial activities over a long period of time (Covin & Lumpkin, 2011).

From theoretically perspective, integrating learning into the strategies of the organisation requires interaction among several learning capabilities in order to bring about a strategic change in the organisation (Crossan, Lane & White, 1999). The nature of growth in the public sector can be revealed through their strategic capability and where failure occurs; learning will bring advancement (Klein et al., 2013). However, strategic knowledge does not necessarily lead to strategic change, but where strategic learning occurs, the proof is strategic change (Anderson et al., 2009). Therefore, in the public sector, greater efficiency can be attained through learning from entrepreneurially oriented behaviour, and by developing visions and shared norms (Klein et al., 2013).

Entrepreneurial Orientation

As a firm-level strategic posture, entrepreneurial orientation has been identified with three dimensions of innovativeness, risk-taking and proactiveness (Covin & Slevin, 1989; Miller, 1983; Wales, 2016). The study further construed that these identifiable strategic dimensions in entrepreneurial orientation are indication that there has

been sustainability over time in organisational entrepreneurial behaviour, and could serve as a direction for all organisations. Entrepreneurial orientation has, therefore, been defined as the managerial philosophies of an organisation, its strategic behaviour and decision making practices that are entrepreneurially oriented (Anderson et al., 2009).

Thus, the commitment of an organisation in introducing new product to the market is viewed as innovativeness (Zahra, 1993), while the organisation's willingness, in the midst of uncertainty and a reasonable probability of failure, to commit large resources in a business is being viewed as risk-taking (Lumpkin & Dess, 2001), and organisation's strategic moves to seek new market opportunities ahead of competitors is being regarded as proactiveness (Lan & Wu, 2010; Lumpkin & Dess, 2001).

Strategic Learning Capability

The concept of strategic learning capability has evolved over time in the process of assessing the consequences and presence of learning through various theories of learning (Kreiser, 2011). Drawn upon different theoretical perspectives, the study identified exploratory and exploitative learning which tries to understand whether organisational learning is as a result of new knowledge or existing knowledge; whether it is as a result of adaptive learning (incremental change) or generative learning (radical change); whether it comes from potential absorptive capacity (ability to acquire external knowledge and assimilate it) or realized absorptive capacity (ability to exploit and transform knowledge internally); whether it is as a result of acquisitive learning (pre-existing knowledge outside the firm's boundary) or

experimental learning (new and distinct knowledge that is internally created); and are capable of promoting fundamental changes in the organisation (Kreiser, 2011).

Strategic knowledge generation and strategic change emanating from the newly generated knowledge are critical to strategic knowledge capability (Anderson et al., 2009). A learning organisation is both proactive and innovative through which they are able to pursue and take advantage of foreign opportunities. In organisational learning, there are three types of knowledge that are directly related to acquisitive and experimental learning which are technical, exploitative and integrative knowledge. Technical knowledge is explicit in nature and related to acquisitive learning while exploitative and integrative knowledge are tacit in nature because they manifest as a result of firm's ability to combine information in a unique manner and is related to experimental learning (Dai, Maskimov, Gilbert & Fernhaber, 2014; Kreiser, 2011). The study suggested that the relationship between entrepreneurial orientation and acquisitive learning can be positively mediated when there is a link between the organisation and distinct sources of knowledge between networks, while relationship improvement between entrepreneurial orientation and experimental learning could result from firms conserving series of strong ties in a network.

Linking entrepreneurial orientation, strategic learning capabilities and the public sector

In the public sector, there is focus on satisfying diverse needs of the society and staying financially viable in order to meet

those needs which made it to be multifaceted and more complex (Kearney & Meynhardt, 2016). As identified by Klein et al. (2013), improvements in education, civic life, security and health; advancement in the provision of transportation services and utilities are means by which entrepreneurial value creation is being commonly measured in the public sectors. Embracing entrepreneurial orientation in the public sector requires that new market opportunities will be identified; potentials for innovation and entrepreneurship that will lead to performance optimization will be enhanced; and stakeholders will be carried in such a way that the stewardship and risk of public sector resources are both permitted and recognized (Kearney & Meynhardt, 2016).

An organisation with strong entrepreneurial spirit sees opportunities rather than limitation from current resources, makes flexible its structure, innovates, reforms, takes risks that are commensurate with the returns, and strives, in an uncertain business environment, to maintain competitive advantage continuously (Lan & Wu, 2010). Public organisations, therefore, by providing technical training, measuring and distinguishing entrepreneurial character could create an environment for entrepreneurial orientation and build entrepreneurial spirit in their members. Since entrepreneurial orientation is capable of generating strategic learning through which strategic change occurs (Anderson et al., 2009), failure of certain initiatives of the government may require strategy modifications in the public organisations. We, therefore, hypothesised that:

H₁: There is a positive association between entrepreneurial orientation and

strategic learning capability in the public organisation.

Further, by adopting the research model postulated by Anderson et al. (2009), we examined the variables of organic structure, market responsiveness and mode of strategy formation. Burns and Stalker (1961) conceptualized organic structure as the extent of mechanistic nature of organisational structure. Senior managers may use organic structure to influence entrepreneurial orientation behaviour in the organisation (Anderson et al., 2009). In the same vein, strategic learning capability may be initiated through organic structure as the level of strategic knowledge increases in order to encourage higher level of strategic change in the public organisation. Hence, we hypothesise that:

H₂: Organic structure mediates the association between entrepreneurial orientation and strategic learning capability in the public organisation.

Kohli and Jaworski (1990) defined market responsiveness as the extent to which organisations respond swiftly to changes in market situations. Generation of strategic knowledge and strategic change emanating from such knowledge being generated are the two components of strategic knowledge capability. These can be influenced by market responsiveness in that, organisations that are entrepreneurially oriented have tendencies to respond quickly to market contingencies. Also, market responsiveness will allow organisations to gain increasing strategic knowledge through which amendments can be made to organisational strategy and thereby enhancing strategic learning capability (Anderson et al., 2009), especially in the public organisation. Hence, we hypothesise

that:

H₃: Market responsiveness mediates the association between entrepreneurial orientation and strategic learning capability in the public organisation.

Similarly, mode of strategy formation as described by Mintzberg (1973) is a risky and decisive action taking by a strong leader in an entrepreneurially oriented organisation. According to Anderson et al. (2009), the mode of strategy formulation that favours strategic knowledge generation through which strategic change emerges is apparently not a planned but emergent strategy. The future of business is usually encumbered with unpredictability which made planned strategy loses its value as a result of assumptions that are potentially flawed. Moreover, emergent mode of strategy formation allows managers to make strategic decisions that best suit the situations at hand out of strategic options available to them. Consequently, managers are able to generate strategic knowledge and through which strategic change, which are offshoot of strategic learning capability, emerges. It is, therefore, obvious that organisations that are entrepreneurially oriented will prefer emergent mode of strategy formation to planned mode of strategy formation. We, therefore, hypothesised that:

H₄: Emergent mode of strategy formation mediates the association between entrepreneurial orientation and strategic learning capability in the public organisation.

Empirical review

Anderson et al. (2009) examined the relationship between strategic learning capability and entrepreneurial orientation by collecting data from 110 manufacturing

organisations. The regression analysis showed that entrepreneurial orientation has direct effect on strategic learning capability. It also confirmed that other organisational phenomena- structural organicity, market responsiveness and strategy formation mode fully mediate the relationship between the predictive and outcome variable.

Dai et al. (2014) explored the independence influence of innovative, proactive and risk-taking ability of a firm's entrepreneurial orientation in international markets. Data were obtained from 500 SMEs who participated in an international poll on National Small Businesses. The finding revealed that firms should adopt a moderate risk-taking with either low or high levels of innovative and proactive strategic posture to enable them broaden their scope in international markets.

Altinay et al (2016) investigated the interaction among organisational learning capability, entrepreneurial orientation and small business performance. Data was collected from 350 owners of service and retail SMEs in Northern Cyprus and analysed using structural equation modelling. The results showed a positive association between entrepreneurial orientation and sales growth and market share growth. The analysis also revealed a positive relationship between organisational learning capability and entrepreneurial orientation. However, the study did not find any positive relationship between entrepreneurial orientation and employment growth.

Paik et al. (2019) examined how public sector help sharing economy create value through entrepreneurship, innovation and political competition. The empirical analysis focused on archival data from the

period 2011 – 2015 and supplemented the data with semi-structured interview. The findings showed that regulators are more likely to strike a balance through a regulatory framework that protect incumbent firms while accommodating the new entrant entrepreneurial firms that introduce innovations to the market place.

Obeidat, Yousef, Nofal, and Masa'deh (2018) investigated whether organisational learning capability can mediate the relationship between transformational leadership and entrepreneurial orientation in Jordanian Commercial Banks. Questionnaire was used to gather data from 330 study participants who are employees of the commercial banks. The data were analysed using structural equation modelling (SEM) and a significant relationship was found between transformational leadership and entrepreneurial orientation, and also between transformational leadership and organisational learning capability. The finding further revealed the mediating role of organisational learning capability in the relationship between transformational leadership and entrepreneurial orientation.

Methodology

Sample and data collection

The hypotheses were tested using selected public organisations in Nigeria. In order to elicit responses, questionnaires were administered on the heads of department / unit of twelve government establishments that were selected on the ground that not all public organisations in Nigeria are positioned to be entrepreneurially oriented. We provide the description of participating government agencies in Table 1. They have been purposively selected because they have the tendencies to be entrepreneurially oriented and enhance

strategic learning capability.

Table 1: Participating government Agencies and Rate of Response to Questionnaire

Agencies	Responses	Percentage
Agriculture	24	10.52
Aviation	7	3.07
Education	118	51.75
Energy	8	3.51
Health	23	10.08
Maritime	16	7.02
Media	8	3.51
Science and technology	9	3.95
Water resources	15	6.59
Total	228	100

All the heads of department / unit in the participating agencies constitute the population of the study. However, following the postulation of Hill, Brierley and MacDougall (2003) that a sample size of 100 and above is enough to offer a good representation for any organisation, investigation or population from which a good and concise findings can be drawn. Therefore, using cross-sectional survey, purposive sampling was adopted and 450 questionnaires were administered on the heads of department / unit since they are in the position to provide useful information required for this study. 228 questionnaires were successfully returned, representing 50.67% response rate. This is because nine of the agencies responded while three did not respond. Similarly, some heads of department / unit of the nine agencies did not respond to questionnaire. The agencies that failed to respond were not considered in the analysis. However, the 228 responses from 9 agencies is a good representation

of the public sector (e.g., Hill et al., 2003). Furthermore, proportional sampling could not be achieved but inclusiveness from the 9 agencies was ensured.

The questionnaire items were adapted from already validated research instrument of related study by Anderson et al. (2009). The adapted questionnaire was structured to capture the extent to which strategic learning capability have developed through entrepreneurial orientation in the public sector and the mediating role of organic structure, market responsiveness and emergent mode of strategy formation. Cronbach's alpha values were determined for each of the five constructs; and tested for validity so as to establish the reliability and validity of the instrument used for the data collection. The hypotheses proposed in this study were tested using regression analysis.

Measures

The total variables used in this study were five. In Table 2, the statistics summary and correlation significance were presented showing the mean, standard deviation, Cronbach's alpha and correlations among variables. Following the recommendation of Nunnally and Bernstein (1994), the coefficients of alpha for all items are above 0.70. The analysis of this study adapted already validated scales and the questionnaire items were adapted from Anderson et al. (2009). A 7-item on 7-point likert scale was used to measure strategic learning capability as the criterion variable. An 8-item on 7-points Likert scale was used to measure the predicting variable, which is entrepreneurial orientation. According to Anderson et al. (2009), the scale has been constructed to capture innovativeness, proactiveness, and

risk taking as the dimensions of entrepreneurial orientation. Organic structure, which is a mediating variable, was measured on a 4-item and 7-point Likert scale. A 3-item on 7-point Likert scale was used to measure market responsiveness while mode of strategy formation was measured with a 5-item on 7-point Likert scale.

For each of the constructs, the reliability scores revealed that the scales were reliable for further analyses of data since the Cronbach's Alpha for each of the five constructs were above 0.7 which indicates that there are internal consistencies within the items in each of the constructs (Nunnally, 1978).

consistencies of the responses range from moderate to high correlation. Convergent validity explains the degree to which two measures that are expected to be theoretically related are actually related.

The study uses 7point Likert scale in the assessment of strategic control, ranging from very strongly disagree (1) to very strongly agree (7). In the case of strategic learning capability, the correlations for the internal consistencies of the responses range from 0.622 to 0.810 and are all significant at $p < 0.001$, indicating that there is an existence of convergent validity. The correlations for the internal consistencies of the responses for entrepreneurial orientation range from 0.531 to 0.695 and are all significant at $p < 0.001$, indicating that there is an existence of convergent validity. Also, the correlations for the internal consistencies of the responses for organic structure range from 0.672 to

Table 2. Statistics Summary and Correlation significance

Variable	Mean	s.d	α	1	2	3	4
1. strategic Learning Capability	34.35	6.14	0.88				
2. Entrepreneurial Orientation	37.86	6.71	0.90	0.799**			
3. Organic Structure	19.06	3.95	0.90	0.773**	0.697**		
4. Market Responsiveness	14.54	3.49	0.91	0.762**	0.702**	0.735**	
5. Mode of Strategy Formation	21.85	4.73	0.90	0.742**	0.727**	0.708**	0.682**

** Correlation is significant at $p < 0.01$

Test for validity

Organisation's ability to identify the need for strategic change brings about strategic learning capability and in the process of implementing strategic change, there is need to exercise strategic control. It is, therefore, expected that there be a significant positive correlation between each of the strategic control scale and strategic learning capability simultaneously collected (Lang, Milliken & Batra, 1992). This depicts a situation of convergent validity where the internal

0.760 and are all significant at $p < 0.001$, indicating that there is an existence of convergent validity. In the same vein, the correlations for the internal consistencies of the responses for market responsiveness range from 0.745 to 0.783 and are all significant at $p < 0.001$, indicating that there is an existence of convergent validity. Finally, the correlations for the internal consistencies of the responses for mode of strategy formation range from 0.599 to 0.678 and are all significant at $p < 0.001$, indicating that there is an existence of

convergent validity.

Analytical techniques

Following the advice of Baron and Kenny (1986), we, first, tested the hypothesis to determine the association between entrepreneurial orientation and strategic learning capability. Next, we established the association between entrepreneurial orientation and each of the mediating variables like organic structure, market responsiveness and mode of strategy formation. Lastly, we controlled for the independent variable by entering the mediating variable simultaneously with the independent variable as a predictor of the dependent variable.

The mediating variable is considered a mediator in a situation whereby the independent variable accounts for variability within the mediating variable significantly, the independent variable accounts for variability within the dependent variable significantly, and when controlling for the independent variable, the mediating variable accounts for variability in dependent variable significantly and there is a considerable decrease in the effect of independent variable on dependent variable when mediating variable is simultaneously entered with independent variable as a predictor of dependent variable (Preacher & Hayes, 2008).

Following Preacher and Leonardelli (2021) estimation method, we used Sobel test to test the mediation effect of the mediating variables between the independent variable and dependent variable. We equally present the results of the Aroian version of the Sobel test (Baron & Kenny, 1986) because the assumption that the product of S_a (standard error of a) and S_b (standard error

of b) should be negligibly small is not required. Also, as a result of the weakness of Sobel test's assumption of normality of sampling distribution, we used bootstrapping to double confirm the effect of mediating variables on the independent and dependent variables because for the sampling distribution of indirect effect, empirical representation are often generated through bootstrapping which treats the sample size as mini representation of the population.

Since bootstrapping does not make use of standard error to draw inference, the controversy of how best to calculate standard error of indirect effect does not arise. Bootstrapping inference is predicated on the calculation of the indirect effect itself and in any intervening variable model; it can be used to draw inference no matter the amount and complexities of the paths between independent and dependent variables (Hayes, 2009).

Common method bias test

To avoid the problem of underestimation or overestimation of the association between chosen constructs, which could emanate from the risk of common method bias, Podsakoff and Organ (1986) recommend that researchers may carry out Harman single-factor method test, in order to determine if the first factor extracted accounts for majority of variances among all measures. This method loads individual measures for each construct in an exploratory factor analysis, and thereby checks if there is an issue with common method bias. In this study, from the result of Harman's single-factor test carried out based on fixed number of factors, the first factor accounts for 33.9 percent of the total variance which is less than the threshold of 50 percent indicating that common method

bias is not a problem.

Analysis and results

The regression analysis table below shows the association between entrepreneurial orientation and strategic learning capability in the public organisation shows that the analysis of variance of the fitted regression equation is significant with F value of 397.841 indicating that the model is feasible. The p-value of entrepreneurial orientation to strategic learning capability in the public organisation is 0.000 which is below 0.05. This implies that the relationship between the two variables is statistically significant at less than 95 percent confidence level and the alternative hypothesis that there is a positive association between entrepreneurial orientation and strategic learning capability in the public organisation is, therefore, accepted. This corroborates the findings of Fernandez-Mesa and Alegre (2014) that there is a positive relationship between entrepreneurial orientation and strategic

learning capability; and that entrepreneurial orientation improves strategic learning capability.

The R value of the model summary which is 0.799 indicates that there is a strong positive correlation between entrepreneurial orientation and strategic learning capability. The R-square value of 0.638, which is the coefficient of determination, indicates that entrepreneurial orientation explains 63.8 percent of the strategic learning capability among other variables that should adequately explain the strategic learning capability. Also, the adjusted R-square value of 0.636 indicates that if the total population in government agencies were made to participate in the process, it will explain 63.6 percent of the total variability in the response variable which is approximately the same with the value of R-square of 0.638. The implication is that the sample size used in setting up this model is an unbiased representative of the population.

Table 3. Regression analysis of association between entrepreneurial orientation and strategic learning capability in the public organisation

Model Summary						
Model	R	R-Square	Adjusted R-Square	Std. Error of the Estimate		
	.799 ^a	.638	.636	3.70070		
Anova						
Model	Sum of Squares	df	Mean Square	F	Sig.	
1 Regression	5448.512	1	5448.512	397.841	.000 ^b	
Residual	3095.115	226	13.695			
Total	8543.627	227				
Coefficients ^a						
Model	Unstandardized Coefficients		Standardized Coefficients		t	Sig.
	B	Std. Error	Beta			
(Constant)	6.721	1.407			4.779	.000
Artificial Intelligence Capability	.730	.037	.799		19.946	.000

Source: Field Survey, 2021

Dependent variable: Strategic Learning Capability p<0.05

The result in Table 4 below shows that entrepreneurial orientation significantly predicts strategic learning capability, where $B = .730$; $t = 19.946$; $p = 0.000$ and the coefficient of determination, R^2 , indicates that entrepreneurial orientation explains 63.8 percent of the variability in strategic learning capability among other variables that should adequately explain the strategic learning capability. Also, entrepreneurial orientation significantly predicts organic structure, where $B = .411$; $t = 14.615$, $p = 0.000$ and $R^2 = 0.486$. Lastly, when controlling for the independent variable (entrepreneurial orientation), $B = .654$; $t = 8.705$, $p = 0.000$, the mediating variable (organic structure) accounts for 72.9 percent (R^2) variability in dependent variable (strategic learning capability) significantly and there is a considerable decrease in the effect of independent variable on dependent

the relationship between entrepreneurial orientation and strategic learning capability.

The results of both Sobel and Aroian tests reveal that organic structure significantly mediates the relationship between entrepreneurial orientation and strategic learning capability in which $Z = 7.522$, Std error = 0.036 and $p = 0.000$ (for Sobel test); and $Z = 7.509$, Std error = 0.036 and $p = 0.000$ (for Aroian version of Sobel test). The bootstrapping result also reveals that organic structure significantly mediates the relationship between entrepreneurial orientation and strategic learning capability since the result reveals no zero between the lower and upper bounds.

The lower bounds for entrepreneurial orientation as a predictor of strategic learning capability are 0.63 and 0.72 respectively while their upper bounds are

Table 4: Regression analysis summary for mediation of organic structure between entrepreneurial orientation and strategic learning capability in the public organisation

	B	Std Error	t-value	R	R ²	R ² Change	F	p-value
EO→SLC	.730	.037	19.946	.799 ^a	.638	.638	397.841	.000
EO→ OS	.411	.028	14.615	.697 ^a	.486	.486	213.607	.000
EO→OS→SLC	.654	.075	8.705	.854 ^a	.729	.729	302.633	.000

Note: EO: Entrepreneurial Orientation; OS: Organic Structure; SLC: Strategic Learning Capability.

Source: Field Survey, 2021.

variable (which was 63.8 percent) when mediating variable was simultaneously entered with independent variable as a predictor of dependent variable. Therefore, the result reveals that organic structure mediates the relationship between entrepreneurial orientation and strategic learning capability.

The table 5 below shows the results of Sobel test on the left hand-side and the bootstrapping result on the right hand-side to ascertain if organic structure mediates

0.76 and 0.82 respectively; for entrepreneurial orientation as a predictor of organic structure, their lower bounds are 0.76 and 0.72 respectively while their upper bounds are 0.84 and 0.82 respectively; lastly, for organic structure as a predictor of strategic learning capability, their lower bounds are 0.63 and 0.76 respectively while their upper bounds are 0.76 and 0.84 respectively. We, therefore, conclude that organic structure mediates the association between entrepreneurial orientation and strategic learning

Table 5: Result of Sobel test, Aroian test and Bootstrapping

Input			Test statistic	Std. Error	p-value	EO→SLC		EO→OS		OS→SLC			
a	.411	Sobel test:	7.522	0.036	0.00	Bootstrap Values	Lower	.63	.72	.76	.72	.63	.76
b	.657	Aroian test:	7.509	0.036	0.00								
Sa	.028						Upper	.76	.82	.84	.82	.76	.84
Sb	.075												

Source: Field Survev. 2021

capability in the public organisation. This is in consonance with what Klein et al. (2013) found that efficiency can be attained in public organisations by creating a suitable structure for governance and leveraging on strategic learning capabilities.

The result in Table 6 below shows that entrepreneurial orientation significantly predicts strategic learning capability, where, B = .730; t = 19.946; p = 0.000 and the coefficient of determination, R², indicates that entrepreneurial orientation explains 63.8 percent of the variability in strategic learning capability among other

= .365; t = 14.813, p = 0.000 and R² = 0.493. Lastly, when controlling for the independent variable (entrepreneurial orientation), B = .698; t = 7.998, p = 0.000, the mediating variable (market responsiveness) accounts for 71.8 percent (R²) variability in dependent variable (strategic learning capability) significantly and there is a considerable decrease in the effect of independent variable on dependent variable (which was 63.8 percent) when mediating variable was simultaneously entered with independent variable as a predictor of dependent variable. Therefore, the result reveals that

Table 6: Regression analysis summary for mediation of market responsiveness between entrepreneurial orientation and strategic learning capability in the public organisation

	B	Std Error	t-value	R	R ²	R ² Change	F	p-value
EO→SLC	.730	.037	19.946	.799 ^a	.638	.638	397.841	.000
EO→MR	.365	.025	14.813	.702 ^a	.493	.493	219.415	.000
EO→MR→SLC	.698	.087	7.998	.847 ^a	.718	.718	286.325	.000

Note: EO: Entrepreneurial Orientation; MR: Market Responsiveness; SLC: Strategic Learning Capability.

Source: Field Survey, 2021.

variables that should adequately explain the strategic learning capability. Also, entrepreneurial orientation significantly predicts market responsiveness, where, B

market responsiveness mediates the relationship between entrepreneurial orientation and strategic learning capability.

The table 7 below shows the results of Sobel test on the left hand-side and the bootstrapping result on the right hand-side to ascertain if market responsiveness mediates the relationship between entrepreneurial orientation and strategic learning capability. The results of both Sobel and Aroian tests reveal that market responsiveness significantly mediates the relationship between entrepreneurial orientation and strategic learning capability in which $Z = 7.031$, Std error = 0.036 and $p = 0.000$ (for Sobel test); and $Z = 7.019$, Std error = 0.036 and $p = 0.000$

responsiveness as a predictor of strategic learning capability, their lower bounds are 0.61 and 0.76 respectively while their upper bounds are 0.78 and 0.84 respectively. We, therefore, conclude that market responsiveness mediates the association between entrepreneurial orientation and strategic learning capability in the public organisation. This corroborates the findings of Anderson et al. (2009) that entrepreneurial orientation needs to be combined with rapid response to varying market conditions in order for organisations to gain increasing strategic

Table 7: Result of Sobel test, Aroian test and Bootstrapping for the mediation of market responsiveness between entrepreneurial orientation and strategic learning capability in the public organisation.

Input	Test statistic	Std. Error	p-value	EO→SLC				EO→MR		MR→SLC	
				Lower	Upper	Lower	Upper	Lower	Upper		
a .365	Sobel test: Aroian test:	7.031	0.036	0.00							
b .698		7.019	0.036	0.00	.61	.71	.76	.71	.61	.76	
Sa .025											
Sb .087											

Source: Field Survey, 2021

(for Aroian version of Sobel test). The bootstrapping result also reveals that market responsiveness significantly mediates the relationship between entrepreneurial orientation and strategic learning capability since the result reveals no zero between the lower and upper bounds.

The lower bounds for entrepreneurial orientation as a predictor of strategic learning capability are 0.61 and 0.71 respectively while their upper bounds are 0.78 and 0.81 respectively; for entrepreneurial orientation as a predictor of market responsiveness, their lower bounds are 0.76 and 0.71 respectively while their upper bounds are 0.84 and 0.81 respectively, lastly, for market

knowledge through which amendments can be made to organisational strategy and thereby enhancing strategic learning capability.

The result in Table 8 below shows that entrepreneurial orientation significantly predicts strategic learning capability, where $B = .730$; $t = 19.946$; $p = 0.000$ and the coefficient of determination, R^2 , indicates that entrepreneurial orientation explains 63.8 percent of the variability in strategic learning capability among other variables that should adequately explain the strategic learning capability. Also, entrepreneurial orientation significantly predicts mode of strategy formation, where $B = .513$; $t = 15.933$, $p = 0.000$ and $R^2 = 0.529$. Lastly, when controlling for the

independent variable (entrepreneurial orientation), $B = .443$; $t = 6.350$, $p = 0.000$, the mediating variable (Mode of strategy formation) accounts for 69.3 percent (R^2) variability in dependent variable (strategic learning capability)

between entrepreneurial orientation and strategic learning capability. The results of both Sobel and Aroian tests reveal that mode of strategy formation significantly mediates the relationship between entrepreneurial orientation and strategic

Table 8: Regression analysis summary for mediation of mode of strategy formation between entrepreneurial orientation and strategic learning capability in the public organisation

	B	Std Error	t-value	R	R ²	R ² Change	F	p-value
EO→SLC	.730	.037	19.946	.799 ^a	.638	.638	397.841	.000
EO→MSF	.513	.032	15.933	.727 ^a	.529	.529	253.845	.000
EO→MSF→SLC	.443	.070	6.350	.832 ^a	.693	.693	253.696	.000

Note: EO: Entrepreneurial Orientation; MSF: Mode of Strategy Formation; SLC: Strategic Learning Capability.

Source: Field Survey, 2021.

significantly and there is a considerable decrease in the effect of independent variable on dependent variable (which was 63.8 percent) when mediating variable was simultaneously entered with independent variable as a predictor of dependent variable. Therefore, the result reveals that mode of strategy formation mediates the relationship between entrepreneurial orientation and strategic learning capability.

The table 9 below shows the results of Sobel test on the left hand-side and the bootstrapping result on the right hand-side in order to ascertain if mode of strategy formation mediates the relationship

learning capability in which $Z = 5.887$, Std error = 0.039 and $p = 0.000$ (for Sobel test); and $Z = 5.877$, Std error = 0.039 and $p = 0.000$ (for Aroian version of Sobel test). The bootstrapping result also reveals that mode of strategy formation significantly mediates the relationship between entrepreneurial orientation and strategic learning capability since the result reveals no zero between the lower and upper bounds.

The lower bounds for entrepreneurial orientation as a predictor of strategic learning capability are 0.67 and 0.69 respectively while their upper bounds are 0.78 and 0.79 respectively; for

Table 9: Result of Sobel test, Aroian test and Bootstrapping for the mediation of mode of strategy formation between entrepreneurial orientation and strategic learning capability in the public organisation.

Input	Test statistic	Std. Error	p-value	Bootstrap Values									
				EO→SLC		EO→MSF		MSF→SLC		C	8		
a	.513	Sobel test:	5.887	0.039	0.00								
b	.443	Aroian test:	5.877	0.039	0.00								
Sa	.032												
				Lower	.67	.69	.76	.69	.67	.76			
				Upper	.78	.79	.84	.79	.78	.84			

Source: Field Survey, 2021.

entrepreneurial orientation as a predictor of mode of strategy formation, their lower bounds are 0.76 and 0.69 respectively while their upper bounds are 0.84 and 0.79 respectively; lastly, for mode of strategy formation as a predictor of strategic learning capability, their lower bounds are 0.67 and 0.76 respectively while their upper bounds are 0.78 and 0.84 respectively. We, therefore, conclude that mode of strategy formation mediates the association between entrepreneurial orientation and strategic learning capability in the public organisation. This corroborates the findings of Paik et al. (2019) that through managerial actions and policies that stimulate planned/emergent strategic formation mode organisation's strategic learning capability can be nurtured.

Discussion

We found a statistically significant positive relationship between entrepreneurial orientation and strategic learning capability as hypothesized. This finding is in line with Altinay et al (2016) who also revealed a positive relationship between entrepreneurial orientation and organisational learning capability. The implication is that entrepreneurially oriented organisations, especially in the public sectors, that are proactive, innovative, and risk-taking can increase strategic learning capability through strategic knowledge generation that encourages strategic change. All mediating variables are found to mediate between entrepreneurial orientation and strategic learning capability.

Based on our hypothesis, we found that organic structure mediates the association between entrepreneurial orientation and strategic learning capability. This corroborates the finding of Mahrous and

Genedy (2018) that organisational ability to adopt organic structure will pave way for entrepreneurial culture through which entrepreneurial activities can be encouraged.

Market responsiveness was also found to mediate the association between entrepreneurial orientation and strategic learning capability. This is consistent with the arguments raised by Grinstein (2008) that entrepreneurially oriented firms can respond quickly to market opportunities by strategically gathering information from external sources. The mode of strategy formation was equally found to mediate the association between entrepreneurial orientation and strategic learning capability. The study established that there is a causal relationship between entrepreneurial orientation and all the three mediating variables (organic structure, market responsiveness and mode of strategy formation), also, between the mediating variables and strategic learning capability.

The findings, therefore, shows that the mediating variables can bring an increasing level of strategic learning capability when they mediate the association between entrepreneurial orientation and strategic learning capability. The mediating variables have been found to generate increase in strategic knowledge, which culminates in strategic change and thereby leads to a stronger strategic learning capability. The main reasons why planned mode of strategy formation may be more beneficial to the emergent approach is better captured in Anderson et al. (2009) where they argue that planned strategy involves strategic choices that might have been considered carefully and chosen deliberately by firms with strong planning orientation through which they channel their initiatives in a purposeful direction.

As entrepreneurial initiatives are carried out, managers of public organisations are enjoined to recognize and evaluate data of potential strategic relevance through which generation of strategic knowledge can be facilitated in order to generate desired strategic change towards the enhancement of strategic learning capability. Our findings, therefore, represent a contribution to the body of strategic management examining how being entrepreneurially oriented in the public organisation can improve their strategic learning capability.

Recommendation

Having established that there is a significant positive relationship between entrepreneurial orientation and strategic learning capability, it is recommended that managers of public organisations be entrepreneurially oriented in order to enhance strategic learning capability and organisational effectiveness. Also, since the three mediating variables (organic structure, market responsiveness and mode of strategy formation) successfully mediate the relationship between entrepreneurial orientation and strategic learning capability, organisations that adopt elements of the three mediating variables in their practices will achieve stronger strategic learning capability.

Public sector organisations should deliberately encourage entrepreneurial behavior by which generation of strategic knowledge is made possible, and the knowledge so generated should be acted upon in order to produce the desired strategic change. In particular, managers of public organisations should consciously and actively promote policies

and actions that are entrepreneurially oriented to achieve strategic change through the generation of strategic

knowledge that will translate into a stronger strategic learning capability. An evaluation of the strategic knowledge being generated should be carried out to determine its applicability to the organisational situation.

Research limitations and direction for future research

This study uses cross sectional data for which it may be impossible to determine the directions of causality. Future research may, therefore, use longitudinal data, which may help to better understand the direction of causality between entrepreneurial orientation and strategic learning capability. Also, this study focused on factors that mediate the relationship between entrepreneurial orientation and strategic learning capability in the public sector. Future research may consider focusing on the moderating variables between entrepreneurial orientation and strategic learning capability in the public sector. Finally, the study used only three mediating variables that are obviously theoretically related to entrepreneurial orientation and strategic learning capability, future research may consider additional mediating variables.

Conclusions

The purpose of this study is to examine whether entrepreneurially oriented behavior in public organisations can result in strategic learning capability. The results lead to two insightful conclusions that

being entrepreneurially oriented in the public organisations leads to strategic learning capability, and the level of strategic learning capability in public organisations can be improved upon when mediating variables such as organic structure, market responsiveness and emergent mode of strategy formation are adopted alongside entrepreneurial orientation.

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