

Does Organizational Learning Lead to Competitive Advantage?

An Evaluation of State Corporations in Kenya

Gregory Makabila*, Mike Iravo**, Waititu Gichuhi**, Assumptah Kagiri

* School of Human Resource Development, Jomo Kenyatta University of Agriculture and Technology

Abstract-Despite the theoretical underpinning that organizational learning is positively associated with competitive advantage, empirical support for the relationship between organizational learning and competitive advantage is not adequate in strategic management literature. The relative absence of such research does not motivate leaders, managers and employees to adopt learning initiatives. This study examined the role of organizational learning in achieving competitive advantage of State Corporations in Kenya with a focus on organization's learning culture, learning processes, systems thinking and their role in achieving competitive advantage of state corporations. The study assessed the mediating role of rate in the relationship between the independent variables and competitive advantage. The study employed a descriptive, cross-sectional designs utilizing both quantitative and qualitative methods to gather data from 198 staff from 35 state corporations comprising of senior managers, middle manager and non-management staff. Regression analysis and structural equation modeling were used to make inference on the associations dependent, mediating and independent variables SPSS Version 22 and AMOS version 21. Qualitative was analyzed using ATLAS.ti. Results from both simple and multiple linear regression revealed that each of independent variables was positively and significantly associated with competitive advantage. Rate of learning partially mediated the relationship between learning process and competitive and systems thinking and competitive advantage. These results imply that managers need to implement strategies that will increase the rate of learning with the organization by focusing on concrete learning processes, learning culture and systems thinking practices. Both formal and informal learning processes that maximize utilization-focused knowledge acquisition and sharing approach are encouraged. To ensure staff or fully engaged in the learning process, organizations need to invest in building capacity of new and existing employees and partners to encourage reflective practices within the organization. Longitudinal studies can help strengthen similar future studies.

Index Terms- Organizational Learning, Learning Processes, Culture, Competitive Advantage

I. INTRODUCTION

Organizational learning is largely theorized for its role in improving performance and competitiveness of organizations. Senge (1990) argued that the speed of

organizational learning may become the only sustainable source of competitive advantage in the future. Garvin, Edmondson, & Gino, (2008) concurred by noting that higher rate of learning is positively associated with competitive advantage. In essence, a learning organization purposefully designs and constructs its structure, culture and strategy to enhance and maximize the potential for organizational learning to take place (Dodgson, 1993; Fang et al., 2010). Learning organizations are seen to adapt to unpredictable environments more quickly than their competitors. "how difficult the learning process is, even with built-in intent (Kransdorff, 2006)". Organizational Learning efforts are no longer merely an option but rather a core necessity for organizations anywhere in the world, if they have to compete successfully (Singh and Kant, 2008).

Empirical studies have demonstrated the significant role that learning plays in fostering performance in various industries and sectors. For example, the public sector (Ferguson et al., 2013), non-governmental organizations (Corfield et al., 2013), banking industry, (Oluikpe, 2012), small- to medium-sized enterprises, (Durst and Edvardsson, 2012), manufacturing organizations (Birasnav and Rangnekar, 2010), and human service and professional services firms (Palte et al., 2011); and life insurance business (Huang et al., 2011). These studies have clearly shown that learning is an important determinant of organizational success measured by superior performance and competitive advantage.

Despite the clarity and consensus that organizational learning leads to competitive advantage, adoption of learning practices are still low among organizations, particularly for state corporations. This low adoption is partly blamed on inadequacies in past research which have not sufficiently furnish managers with concrete prescriptions on how to become a learning organization, have targeted the partial audience by focusing only chief executives and excluded departmental managers and non-managerial staff. for the Kenyan context, state corporations have been left out of most research even though they are tasked to drive economic growth in highly dynamic and unpredictable environments, that requires them to compete. So, this study is aimed to contribute to the literature by examining the relationship between organization learning and competitive advantage. It will build on the work of other authors, (Garvin et al., 2008; P. Senge, Art, & Roberts, 2001; P. M. Senge, 1990), by exploring the mechanism through which organizational learning

variables (organizational culture, learning processes and systems thinking) to influence competitiveness of state corporations. The study will address the following research questions:

- a) Does learning culture effect competitive advantage of state corporations?
- b) What is the effectiveness of learning processes in fostering competitive advantage of state corporations?
- c) What is the effect of systems thinking on competitive advantage of state corporations?
- d) Does rate of learning mediate the relationship between organizational learning and competitive advantage of state corporations?

This study has the following structure: Section 2 presents literature reviewed and research hypotheses. Section 3 contains research methodology to test hypotheses and sets results of data analyses. Section 4 brings together the implications, limitations, and directions for future research.

II. LITERATURE REVIEW

2.1. Theoretical Review

2.1.1. Competitive Advantage

The rationale for state corporations to seek and gain competitive advantage is deeply rooted in the dynamic and challenging environment under which they operated. State corporations are facing fierce competition from each and facing fierce competition from vibrant and innovation-minded private and civil society organizations (Buheji, n.d.). A highly educated and quality driven public continues to demand more efficient and effective goods and services from all business actors in equal measure. The legal and political environment has become less favorable to state corporations as they no longer operate as monopolies and the compete under relatively the same laws as the private sector. Furthermore, the perception or corruption has worsened among public institutions during the past decade making it more difficult for state corporations to assure the public of quality services and fair cost. For example, in 2016 Kenya was ranked 139 out of 168 indicating a high perception of bribery within the country. These corruption perception indices further erode public trust thus further complicating efforts to grow their market share. These circumstances have triggered state corporations to actively engage in the search of competitive advantage to guarantee their survival and success in the market place.

In pursuit of competitive advantage, researchers offer useful theoretical suggestions. The resource-based view theory of competitive advantage posits that firms are bundles of resources and capabilities and that a firm can gain competitive advantage based on its unique set of resources (Barney, 1991). Those resources are valuable, rare, perfectly inimitable and non-substitutable and a firm's potential for competitive advantage also requires a firm be organized to exploit its resources and capabilities (Barney, 2007). The fact that resources must enable the creation of value and must also resist the duplicative efforts of competitors suggests that firms are bundles of resources and

capabilities. In conditions of open competition, rival firms will seek to imitate, acquire or try to substitute for the resources that are a source of advantage. Organizations facing uncertain, changing or ambiguous market conditions similar to those experienced by state corporations need to be able to learn. Theories posit that organizational learning can help firms amass and use these kinds of resources and capabilities. For example, Karash (2002) identified the organizational learning concept as a resource-oriented approach that is based on the ability of the organization to turn standard resources that are available to all into competences that are unique and non-imitable by competitors.

2.1.2. Organizational Learning

The concept of OL is a well-researched topic in a range of academic disciplines from economics, management science, psychology and sociology to anthropology (Easterby-Smith and Lyles, 2011). Senge, (2006) describes organizational learning as 'the changing of organizational behavior' which occurs through a collective learning process. Organizational learning as a unique resource that is critical in today's dynamic and discontinuous environment of change and a crucial determinant of competitive advantage (Garvin, Edmondson, & Gino, 2008). Organizational learning emphasizes the development and application of new knowledge that has the potential to change employees' behavior which is ultimately tipped to strengthen the organization's competitive position. A learning organization uses management philosophy based on knowledge and understanding, as opposed to fear, for the complexity of the real world. Therefore, organizational learning has the potential to promote a sense of empowerment in the workforce that motivates them for a continuous learning (Bryson et al., 2006).

For learning to be fully entrenched in the organization, it has to happen at various levels. Argyris and Schön, (1978) notes that organizations learn through individuals acting as agents for them and individuals' learning activities, which in turn are facilitated or inhibited by an ecological system of factors. Gareth Morgan, (1986) points out that organizations cannot, themselves, learn; it is the individuals within them who learn. Evidently, there is more to a learning organization than simply a collection of individuals who are learning. Swieringa and Wierdsma (1992) define organizational learning as 'the changing of organizational behavior' which occurs through a collective learning process. They note that individual learning is a necessary but not a sufficient condition for organizational learning. Learning organizations are organized in such a way that learning is a prominent feature at a number of different levels: individual learning; team or work group learning; cross-functional learning; operational organizational learning; and strategic organizational learning (Britton, 1998).

Organizational learning in organizations can happen at various levels. Single loop learning focuses on fixing errors in the current system while double loop learning which goes a level here to question the policies and procedure rather than focusing only on error correction (Linz & Resch, 2010; Witherspoon, 2014). Single-loop learning involves detecting and correcting "errors" so that the organization can continue to achieve its present

policies or objectives in more efficient ways. In single-loop learning, outcomes are measured against organizational norms and expectations. According to Senge, (1990), Single-loop learning focuses on doing things in the right way without necessarily questioning whether they are the right things to be done. It explores more productive ways, doing it cheaper, using alternative methods or approaches for the same objectives. On the other hand, double loop learning not only requires changes in the rules and procedures of the organization but may also question the underlying assumptions and principles that form the basis of the rules and procedures. The implications of double loop learning are possibly far-reaching and may even lead to what has been called triple loop learning which involves challenging the organization's principles and assumptions, requiring an open and often robust exchange of views (Peeters & Robinson, 2015).

2.1.3. Relationship Between Organizational Learning and Competitive Advantage

The effect of organizational learning on performance was initially demonstrated by the learning curve model from an industrial organization's economics perspective. Barney, (2007) argued that in some circumstances, firms with the greater experience in manufacturing a product or service will attain lowest costs in an industry and, thus, will acquire a cost-based advantage. Beyond manufacturing sector, the learning curve-cost advantage association can be associated with many business functions, from purchasing raw materials through distribution and service. The Boston Consulting Group (BCG, 1970) estimated learning curves for over 20 industries and demonstrated how firms can take cost advantage by having more operating experience. Although the industrial organization economics perspective demonstrates the importance of organizational learning to a firm's gaining a cost advantage, the model has been criticized for being silent on the mechanisms by which experience leads to cost advantage and why some firms learn better than others.

Strategic management literature discusses the link between organizational learning and competitive advantage from the resource-based view (RBV) of the firm. The RBV posits that organizations can gain sustained competitive advantage through amassing and using strategic resources and capabilities, which are valuable, rare, difficult to imitate and non-substitutable (Barney, 1991). And a firm's potential for competitive advantage also requires a firm be organized to exploit its resources and capabilities (Barney, 2007). On the one hand, organizational learning is believed to be able to help firms amass and use these kinds of resources and capabilities. For example, Karash (2002) identified the organizational learning concept as a resource-oriented approach that is based on the ability of the organization to turn standard resources that are available to all into competences that are unique and cannot be easily copied by competitors (Karash, 2002). On the other hand, recent literature suggests that organizational learning is an idiosyncratic and complex capability, which is difficult to imitate, replicate and transfer and which constitutes a source of competitive advantage

(Prahalad and Hamel, 1990; Grant, 1996; Simonin, 1997; Lei et al., 1999).

Although organizational learning is widely accepted as an essential element to successfully compete in a marketplace, various factors hinder organizations from building a learning organization. Senge (2006), identifies three barriers including; the lever, which refers to the inability of organizations to understand the complexity and thus unable to target specific points within the system that would bring tremendous benefits; learning disability, which comprises of seven learning disabilities among individuals within organizations that hinder them from learning thus impacting the rate and quality of organizational learning and; prisoners of our thinking, which is fueled by lack of knowledge. Garvin et al. (2008) further identified what they considered as barriers to learning in organizations including the fact that managers do not know the steps for building a learning organization, they lack tools to assess whether their teams are learning or how that learning is benefiting the company. Zhou, Hu, & Shi, (2015) further noted that the components of organizational learning in the literature are still descriptive due to the multi-dimensional nature of the construct.

To address the aforementioned barriers, authors, both from a strategic management perspective and from an organizational theory perspective, stress different characteristics of organizational learning, for example, open communications by Philips (2003), risk taking by Appelbaum and Reichart (1998) and Richardson (1995), support and recognition for learning by Bennett and O'Brien (1994), team learning by Anderson (1997) and Senge (1990a) and knowledge management by Loermans (2002) and Selen (2000). Argote (2011), however, conceived organizational learning as having three sub-processes: creating, retaining and transferring knowledge. Some empirical studies provide support for the relationship between organizational learning and firm performance (Day, 1994; Slater and Narver, 1995). Ellinger et al. (2002) suggests a positive association between learning organization practices and objective firm financial performance.

Senge, (2006), He points out five key competencies or 'disciplines' that he suggests all leaders must have to build and lead a learning organization. These competencies are personal mastery, mental models, shared vision, team learning and systems thinking. Personal mastery is to do with 'self-awareness' and is based on the premise that organizations grow because the people in the organizations are themselves growing. It assumes that individuals must learn for organizations to learn and it is reflected in one's drive towards continuous improvement by learning. Mental models look at the process and outcome of surfacing deep-seated beliefs, values, and assumptions that determine the way people think and act. Garvin et al., (2008) proposed three foundational blocks for building a learning organization. These are a supportive learning environment, concrete learning processes, and leadership that reinforces learning. A supportive learning environment gives organizations an opportunity reflecting in the action and encourages thoughtful review of the organization's processes (Akhtar, Ahmed, & Mujtaba, 2013). Concrete learning processes ensure that a team

or company has formal processes for generating, collecting, interpreting, and disseminating information. Organizational learning is also considered to positively effect by the performance of organizations. For example, transformational leadership has been found to directly influenced organizational learning and knowledge management (Noruzi et al. 2013).

2.2. Empirical Studies on OL and Competitive Advantage

Researchers have invested the past decade in determining whether and how organizational learning affects performance and competitiveness of organizations. This research focused on the theorized variables of learning culture, learning processes and systems thinking. For example, the public sector (Ferguson et al., 2013), non-governmental organizations (Corfield et al., 2013), banking industry, (Oluikpe, 2012), small- to medium-sized enterprises, (Durst and Edvardsson, 2012), manufacturing organizations (Birasnav and Rangnekar, 2010), and human service and professional services firms (Palte et al., 2011); and life insurance business (Huang et al., 2011). This section reviews the works of these researchers.

2.3. Culture and Competitive Advantage

2.3.1. Effect of Organizational Culture and Competitive Advantage

Many scholars have paid attention to the role played by culture in relation to corporate performance. Gorden&DiTomaso (1992) found that the strength of the organizational culture can predict the corporate performance. Dension& Mishra (1995) found that different cultural characteristics have different impact on the organizational performance, leading to the conclusion that cultural differences can lead to competitive advantage. This conclusion was also reached by Chan (2004). Attempts have also been made at looking for specific cultural attributes that influence learning and competitive advantage of organizations. (Garvin et al., 2008), identified psychological safety, appreciation of differences, and openness to new ideas as essential components of a supportive learning environment. Weihong, Caitao, & Dan, (2008) study showed that openness of the organizational culture had a significant impact on the enterprise sustainable competitive advantage. Culture is seen as a source of competitiveness due to its difficulty to imitate or duplicate (Fitzgerald, 1988; Mueller, 1996). This results from its inherent tacit nature, complexity and specificity (Reed and DeFillippi, 1990). Bwegyeme&Munene, (2015) study reinforced the importance of culture in influencing organization outcomes including problem-solving and performance. Mikkelsen et al. (2000) argued that a positive learning climate reduces job stress, and also had a direct and positive impact on job satisfaction and employee commitment. Theorists and researchers seem to agree that a culture which promotes open communication practices, prioritizes and promotes staff empowerment, supports supporting staff development and promotes team learning is likely to lead to competitive advantage. However, the evidence has not targeted state corporations in particular those in developing countries partly due to their perceived non-competitive nature. The study predicts that a learning culture will have a positive and significant effect on their performance of state corporations in Kenya.

H₀₁: There exists no relationship between learning culture and the competitive advantage of state corporations in Kenya

H_{a1}: There exists a relationship between learning culture and the competitive advantage of state corporations in Kenya

2.3.2. Effect of Learning Processes and Competitive Advantage

A learning organization is cultivated through a series of concrete steps and widely distributed activities, (Sokhanvar, Matthews, &Yarlagadda, 2014). Theorists have made efforts at explicating the learning processes essential to influencing learning and attaining competitive advantage. Garvin et al., (2008) consider learning processes to involve the generation, collection, interpretation, and dissemination of information. Learning processes include experimentation to develop and test new products and services; intelligence gathering to keep track of competitive, customer, and technological trends; disciplined analysis and interpretation to identify and solve problems; and education and training to develop both new and established employees. USAID, (2016) presented a more comprehensive model, collaborating learning and adapting (CLA) model, which considers learning processes to include knowledge management, institutional memory and decision making. According the CLA model, KM processes include the process of acquiring knowledge internally and externally, distilling the knowledge and sharing knowledge internally and externally. Institutional memory includes the processes of accessing institutional knowledge, and managing of staff transitions. Decision-making included the awareness of decision-making processes, autonomy to make decisions and appropriate stakeholder involvement in decision making processes.

Empirical studies have been conducted and shown results in support of theory. Learning processes ensure that an organization and employees continually create, acquire, and transfer knowledge and use it to adapt to the ever-changing internal and external environment.To achieve maximum impact, Garvin, (2008) suggests that knowledge should be shared in systematic and clearly defined ways among individuals, groups, or whole organizations. Knowledge can move laterally or vertically within a firm. By implementing knowledge management processes as part of daily business activities, organizations can confidently compete and sustain in the competitive markets (Daud and Yusuf, 2008).Sangari, Hosnavi, & Zahedi, (2015)results also showed that knowledge management processes have a significant impact on supply chain performance. Considering the theoretical underpinning and the empirical support, the study predicts that learning processes will have a positive effect on competitive advantage of state corporations.

H₀₂: There is no relationship between learning processes and competitive advantage of state corporations in Kenya.

H_{a2}: There is a relationship between learning processes and competitive advantage of state corporations in Kenya.

2.3.3. Systems Thinking and Competitive Advantage

Senge (2006) made his contribution to organizational learning theory through his concept of Systems Thinking, which is viewed

as an ability to discover structural causes of behavior and it is necessary for sustaining generative learning which is a foundation for people’s creativity. Systems Thinking focuses on interrelationships between parts of an organization and emphasizes the importance of recognizing the effects of one level of learning on another. It shows the interrelated patterns within a business and enables people to see the whole organization instead of focusing only on the parts. Using a more holistic perspective, systems thinking helps people to solve problems with a context of a larger scenario instead of fixing the problem as a discrete activity. According to Prugsamatz, (2010), Systems thinking provides a means of understanding systems at a deeper level in order to see the paths available to bring about changes more effectively. A systems thinker is able to understand the interrelationship of activities happening inside the organization

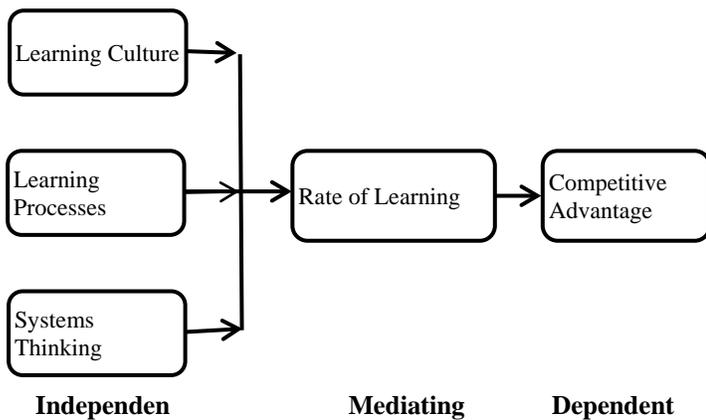


Figure 1: Conceptual Model of The Study
(Akhtar et al., 2013).

Empirical results show that systems thinking tends to have a positive effect of performance and competitiveness of petroleum industry firms (Akhtar et al., 2013). systems thinking can be taught, and as such, it should become a requirement for all employees to acquire for better coping with constant changes (Cooper, 2005). Systems thinking produces major impacts on organizational learning and change (Fullan, 2004). In fact, Kumar et al. (2005, p. 267) emphasizes that an individual must utilize systems thinking to become a decision-maker. Some organizations provide systems thinking training for their staff to improve the quality of their performance (Martin, 2005; Seligman, 2005). Kim, Akbar, Tzokas, & Al-Dajani, (2013) Found that systems thinking had a positive effect in the absorptive capacity (ACAP) of high-tech small and medium-sized enterprises from South Korea which and an overall impact on firm performance. They found that firms outperforming others in their ACAP also showed a clear element of systems thinking, which was strongly associated with ACAP. Even though studies have alluded to its importance while discussing the organizational competencies necessary for competitiveness, systems thinking has not received significant attention. This study will assess the role of systems thinking in achieving competitive advantage.

H₀₃: There is no relationship between systems thinking and competitive advantage of state corporations in Kenya.

H_{a3}: There is a relationship between systems thinking and competitive advantage of state corporations in Kenya.

2.3.4. Mediating Effect of Rate of Learning

Organizational learning is essential in today’s dynamic and discontinuous environment of change. Organizational learning has gained prominence among researchers as a crucial determinant of performance and the only true sustained competitive advantage that an organization can have, (Linz & Resch, 2010; Salmador&Florin, 2012). A learning organization is seen to be an organization, which is ‘skilled at creating, acquiring, and transferring knowledge, and at modifying behavior to reflect new knowledge and insights.’ Learning happens when errors are detected and corrected, and practices changed within the organization, (Peeters& Robinson, 2015; Witherspoon, 2014). The rate of learning refers to the frequency at which the organization is taking decisions to align to reflect new knowledge and insights. Single-loop learning involves detecting and correcting “errors” so that an organization can carry on or achieve its present policies or objectives in more efficient ways. This study will look at behavior modification at two levels: Single loop learning, which occurs when the mismatch gets corrected by altering behavior or actions and double loop learning, which happens when the organizations change their underlying values and adopts new actions, (Mitchell et al., 2012). Single loop is about efficiency and answers the question, are we doing things right? In single-loop learning, outcomes are measured against organizational norms and expectations (Peeters& Robinson, 2015). The overwhelming amount of learning is single-loop because organizations are designed to identify and correct errors, (Witherspoon, 2014). On the other hand, double loop is concerned with effectiveness and answers the question, are we doing the right things? Rate of learning is predicted to be higher among organizations that have entrenched a strong learning culture. The rate at which organizations apply both single-loop and double-loop learning are expected positively to mediate the relationship between the combined effect of the independent variables and competitive advantage, (Peeters& Robinson, 2015).

Even though empirical studies have had limited focus in assessing the rate of learning in organizations, various authors have conducted useful studies in laying the foundation. Most research has focused on the determinants of learning performance. Sorenson (2003) found that interdependence engendered by vertical integration slowed the rate of learning in firms in stable environments and speeded learning in volatile environments. Lieberman (1984) found that investment in Research and Development increased the rate of learning among firms in the chemical processing industry. Similarly, Sinclair, Klepper, and Cohen (2000) found that Research and Development contributed to the productivity gains observed in a chemical firm. Social capital is an important factor that affects the organizational learning performance (Wu, Ay, & Lien, 2009). Limited research has assessed the contribution of learning to competitive advantage. Based on findings from self-regulated learning research that control of learning and learning orientation

are positively related to learning performance (Boekaerts&Corno, 2005),

H₀₅: There is no mediating role of rate of learning competitive advantage of state corporations in Kenya.

H_{a5}: There is a mediating role of rate of learning on competitive advantage of state corporations in Kenya.

Following the literature reviewed and the propositions by theoretical models, the study’s conceptual framework proposes three independent variables affecting competitive advantage through the mediation role of rate of learning.

III. RESEARCH METHODS

3.1. Research Design

The study employed a descriptive and cross-sectional research design to address the research questions. Descriptive designs help determine the way things are with the subjects by providing answers to the questions of who, what, when, where, and how associated with a particular research (Cooper & Schindler, 2008; Saunders et al., 2015). To evaluate the relationships between the intent variables and competitive advantage, the study employed a correlational design. This type of design is recommended and has been used by various authors to determine whether or not variables are correlated by studying the joint variation of the hypothesized relationships, (Džini, 2015; Reich, Gemino, & Sauer, 2014; Saunders et al., 2015).

3.2. Target Population and Sample

The study population comprised of all 139 state corporations operating in Kenya as identified by that state corporations’ advisory committee (SCAC). The SCAC is the official body mandated to advise on all matters pertaining state corporations as mandated by section 27 of the State Corporations Act, Chapter 446, (Government of Kenya, 2012, 2015). From the list of 139 state corporations, 53 fulfilled the selection criteria (operating in a competitive landscape, selling goods or services to the Kenyan public, and mandated to make profits or surplus). Sample size determination formula by Cochran (1977), and procedures for categorical data was used to calculate a sample size of 40 state corporation. Table 3.1 shows the population, sampled organizations and number of staff targeted by sector. Three staff were targeted from every state corporation including one senior manager, one middle level manager and one non-management staff.

Table 1: Population and Sample

Sector	Population	Sample	Staff
Finance	9	7	42
Tertiary Education and Training	5	4	24
Public Universities	7	5	30
Commercial and Manufacturing	32	24	144
Total	53	40	240

3.3. Data Collection Instruments

Three instruments were used to collect data from the study respondents. These included semi-structured questionnaire, qualitative interview guide, and records review were used. A semi-structured questionnaire gathered data on the dependent variable (competitive advantage), independent variables (learning culture, learning processes and systems thinking). The qualitative interview gathered in-depth information from the 16 employees on the existing leadership and management practices and their implication for organizational culture, learning performance and competitive advantage within state corporations. Corporation records including fiscal year audited reports of 2013, 2014 and 2015 and organization’s annual progress reports. These documents helped to provide additional triangulation information on profitability and sales growth as well as to assess the performance trends of the state corporations.

3.4. Statistical Measurement Models

Pearson’s correlation analysis was used to assess linear relationships between the independent variables and competitive advantage Saunders, Lewis, & Thornhill., (2015). To examining the effect of organizational learning on competitive advantage, step-wise multiple regression models which is commonly used to measure the linear relationship that exists between variables was used (Kanji, 2006). The study employed structural equation modeling (SEM) to further test the mediating effects of rate of learning in the relationship between each of the independent variables and competitive advantage. SEM included confirmatory factor analysis and a series of multiple regression to test the theory (Kothari, 2004). For the structural equation model, the study examined two level of analysis – the measurement model and the structure model using Statistical Package for Social Scientists (SPSS) and Amos.

3.5. Measures

The study drew items from different studies from the literature review to measure the constructs. Learning culture was based on items adopted from Dimensions of Learning Organizations Questionnaire (DLOQ) by Leufvén, Vitrakoti, Bergström, Ashish, & Målqvist, (2015) and Learning Organization Questionnaire by Garvin et al., (2008). Eleven items were used to measure the organizational learning culture. The items comprised of four components namely open communication practices, learning practices, staff empowerment and supporting staff development. These items were measured on a five-point likert-type scale to permit the measurement of the dependent variable at the interval scale, (Leedy and Ormrod, 2001). The study adapted scales from various researcher to design the learning processes variable (Donate & Sánchez de Pablo, 2015; Garvin et al., 2008; María Martínez-León & Martínez-García, 2011). The final scale comprised of 11 items assessing processes for generating, collecting, interpreting, and disseminating information; experimenting with new offerings; identifying and solving problems and developing employee knowledge, skills and attitude. Systems thinking refers to people’s capacity to examine a problem in the full setting of the interconnecting elements. Systems thinking was adapted from the DLOQ and the study questionnaire by, (Bess, Perkins, & McCown, 2011). Five items were used to measure systems thinking using a five-point Likert scale. The items included organization’s practices to promote

external alignment and practices to promote internal alignment. To examine the rate of learning, the study build on the work of Andreou, Louca, & Petrou, (2016), who measured learning performance by looking at the mode of diversification as an indicator of resource relatedness; internal growth versus acquisition and Witherspoon (2014) who assessed double loop and single loop learning in the various organization. Therefore, sub-variables used to measure rate of learning considered the frequency with which an organization closed feedback loops using insights and knowledge gained from formal and informal feedback processes. Categories of actions and decisions included selling products and services more efficiently, using alternative approaches to offer same products and services, modifying rules and policies, creative and innovative products and services and changing customer or client base. Similar to previous studies, competitive advantage was measured by assessing profitability, sales growth, and market share and customer satisfaction, (Hardeep & Bakshi, 2014; Porter, 2008). The study used a sale comprised of 6 items to measure competitive advantage through a likert type scale.

IV. RESULTS AND DISCUSSION

4.1 Response Rate

Data was collected from state corporations in Kenya which are registered under the state corporations’ advisory committee. Even though the study sample comprised of 240 staff from 40 state corporations, only 198 (83%) staff from 35 (88%) state corporations responded to the study. The high response rate was due to the structured follow-up visits by the trained research team.

Table 2: Response Rate

Sector	Sample	Actual	Response Rate
Finance	7	7	100%
Tertiary Education and Training	4	4	100%
Public Universities	5	5	100%
Commercial and Manufacturing	24	19	79%
Total	40	35	88%

4.2 Background Information

4.2.1 Respondent Background Information

A simple majority of the gender were female 52.5% as shown in table 4.2. This distribution depicts a fair balance of gender in the sampled state corporations. Considering that majority of the responses are perceptual in nature, this kind of distribution helps to accommodate opinions and views from either gender. On another note, this balance in gender in state corporations’ points to the progress achieved by the ongoing efforts in Kenya’s public service to mainstream gender in response to the constitutional threshold on gender. Majority of the respondents (64.1%) indicated that they had at least a degree level of education while a relatively high percentage (42.4%) possessed a higher degree at postgraduate level. This was expected due to high levels of tertiary education in the country and 62% of respondent were

middle or senior managers who require higher academic qualifications.

Table 3: Summary of student demographics

	Frequency	Percent
<i>Gender</i>		
Male	94	47.5
Female	104	52.5
Total	198	100.0
<i>Respondent Job Level</i>		
Senior Manager	22	11.1
Middle-level Management	101	51.0
Non-Management staff	75	37.9
Total	198	100.0
<i>Department or unit</i>		
Production/Services	46	23.2
Purchasing	20	10.1
Human Resource Management	54	27.3
Research and Development	21	10.6
Marketing (Including the selling function)	15	7.6
Accounting and Finance	42	21.2
Total	198	100.0

Majority of the respondents were middle-level managers (51%) and the least were senior managers (11%). This distribution shows the staffing situation in state corporations and is very important because it shows that the span of control within the firms allowed approximately 4 middle managers per senior manager in the targeted departments. Additionally, learning occurs at all levels of the organizations hence it is important to capture opinions and facts from all key staffing categories. Furthermore, over-reliance on the opinion of senior managers was noted in the literature as a limitation of most organizational learning studies. High responses were received from the 36-45 and 26-35 age brackets giving 33.33% and 28.8% respectively. The mean age was 39.6 years with a standard deviation of 10.9 years. These results are consistent with the fact that majority of the respondents were middle managers and the non-management staff whose age ranged from 25-45 years. This is a common phenomenon in organizations where employees climb up the professional ladder with time hence the length of service often reflect a growth in job-levels. Lastly, these results also demonstrate that the workforce in the public service is young which aligns to the country’s population dynamic that is dominated by a young working population aged 25-45.

In an effort to determine the length of years of employees, majority of the respondents (78.8%) had worked in the organization for less than 11 years with 60% having worked for five years or less. The mean years of service for the employees was 7.3 with a standard deviation of 7.6 years. This shows a sufficient diversity of experience to allow for analysis of the study variables. At the same time, these results show that majority of the staff were hired in their current organizations or roles within the past ten years which is also around the same time that organizational learning and the knowledge economy became

a ‘household’ concepts in state corporations in Kenya and also Kenya was launching its economic transformation blue print, Vision 2030(Government of Kenya, 2007). State corporations typically consist of a number of departments or functions and organizational learning may be more pronounced in some departments than others for various contextual reasons. With this background, the study was keen to identify the departments in which the respondents worked. Majority of the respondents were from Human resources (27%), and the production departments (23%). Cumulatively, departments dealing with the core business including production, service, purchasing, research and development and marketing were 51% while those associated with support functions including accounting, finance and human resources were 49%. This departmental diversity accords the study an opportunity to assess the role of some organizational learning variables like systems thinking which partly looks at relationships between various departments in the organization.

4.2.2 Background of State Corporations

Majority (54%) of the sectors were classified as commercial and manufacturing while 24% were from either training, tertiary education or public universities. The finance sector was represented by 20% of the sample state corporations. The high proportion of the manufacturing industry was expected and planned during sample selection since they form the highest proportion of state corporations. The representation from all key sectors that met the selection criterion is key in assessing differences within sectors.

Table 4: Sectors of state corporations

Sector	Frequency	Percent
Finance	7	20%
Tertiary Education and Training	4	11%
Public Universities	5	14%
Commercial and Manufacturing	19	54%
Total	35	100%

4.3 Descriptive Statistics Results

4.3.1 Organizational Culture in State Corporations

The study sought to find out the extent to which the state corporations nurtured and promoted a culture that reinforced learning at departmental level. To achieve this objective, the study used Likert Scale with six constructs including open discussion of mistakes, honest feedback, reward to innovation, access to information, recognition of performance and learning opportunities. Majority (63%) of the respondents were of the view that the culture within their departments supported learning and learning opportunities. These high scores were noted particularly in open discussions of mistakes (68.2%), giving of open feedback (71.7%) and ready access to information (69.2%). However, when it comes to rewards, only 45% of the respondents said that in their departments people are rewarded for exploring new ways of working. Similarly, there were low score for support to requests for learning opportunities and training as well recognition of people for taking initiative. This shows that even though majority of the state corporations supports a learning culture, they do not resource it by rewarding innovative thinking and practice.

4.3.2 Learning Processes

In an effort to assess the learning processes within state corporations, the study analyzed at 11 constructs. At least 61% of the respondent agreed or strongly agreed that learning processes were implemented within their state corporations. Despite this appreciation of the learning processes within their institutions, it was clear that learning processes associated with training were weak within state corporations. There were 44% of respondents who indicated that experienced employees were provided with training when switching to new positions. This has been attributed to the fact that they are seen or considered to know their work hence limited investment in their knowledge and skills. In addition to the weak training systems, there were limited mechanisms within the organization to guarantee sharing of emerging, good, and best practices across departments which essentially compromised inter-departmental learning within the state corporations. Other areas that employees scored low included seeking out dissenting views during discussions (57%), revisiting well-established perspectives during discussions (58%), and employees joining formal or informal networks made up of people from outside the organization (58%).

4.3.3 Systems Thinking

The study also sought the extent to which state corporation applied systems thinking practices within their organizations. Results showed that on average, 64.5% of the respondent felt that their organizations adopted systems thinking practices. Specifically, majority (71.7%) felt that their leaders ensured that the organization’s actions were consistent with its values and the organization worked together with the outside stakeholders to meet mutual needs (70.7%). These were fairly high scores for systems thinking and can be partly explained by the nature of state corporations and Government policy and bureaucracy which largely requires that that the state corporations conduct elaborate stakeholder consultations as part of their decision-making process. On the other hand, a smaller percentage of respondents (55.6%) felt that their organizations considered the impact of decisions on employee morale and encourages people to get answers from other departments and staff when solving problems (59%).

4.3.4 Rate of learning

In order to establish level performance within state corporations, the study focused on establishing the frequency with which state corporations acted on feedback from formal and informal sources including staff, customers and others stakeholders. Particularly, the study was interested in capturing and handling of suggestions associated with changes in strategies and methods, requests to offer different products, modification to policies or procedures and reaching a different set of clients or customers. Table 4.17 shows the descriptive statistics for frequency of learning which indicate that average frequency of learning, measured by the number of learning action taken over the past year was 14.28 (SD = 3.85). The state corporations that reported the least number of learning actions had four while the highest had 24 making a range of 20. As expected there were higher rates of learning for the single loop when compared to double loop.

Table 5: Percentage statistics for frequency of learning

Used feedback to take action or decide on:	Frequency of learning per year				Total
	0 / 1	2/ 3	4/5	6+	
Use alternative methods/strategies to offer same products or services.	1%	22%	59%	18%	100%
Start offering more creative and innovative products or services	2%	23%	60%	15%	100%
Modify our policies or procedures to help us offer better products or services	14%	52%	30%	4%	100%
Decide or take action to reach a different client or customer base	12%	46%	37%	6%	100%
Average	7%	36%	46%	11%	100%

4.4 Factor Analysis

4.4.1 Normality of the Dependent Variable

To assess the assumption of normality of the dependent variable, the study employed various normality tests. These included the observation of histogram, normal probability plot and statistical test using the Shapiro-Wilki test. The study further employed the Shapiro-Wilk Test for normality (Conover, 1999). The test is commonly used by statisticians and is typically tested at the $\alpha = .005$ level of significance. The Shapiro-Wilks Test is a statistical test of the hypothesis that sample data have been drawn from a normally distributed population (Conover, 1999; Shapiro and Wilk, 1965; Royston, 1995). The formula for the test is as follows: Table 4.17 shows the Shapiro-Wilk results obtained by this test for the dependent variable, competitive advantage. The null-hypothesis of the Shapiro-Wilki test is that the population is normally distributed. Thus, if the p-value is less than the chosen alpha level, then the null hypothesis is rejected and there is evidence that the data tested are not from a normally distributed population; in other words, the data are not normal. On the contrary, if the p-value is greater than the chosen alpha level, then the null hypothesis that the data came from a normally distributed population cannot be rejected (e.g., for an alpha level of 0.05, a data set with a p-value of 0.02 rejects the null hypothesis that the data are from a normally distributed population). Given that p-value was 0.128 for competitive advantage which is greater than the α of 0.05, the null hypothesis was accepted and the study concluded that the samples were drawn came from a normally distributed population. Table xxx shows the results of the Shapiro-Wilki test. However, considering that the Shapiro-Wilki test is biased by sample size, the test may be statistically significant from a normal distribution in any large samples the study used a normal probability plot (Q-Q plot) for further verification of the normality assumption. In a Q-Q plot, each observed variable is paired with its expected value from the normal distribution. If the sample is from a normal distribution, then the cases are expected to fall more or less in a straight line. Figure 4.7 shows that the cases fall more or less in a straight line indicating that the sample was from a normal distribution.

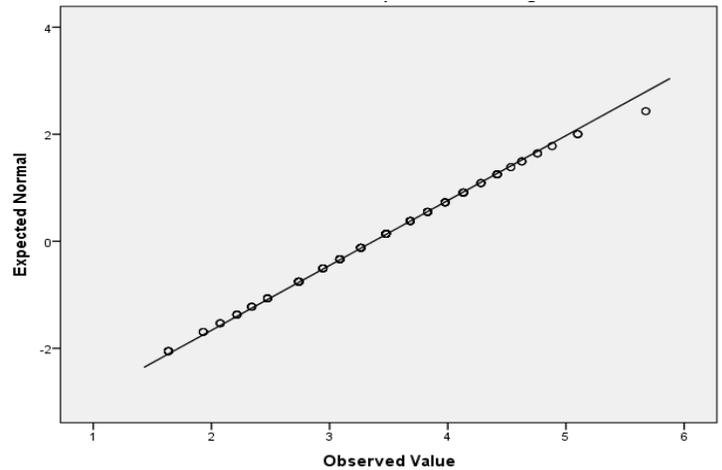


Figure 1: Q-Q plot for dependent variable

4.4.2 Reliability and Validity Analysis

In order to conduct analysis through structural equation modeling (SEM) for the purpose of testing the model, the study conducted a series of tests were run on the variables to improve the reliability of the various constructs. Using SPSS version 21, the study employed Cronbach's Coefficient Alpha to test for internal consistency of the constructs within the six variables of study. The data on each of the variables were separately analyzed based on the values of coefficient of reliability and item total correlation as shown in table 4.22. For the purpose of analysis, each variable was abbreviated as follows: Competitive Advantage (CompAd.); Learning Culture (LearnC.); Learning Processes (LearnP.); and Systems Thinking (SyThink.). Items under variable were numbered accordingly. Since the coefficient alpha of individual scales indicated that the reliability estimate of items Lead.1, LearnP.8, LearnP.10, and LearnP.13 were marginal, a secondary analysis was conducted by dropping these items. The reliability estimates and item-total correlations of the remaining items under learning process improved after dropping these items. The researchers decided to delete items Lead.1, LearnP.8, LearnP.10, and LearnP.13 to enhance Cronbach's coefficients. Table 4.18 shows a summary of the Cronbach's alpha coefficient for each of the variables. After the deletion process, all the four independent variables and dependent variable registered an acceptable Cronbach's alpha coefficient of above 0.7. This is line with findings by Saunders Lewis and Thornhill (2009) and Christensen, Johnson and Turner (2011) who noted that scales of 0.7 and higher, suggest satisfactory reliability. The study concluded that the constructs measuring learning culture for this study had sufficient internal consistency and hence, reliable for the analysis of learning culture as an independent variable.

4.4.3 Sampling Adequacy

To examine whether the data collected was adequate for statistical tests such as factor analysis, the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Barlett's Test of Sphericity were performed on all the study variables. For a data set to be regarded as adequate and appropriate for statistical analysis, the value of KMO should be greater than 0.5 (Field, 2000). Results from table xxx the study found that all the KMO coefficients were above the critical level suggested of 0.5 as

noted by Field, (2009). Similarly, all the results of the Bartlett's Test of Sphericity were highly significant ($p < 0.05$). These two results confirm that the variable was suitable for analysis.

Table 6: Summary KMO and Bartlett's Chi-Square Tests for Sampling Adequacy

Variable Name	KMO	Bartlett's Chi-Square	Df	Sig.
Learning Culture	0.728	236.591	15.000	0.000
Learning Processes	0.848	685.511	55.000	0.000
Systems Thinking	0.823	391.985	10.000	0.000
Rate of Learning	0.671	246.960	6.000	0.000
Competitive Advantage	0.860	567.388	15.000	0.000

4.5 Inferential Analysis and Hypothesis Testing

Hypothesis associated with the relationship between the independent variables and the depending variable were done through linear regression analysis using SPSS version 21 software.

4.5.1 Effect of Learning Culture on Competitive Advantage

The study sought to test the following hypotheses in assessing the effects of learning culture on competitive advantage.

H_{01} : There exists no relationship between learning culture and the competitive advantage of State Corporations in Kenya

H_{a1} : There exists a relationship between learning culture and the competitive advantage of State Corporations in Kenya

First, the study conducted a bivariate Pearson Correlation analysis to determine the linear relationship between learning culture and competitive advantage. The results showed that learning culture and competitive advantage were significantly correlated, $r = .475$, $p < .05$. The magnitude, or strength, of the association is moderate ($.3 < |r| < .5$). After confirming a positive and significant linear relationship between learning culture and competitive advantage, the study went ahead to employed linear regression analysis using SPSS to assess if the learning culture significantly predicted competitive advantage of state corporations. From Table 4.25, the results of the regression indicated that learning culture explained 94.9% the variance ($R^2 = .38$, $F(1,197) = 120.06$, $p < .000$). For regression through the origin (the no-intercept model), R Square measures the proportion of the variability in the dependent variable about the origin explained by regression. The model used had an R square value of 0.38 thus indicating that the model accounted for 38% of the change in the dependent variable, competitive advantage, for every change in the independent variable, learning culture. This is a strong prediction model for the intended analysis. Using the coefficients model, the results showed learning culture was significantly associated with competitive advantage ($p < .000$). Therefore, the study rejected the Null hypothesis and concluded that there exists a relationship between learning culture and the competitive advantage of State Corporations in Kenya. Based on these results, for every one unit change in learning culture, a corresponding change of .945 units occurred in the competitive advantage of state corporations. The findings suggest that state corporations with a high levels of learning culture have higher

chances gaining competitive advantage over their counterparts that have lower levels of learning culture.

4.5.2 Effectiveness of Learning Processes on Competitive Advantage

The study sought to test the following hypotheses in assessing the effects of learning processes on competitive advantage.

H_{02} : There is no relationship between learning processes and competitive advantage of State Corporations in Kenya.

H_{a2} : There is a relationship between learning processes and competitive advantage of State Corporations in Kenya.

Bivariate Pearson correlation analysis to determine the linear relationship between learning processes and competitive advantage established that learning processes and competitive advantage had a statistically significant positive linear relationship, $r = .683$, $p < .001$. The direction of the association suggests that a higher measure of learning processes score is associated with greater competitive advantage score. The strength of the association was high ($.5 < |r| < 1$). A simple linear regression was calculated to predict the influence of learning processes on competitive advantage of state corporations. From Table 4.29, the results of the regression indicated that a significant regression equation was found ($F(1,197) = 155.22$, $p < .05$) with an R^2 of .442. For the no-intercept model, R Square measures the proportion of the variability in the dependent variable about the origin explained by regression. The model had an R square value of 0.442 thus indicating that the model accounted for 44.2% of the change in the depending variable, competitive advantage, for every change in the independent variable, learning culture. This is a strong prediction model for the intended analysis. The results showed that $Y = .385(LP) + e$ where Y is the dependent variable (competitive advantage), LP is the dependent variable (Learning Processes) and e is the error term. Therefore, the study rejected the null hypothesis and concluded that there exists a relationship between learning processes and competitive advantage of state corporations in Kenya. The means that competitive advantage of state corporations increased by .385 units for each unit increase in learning processes. The independent variable, Learning Processes, was a significant predictor of competitive advantage, $p < .05$.

4.5.3 Effect of Systems Thinking on Competitive Advantage

The study sought to test the following hypotheses in assessing the effects of systems thinking on competitive advantage.

H_{03} : There is no relationship between systems thinking and competitive advantage of State Corporations in Kenya.

H_{a3} : There is a relationship between systems thinking and competitive advantage of State Corporations in Kenya.

Bivariate Pearson correlation analysis to determine the linear relationship between systems thinking and competitive advantage established that systems thinking and competitive advantage had a statistically significant positive linear relationship, $r = .631$, $p < .001$. The direction of the association suggests that a higher measure of learning processes score is associated with greater competitive advantage score. The strength of the association was

high ($.5 < |r| < 1$). A simple linear regression was calculated to predict the influence of systems thinking on competitive advantage of state corporations. From Table 4.31, the results of the regression indicated that a significant regression equation was found ($F(1,197)= 108.41, p<.000$) with an R^2 of .356. For the no-intercept model, R Square measures the proportion of the variability in the dependent variable about the origin explained by regression. The model had an R square value of 0.961 thus indicating that the model accounted for 35.6% of the change in the depending variable, competitive advantage, for every change in the independent variable, learning culture. This is a strong prediction model for the intended analysis. The results showed that $Y = .470(LP) + e$ where Y is the dependent variable (competitive advantage), LP is the dependent variable (Learning Processes) and e is the error term. Therefore, the study rejected the null hypothesis and concluded that there exists a relationship between systems thinking and competitive advantage of state corporations in Kenya. The means that competitive advantage of state corporations increased by .470 units for each unit increase in systems thinking. The independent variable, Learning Processes, was a significant predictor of competitive advantage, $p<.05$.

4.5.4 Multivariate Linear Regression Analysis for Competitive Advantage

A multiple linear regression analysis was used to model the relationship between all independent variables and competitive advantage that were found significant in simple linear regression stage. A multiple regression was calculated to predict competitive advantage of state corporations based on three independent variables namely: learning culture (LC), learning processes (LP) and systems thinking (ST). From Table 4.5, the results of the regression indicated that a significant regression equation was found ($F(3,194)= 68.661, p<.05$) with an R^2 of .515. In this model, the R Square measures the proportion of the variability in the dependent variables about the origin explained by regression. The model had an R square value of 0.515 thus indicating that 51.5% of the change in the depending variable, competitive advantage, was accounted for by the changes in the independent variables. The results showed that $Y = .170(LC) + .200(LP) +.187(ST) + e$ where Y is the dependent variable (competitive advantage), LC is rate of learning, LP is learning processes, and ST is systems thinking and e is the error term. Competitive advantage increased 0.170 for each unit of learning culture, 0.200 for each unit of learning processes, and 0.187 for each unit of systems thinking. The independent variables, rate learning culture ($P<0.003$), learning processes ($P<0.000$) and systems thinking ($P< 0.001$) were all significant predictors of competitive advantage at $p<0.005$.

Table 7: Coefficients Table for Learning Culture and competitive advantage

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	1.596	.131		12.213	.000		
Learning culture	.170	.053	.233	3.192	.002	.471	2.125

Learning Processes	.200	.045	.346	4.451	.000	.413	2.419
Systems Thinking	.187	.053	.237	3.515	.001	.550	1.818

4.5.5 Mediating Role of Rate of Learning

Mediating Role of Rate of Learning on the Relationship Between Systems Thinking and Competitive Advantage

The study sought to test the following null hypothesis:

Ho5a: There is no mediating role of rate of learning on the relationship between systems thinking and competitive advantage of State Corporations in Kenya.

Using the no directs model, the study fit a ‘systems thinking’ model by adding a path from systems thinking to competitive advantage. This model exhibited satisfactory fit indices [$X^2(19)=56.590, p<0.01$; GFI=0.942; CFI=0.954; RMSEA=0.100]. The fit indices were an improvement to the ‘no direct’ model [$X^2(20) = 83.062, p < 0.01$; GFI = 0.922; CFI = 0.923; RMSEA = 0.127]. This implies that the direct effect of systems thinking to competitive advantage was significant and in deed it was significant ($\beta_{yx.m} = 0.384, p<0.05$). Similarly, the indirect effect of systems thinking to competitive advantage via rate of learning was significant (Sobel=2.192, SE=0.036, $p<0.05$). The indirect effect was further tested using a bootstrap estimation approach with 2000 samples (Shrout& Bolger, 2002). These results indicated the indirect coefficient was significant, ($\beta = .078, SE = .041, p<.05$). The indirect (mediated) effect of systems thinking on competitive advantage was .078. That is, due to the indirect (mediated) effect of systems thinking on competitive advantage, when systems thinking goes up by 1 unit, competitive advantage goes up by 0.078. This is in addition to any direct (unmediated) effect that systems thinking may have on competitive advantage. Table xxx shows the boot strapping results confirming the partial mediation role of rate on learning in the relationship between systems thinking and competitive advantage. In summary, the results how that indirect effect of systems thinking to competitive advantage via rate of learning was significant showing the presence of mediational relationship. Furthermore, the direct $X \rightarrow Y$ relationship were also significant. These results demonstrate that rate of learning partially mediates the effect of systems thinking on competitive advantage of state corporations ($p < 0.05$). These results suggest that systems thinking predict competitive advantage, and it does so by strengthening rate of learning within the state corporation.

Mediating Role of Rate of Learning in the Relationship Between Learning Processes and Competitive Advantage

The study tested the following null hypothesis by fitting a ‘learning process’ model by adding a path from learning processes to competitive advantage to the ‘no direct’ model.

Ho5c: There is no mediating role of rate of learning on the relationship between learning processes and competitive advantage of State Corporations in Kenya.

This model exhibited satisfactory fit indices [$X^2(19)=33.823, n.s$; GFI=0.964; CFI=0.982; RMSEA=0.063]. The fit indices were a large improvement to the ‘no direct’ model [$X^2(20) = 83.062, p$

< 0.01; GFI = 0.922; CFI = 0.923; RMSEA = 0.127]. This implies that the direct effect of learning processes to competitive advantage was significant and indeed it was ($\beta_{yx.m} = 0.287$, $p < 0.05$). The indirect effect of learning processes to competitive advantage via rate of learning was not significant (Sobel=1.586, SE=0.022, P=0.113 n.s).The indirect effect was further tested using a bootstrap estimation approach with 2000 samples (Shrout& Bolger, 2002) and the results affirmed that the indirect effects were not significant ($\beta = .035$, SE = .023, n.s). This shows that the mediated effect of learning process on competitive advantage was 0.035. That is, due to the mediated effect of learning process on competitive advantage, when learning process goes up by 1 unit, competitive advantage goes up by 0.035. This is in addition to any direct (unmediated) effect that learning process may have on competitive advantage. A further test of significance using bootstrapping technique with 2000 samples showed that the mediation effect was significant ($P < 0.1$). In summary, the both the direct effect ($\beta_{yx.m}$) and the indirect effect (β_{mx_bym}) were significant leading to the rejection of the null hypothesis, therefore concluding that learning performance partially mediates the effect of learning processes on competitive advantage of state corporations ($p < 0.10$).

Table 8: Test of significance of direct and indirect effects

Relationship	Direct	Indirect	Comment
OLP→LP→CA	0.287**	0.035*	Partial Mediation

*= $P < 0.1$; **= $P < 0.05$

Mediating Role of Rate of Learning on the Relationship Between Learning Culture and Competitive Advantage

The study tested the following null hypothesis by fitting a 'learning culture' model by adding a path from learning processes to competitive advantage to the 'no direct' model.

Ho5d: There is no mediating role of rate of learning on the relationship between learning culture and competitive advantage of state corporations in Kenya.

This model exhibited satisfactory fit indices [$X^2(19)=42.652$, n.s.; GFI=0.956; CFI=0.971; RMSEA=0.079]. The fit indices were an improvement to the 'no direct' model [$X^2(20) = 83.062$, $p < 0.01$; GFI = 0.922; CFI = 0.923; RMSEA = 0.127] suggesting that the direct effect of 'learning culture' to competitive advantage was significant and in deed it was significant ($\beta_{yx.m} = 0.318$, $p < 0.05$). On the contrary, the indirect effect of learning culture to competitive advantage via rate of learning was not significant (Sobel=0.200, SE=0.031, n.s.).The study further tested these indirect effects using boot strapping and confirmed that effects of learning processes to competitive advantage through rate of learning was not significant in this model ($\beta = .008$, SE = .031, 95%, n.s.). These results indicate that there was no mediating role of learning culture and competitive advantage of state corporations. Table xxx presents the boot strapping results testing the full mediation role of rate of learning on the relationship between learning process and competitive advantage.

Organizational learning, Rate of Learning and Competitive Advantage

Lastly, the study tested the following null hypothesis by fitting a 'Overall model' model that had all the independent variables leading to the independent and mediating variable. The models exhibited excellent fit indices [$X^2(16)=15.55$, n.s; GFI=0.983; CFI=1.00; RMSEA=0.000] that were an improvement over the no direct model [$X^2(20) = 83.062$, $p < 0.01$; GFI = 0.908; CFI = 0.923; RMSEA = 0.127]. Table 4.45 shows that the direct and indirect results form systems thinking were significant which is consistent with a partial mediation hypotheses. On the contrary, even though the direct effects of learning culture were significant, the indirect effects were not significant showing that there was no mediation.

Table 9: Bootstrapping for the overall mediation model

	P value	Direct	P value	Indirect	P value	Mediation
ST	.001	.164	.026	.068	.002	PM
LP	.001	.268	.003	.051	.029	PM
LC	.002	.188	.005	.016	.390	NM

Key: PM = Partial Mediation; NM = No Mediation

The study concluded that rate of learning partially mediating the relationship between systems thinking and competitive advantage and between learning processes and competitive advantage. The results also confirmed that there was no mediation role of rate of learning on the relationship learning culture and competitive advantage. In summary, the series of model tests illustrated the chain of evidence required for different types of intervening effects in a multivariate situation. In summary, the results above have shown the type of mediating effects that rate of learning has on the relationship between the antecedents and competitive advantage. Systems thinking and learning processes were partially mediated by rate of learning. No mediation existed in the relationship between learning culture and competitive advantage.

4.6 Summary of major findings

4.6.1 Effect of learning culture on competitive advantage of state corporations

Linear regression results revealed that the independent variable learning culture had a significant and positive influence on the competitive advantage of state corporations. This influence remained positive and significant in a multiple regression analysis showing that learning culture played a significant role with the three other variables in influencing competitive advantage. These results are consistent with (Weihong et al., 2008) who found that openness of the organizational culture and the organizational learning capability has a significant impact on the enterprise sustainable competitive advantage. Similarly, the result are supported by (Gbenro&Agboola, 2015) whose study found trust was an important aspect of organizations that predicted the willingness of worker to share and use tacit knowledge and (Sanz-Valle et al., 2011) who found that organizational culture can foster both organizational learning and technical innovation. The study found that organizations that consistently possessed the attributes of a learning culture were

also these that scored highly on the competitive advantage scale. The degree of tolerance towards adventurous spirit, democratic participation and innovation activities, which drive organizations to accept new things, discover new needs better and faster, then make a first-mover advantage strategy is positively associated with competitive advantage. Therefore, leaders of state corporations should nurture and build organizational culture that encourages people to openly discuss mistakes to learn from them, and give and receive open and honest feedback. Additionally, they should develop a reward system that recognizes individuals and team who take initiative and exploring new ways of working. Lastly, they should nurture a culture of learning and efficiently resource training of staff.

4.6.2 Effectiveness of learning processes in fostering competitive advantage

In determining the effectiveness of learning processes in fostering competitive advantage, the study found that a positive and significant relationship existed in both single and multiple linear regression analysis. In fact, learning process had the highest strength of association to the competitive advantage compared to the other three independent variables. This affirms the positive and significant role that concrete learning processes play in influencing the performance and competitive advantage of state corporations. Similar to the result of Garvin et al. (2008), this found that for organizations to learn effectively and attain the desired competitive advantage, they need to have more effective and comprehensive knowledge management processes than their competitors. When an organization masters the processes and practices of generation, collection, interpretation, and dissemination of information, to sets itself up for successful competition. Encouraging employees to join formal or informal networks made up of people from outside the organization ensures that there is continuous generation of information within and outside the organization and helps create forums for meeting with and learning from experts from outside the organization. Interpretation of information is essential and this can be achieved by the conduct of regular post-audits, after-action reviews as well as executing formal mechanisms for sharing of best practices among the different activity fields. The organizations need to engage in productive conflict and debate during discussions and intentionally seek out dissenting views during discussions. Organizations also need to revisits well-established perspectives during discussions, identifies and discusses underlying assumptions that might affect key decisions. Most importantly, organizations should pay attention to and act on different views during discussions since they offer opportunity for new learning.

The results of the study emphasized the importance state corporations to have concrete formal processes for generating, collecting, interpreting, and disseminating information. As Garvin et al., (2008) pointed out, concrete learning processes and practices ensures that the team and company values to experiment with new offerings, to gather intelligence on competitors, customers, and technological trends and solving problems. State corporations that attain competitive advantage prioritizes developing employees' skills because it appreciates that it is when employees grow that organizations grow. Therefore, learning processes ensure capacity of employees is

continuously strengthened to meet the work needs. These efforts targets both the experience employees, new employees, and employees switching to new positions. The study has demonstrated that when organizations consistently and systematically invests in training and growth of staff by availing time for education, training and mentorship activities of staff, they lay a strong foundation for competitiveness.

Based on the high significance of learning processes in increasing rate of learning and consequently attaining competitive advantage, the study concluded that concrete learning processes are the cornerstone of a learning organization. Blended with a system's thinking approach to analyzing issues and a supportive learning environment that is driven by a open and flexible culture, learning processes had the potential of transforming the competitive value of state corporations. However, it is important to appreciate the that mere establishment of a variety of learning processes is not a sufficient condition to nurturing a learning organization and attaining competitive advantage. Effective and efficient utilization of the learning processes by intended users is the primary ingredient for acquiring value from concrete learning processes. In ensuring correct utilization of learning processes, the study identified what it considered as core barriers to concretizing learning processes in state corporations: unnecessary bureaucracy that largely excluded junior employees from reflection and decisions associated with goods and service provision; and perpetual victimization of employees based on finding from formal feedback mechanisms without intensive analysis and reflection to explore truth and root causes of feedback points. Bureaucracy and victimization limited the acquisition of objective and timely feedback from junior employees despite the widespread recognition that they were closest to the majority of the clients. Victimization makes it difficult for employees to support and promote the use of feedback mechanisms.

4.6.3 Effect of systems thinking on the competitive advantage

System thinking was found to have a strong positive and significant effect on competitive advantage both in a single linear and multiple regression equations. The results of this study reinforced results of other scholars who regarded systems thinking as the conceptual cornerstone of a learning organization (Alegre and Chiva, 2008; Alegre et al., 2013). Higher scores of systems thinking scale were associated with high scores in competitive advantage. Organizations that have cultivated strong systems thinking practice encourage people to think beyond their individual and departmental roles and responsibility and look at how others' roles and responsibilities affect their work. These kinds of organizations approach issues from a stakeholder perspective and works with the outside stakeholders to meet mutual needs. When leaders ensure that the organizations actions are consistent with its values and considers organizations actions on employee morale, and when they encourage people to seek answers from across the organizations, the organization benefits from multiple perspectives and achieve a high sense of ownership that smoothens implementation of strategic choices to realize better success. These are fundamental ingredients to

building a learning organization and achieving a sustained competitive advantage.

4.6.4 Re-Examination of the Priori Model

As shown in Figure 5.1 of the revised model, one out of four hypothetical casual paths cannot gain full support. Regression analysis results all variables, learning culture, learning processes and systems thinking were positively and significantly associated with competitive advantage. The results validated findings of studies by (Bell, 2013; Garvin et al., 2008; Ollows & Moro, 2015) for the supported casual paths and disagrees with the findings by (Amitay, Popper, & Lipshitz, 2005; Garcia-Morales, Jimenez-Barrionuevo, & Gutierrez-Gutierrez, 2012; MacNeill & Vanzetta, 2014). Results of mediation analysis showed that two of the three paths were not supported. This implies that rate of learning did not mediate the relationship between learning culture and competitive advantage. On the other hand, the results showed that rate of learning partially mediated the relationships between learning processes and systems thinking practice on competitive advantage. This shows that both learning processes and systems thinking practice influence competitive advantage by increasing rate of learning.

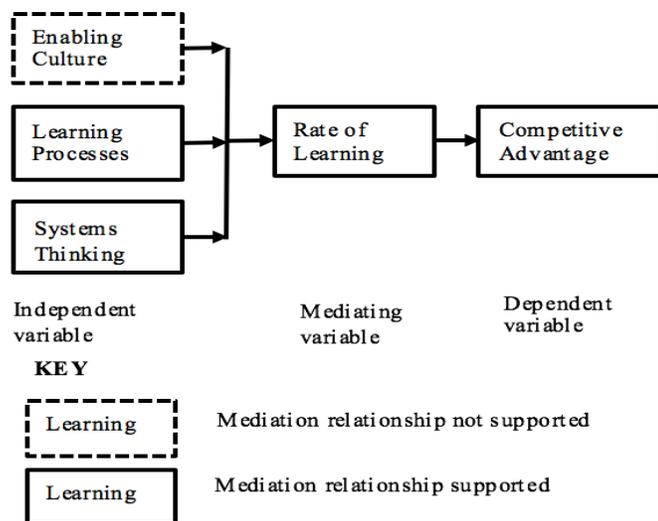


Figure 2: Resultant model

V. CONCLUSION AND IMPLICATIONS

The study results have affirmed the theoretical underpinning that organizational learning is positively associated with competitive advantage of state corporations. Results from both simple and multiple linear regression showed that each of independent variables was positively and significantly associated with competitive advantage. Rate of learning partially mediated the relationship between learning process and competitive and systems thinking and competitive advantage.

Based on these results, managers need to consider implementing strategies that will increase the rate of learning with the organization by focusing on concrete learning processes, learning culture and systems thinking practices. Both formal and informal learning processes that maximize utilization-focused knowledge

acquisition and sharing approach are encouraged. To ensure staff or fully engaged in the learning process, organizations need to invest in building capacity of new and existing employees and partners to encourage reflective practices within the organization. Longitudinal studies can help strengthen similar future studies.

Concrete learning processes are strong predictors competitive advantage directly and indirectly through rate of learning. This affirms the assertion by Garvin et al., (2008) that a learning organization is not developed effortlessly but arises from concrete steps and widely distributed activities that assure efficient and effective generation, collection, interpretation, and dissemination of information. Managers who seek to attain competitiveness are encouraged to invest in concrete learning processes form maximum impact. They include experimentation to develop and test new products and services; intelligence gathering to keep track of competitive, customer, technological and other contextual trends; rigorous analysis and interpretation of data to identify and address problems; and education, training and mentorship to develop both new and established employees. Even though learning processes need to be formalized and concretized, they should be flexible enough to harness informal learning opportunities. Learning happens when individuals and teams pause to reflect and question their actions and this cannot be guaranteed in a fast-passed, non-reflective environment. Managers are advised to institute and resource intentional mechanisms that encourage staff to regularly reflect on their work.

Results of the study reinforced the importance of an enabling culture to foster learning by facilitating the innovative exploitation of learning processes and opportunities for the success of the organizations. Organizational leaders are encouraged to nurture organizational culture that ensure support for learning and creates appropriate and safe learning environment. Components of a learning culture that leaders, managers and employees need to nurture include psychological safety, appreciation of differences, and openness to new ideas. These factors will guarantee employees the safety needed to be creative, encourage to challenge their own assumptions without fear of being out-casted. In addition to the intangible attributes of a supportive learning environment, managers are encouraged to provide time and skills for reflection to their employees and between their employees and their clients. An enabling learning environment ensures that there is time, resources and motivation to utilize the learning processes and to adopt system thinking practices. Recognizing that it is futile to hold numerous reflection events without the involvement of reflective practitioners in an improving learning outcomes is essential. To gain the best value from resourcing learning opportunities, organizations should invest in hiring and nurturing reflective practitioners. This will help staff to debate on matters intelligently, question their openly and genuinely challenge their underlying assumptions and learning to respect and value perspectives of others (including employees and clients) and prioritize the use of evidence while taking decisions.

Similar to studies by, Senge, (2006) and Skaržauskiene, (2010), Systems thinking practice was found significant in influencing learning performance and competitive advantage. Systems thinking ensures that learning and performance is viewed from a systems perspective. In order to correctly and comprehensively diagnose sources and nature of organizational problems and design holistic solutions, leaders, managers and employees are encouraged to adopt system thinking practices. System's thinking practices provide an objective lens and framework to assess inter-relationships and intra-relationships that underlie complex situations and interactions rather than simplistic and often inaccurate linear cause-effect chains (Senge, 2006). Systems think provide a means of understanding successes and failures at a deeper level in order to establish the various paths available to bring about changes and consistency more effectively and efficiently. To achieve systems thinking, managers are encouraged to form an intensive social network that will create a family within and outside the organization. Leaders and managers need to invest in helping each employee to understand and appreciate how their individual actions influence the whole system and finds ways that ensure employee actions promote synergy. Job rotations, team building events and inter-departmental reflection events are some to help entrench the practice of systems thinking within the organization.

The present study faced number of limitations, which should be considered in interpreting the results. First, the study adopted a cross-section design which limits its assessment of causality. Longitudinal studies that examine the lagged effect of learning activities may further contribute to our understanding of how organizational learning can enhance competitive advantage of state corporations. Secondly, accessing financial data from state corporations was virtually impossible during the time of the study. Many visits were done by the research assistance and the team lead but only 15% of the expected financial records were found. This limit the level of analysis that the study could conduct. To mitigate this effect, the study opted for the perception based assessment of competitive advantage similar to what was used by other authors (Azad et al., 2014; Martinette & Obenchain-leeson, 2012). Accessing the financial data may have had varying results.

VI. APPENDIX

Appendix 1: Summary of Reliability Estimates and Item-Total Correlations

Competitive Advantage		Cronbach's Alpha	Item-Correlations
Competitive Advantage (CompAd)		.876	
CompAd1			.580**
CompAd2			.694**
CompAd3			.688**
CompAd4			.713**
CompAd5			.702**
CompAd6			.727**
Learning Culture (LearnC)		.804	
LearnC1			.630**
LearnC2			.606**
LearnC3			.531**
LearnC4			.597**
LearnC5			.573**
LearnC6			.429**
Learning Processes (LearnP)		.848	
LearnP1			.606**
LearnP2			.559**
LearnP3			.639**
LearnP4			.593**
LearnP5			.505**
LearnP6			.564**
LearnP7			.477**
LearnP9			.411**
LearnP11			.416**
LearnP12			.529**
LearnP14			.558**
Systems Thinking (SyThink)		.846	
SyThink1			.551**
SyThink2			.686**
SyThink3			.712**
SyThink4			.670**
SyThink5			.650**

Note, ** item-total correlation is significant at the $p < 0.05$ level (2-tailed).

Appendix 2: Regression Results Tables

Table 4.1.: ANOVA Table for Learning Culture and competitive advantage

Model	Sum of Squares	df	Mean Square F	Sig.
1 Regression	50.913	1	50.913	.000 ^b
Residual	83.115	196	.424	
Total	134.029	197		

Table 4.2: Coefficients Table for Learning Culture and competitive advantage

Model	Unstandardized Coefficients		Standardized t	Sig.
	B	Std. Error	Beta	
1 (Constant)	2.022	.132	15.361	.000
LC	.451	.041	10.957	.000

Table 4.3: ANOVA Table for Learning Culture and competitive advantage

Model	Sum of Squares	df	Mean Square F	Sig.
1 Regression	36.171	1	36.171	.000 ^b
Residual	97.858	196	.499	
Total	134.029	197		

Table 4.4: Coefficients Table for Learning Culture and competitive advantage

Model	Unstandardized Coefficients		Standardized t	Sig.
	B	Std. Error	Beta	
(Constant)	2.128	.154	13.778	.000
Leadership	.355	.042	.519	.000

Table 4.5: ANOVA Table for learning processes and competitive advantage

Model	Sum of Squares	df	Mean Square F	Sig.
1 Regression	59.233	1	59.233	.000 ^p
Residual	74.796	196	.382	
Total	134.029	197		

Table 4.6: Coefficients Table for Learning Processes and competitive advantage

Model	Unstandardized Coefficients		Standardized t	Sig.
	B	Std. Error	Beta	
(Constant)	1.835	.131	14.024	.000
Learning Processes	.383	.031	.665	.000

Table 4.7: ANOVA Table for Systems Thinking and competitive advantage

Model	Sum of Squares	df	Mean Square F	Sig.
1 Regression	47.731	1	47.731	.000
Residual	86.298	196	.440	
Total	134.029	197		

Table 4.8: Coefficients Table for Learning Processes and competitive advantage

Model	Unstandardized Coefficients		Standardized t	Sig.
	B	Std. Error	Beta	
Constant	2.198	.122	17.984	.000
Leadership	.470	.045	.597	.000

VII. ACKNOWLEDGMENT

We would like to thank the 198 staff from 35 state corporations participated in the research. I would also like to thank the JKUAT administration for offering guidance in finalization of this paper.

VIII. REFERENCES

Akhtar, N., Ahmed, R., & Mujtaba, B. G. (2013). Exploring and measuring organizational learning capability and competitive advantage of petroleum industry firms. *International Business and Management*, 6(1), 89–103. <http://doi.org/10.3968/j.ibm.1923842820130601.1170>

Amitay, M., Popper, M., & Lipshitz, R. (2005). Leadership styles and organizational learning in community clinics. *The Learning Organization*, 12(1), 57–70. <http://doi.org/10.1108/09696470510574269>

Andreou, P. C., Louca, C., & Petrou, A. P. (2016). Organizational learning and corporate diversification performance. *Journal of Business Research*, 69(9), 3270–3284. <http://doi.org/10.1016/j.jbusres.2016.02.022>

Azad, N., Mehrabi Majolan, E., Peej, V., Buheji, M. J., Cong, X., Pandya, K. V., ... Aggestam, L. (2014). Knowledge creation and competitive advantage in turbulent environments: a process model of organizational learning. *Knowledge Management Research & Practice*, 11(3), 374–388. <http://doi.org/10.1057/kmnp.2012.33>

Bell, E. (2013). Organisational culture and learning: A case study. *Nurse Education Today*, 33(11), 1337–1341. <http://doi.org/10.1016/j.nedt.2013.02.009>

Bess, K. D., Perkins, D. D., & McCown, D. L. (2011). Testing a measure of organizational learning capacity and readiness for transformational change in human services. *Journal of Prevention & Intervention in the Community*, 39(April 2015), 35–49. <http://doi.org/10.1080/10852352.2011.530164>

Britton, B. (1998). The Learning NGO. *International NGO Training and Research Centre*, (July).

Buheji, M. J. (n.d.). Knowledge Management Influence on Government

- Organisations Competitiveness . Mohamed Jasim Buheji, 305.
- Donate, M. J., & Sánchez de Pablo, J. D. (2015). The role of knowledge-oriented leadership in knowledge management practices and innovation. *Journal of Business Research*, 68(2), 360–370.
<http://doi.org/10.1016/j.jbusres.2014.06.022>
- Džini, J. (2015). Correlation between the administrative leadership style and inclination towards organizational learning in local administrative organizations, 3–27.
- Garcia-Morales, V. J., Jimenez-Barrionuevo, M. M., & Gutierrez-Gutierrez, L. (2012). Transformational leadership influence on organizational performance through organizational learning and innovation. *Journal of Business Research*, 65(7), 1040–1050.
<http://doi.org/10.1016/j.jbusres.2011.03.005>
- Garvin, D. A., Edmondson, A. C., & Gino, F. (2008). Is yours a learning organization? *Harvard Business Review*, 86(3).
<http://doi.org/10.1037/e413842008-018>
- Government of Kenya. (2007). Kenya Vision 2030 - A Globally Competitive and Prosperous Kenya, (October), 1–180.
- Hardeep, P. C., & Bakshi. (2014). Examining intellectual capital and competitive advantage relationship: Role of innovation and organizational learning. *International Journal of Bank Marketing*, 33(3), 376–399. Retrieved from www.emeraldinsight.com/0265-2323.htm
- Kanji, G. (2006). *100 Statistical Tests*. Sage Publications. California.
<http://doi.org/10.1017/CBO9781107415324.004>
- Kim, Y. A., Akbar, H., Tzokas, N., & Al-Dajani, H. (2013). Systems thinking and absorptive capacity in high-tech small and medium-sized enterprises from South Korea. *International Small Business Journal*, 32(8), 876–896.
<http://doi.org/10.1177/0266242613483632>
- Kothari, C. (2004). *Research methodology: methods and techniques*. Vasa. Retrieved from <http://medcontent.metapress.com/index/A65RM03P4874243N.pdf%5Cnh>
<http://books.google.com/books?hl=en&lr=&id=8c6gkbKi-F4C&oi=fnd&pg=PR7&dq=Research+Methodology+-+Methods+and+Techniques&ots=iGoAmVQ5mJ&sig=HDstqLuUosKAeZklgQUht4YnUg0%5Cnh>
<http://books.google.com/book>
- Leufvén, M., Vitrakoti, R., Bergström, A., Ashish, K. C., & Mälqvist, M. (2015). Dimensions of Learning Organizations Questionnaire (DLOQ) in a low-resource health care setting in Nepal. *Health Research Policy and Systems / BioMed Central*, 13(1), 6. <http://doi.org/10.1186/1478-4505-13-6>
- Linz, A., & Resch, O. (2010). Double loop learning in work based settings. *CEUR Workshop Proceedings*, 575, 57–65.
- MacNeill, F., & Vanzetta, J. (2014). Appreciative leadership: delivering sustainable difference through conversation and inquiry. *Industrial and Commercial Training*, 46(1), 16–24. <http://doi.org/10.1108/ICT-09-2013-0058>
- María Martínez-León, I., & Martínez-García, J. a. (2011). The influence of organizational structure on organizational learning. *International Journal of Manpower*, 32(5/6), 537–566.
<http://doi.org/10.1108/01437721111158198>
- Martinette, L. A., & Obenchain-leeson, A. (2012). Of Competitive Advantage : A Service Organization Perspective. *Journal of Service Science*, 5(1), 43–58.
- Ollows, L., & Moro, A. (2015). Intra- Organizational Knowledge Transfer in the SME Lending Process: A Study of Commercial Banks in Kenya. *European Conference on Knowledge Management U6 - ctx_ver=Z39.88-2004&ctx_enc=info%3Aofi%2Fenc%3AUTF-8&rft_id=info:sid/summon.serialssolutions.com&rft_val_fmt=info:ofi/fmt:kev:mtx:book&rft.genre=proceeding&rft.title=European+Conference+on+Knowledge+Manage*, 578. Retrieved from http://asu.summon.serialssolutions.com/2.0.0/link/0/eLvHcXmWnV1NSwMxEB20XjxZseJHhQHPq7vZbrP1UIRaFBUEBfFUZpMsFDWrVg_992ayu3ax0IPnkJCQ8CaZeS8PIBYnYfAHE1yQ7ZOOUimTTGkRUjoQMs0VGWIE4guojcpMKernTEG52zVleuTWheKk-SkbK7nHSZj2hu8fAdtIcbm18tRYhw3BX9K6Ay6fnpdw1mPmeAv
- Peeters, A., & Robinson, V. (2015). A Teacher Educator Learns How to Learn from Mistakes: Single and Double-loop Learning for Facilitators of In-service Teacher Education. *Studying Teacher Education*, 11(3), 213–227.
<http://doi.org/10.1080/17425964.2015.1070728>
- Porter, M. E. (2008). The Five Competitive Forces that Shape Strategy. *Harvard Business Review*, 86(January), 78–94. <http://doi.org/Article>
- Prugsamat, R. (2010). Factors that influence organization learning sustainability in non-profit organizations. *The Learning Organization*, 17(3), 243–267.
<http://doi.org/10.1108/09696471011034937>
- Sangari, M. S., Hosnavi, R., & Zahedi, M. R. (2015). The impact of knowledge management processes on supply chain performance. *The International Journal of Logistics Management*, 26(3), 603–626.
<http://doi.org/10.1108/IJLM-09-2012-0100>
- Saunders, M., Lewis, P., & Thornhill, A. (2015). *Research Methods for Business Students*. *Research methods for business students*.
- Senge, P. (2006). *The Fifth Discipline: The Art and Practice of the Learning Organization*.
- Skaržauskiene, A. (2010). Managing complexity: systems thinking as a catalyst of the organization performance. *Measuring Business Excellence*, 14(4), 49–64. <http://doi.org/10.1108/13683041011093758>
- USAID. (2016). Collaborating, Learning, and Adapting Framework and Key Concepts.
- Weihong, X. W. X., Caitao, S. C. S., & Dan, Y. D. Y. (2008). A Study on the Relationships between Organizational Culture, Organizational Learning, Technological Innovation and Sustainable Competitive Advantage. *2008 International Conference on Computer Science and Software Engineering*, 5, 9–13. <http://doi.org/10.1109/CSSE.2008.92>
- Witherspoon, R. (2014). Double-Loop Coaching for Leadership Development. *The Journal of Applied Behavioral Science*, 50(3), 261–283.
<http://doi.org/10.1177/0021886313510032>
- Zhou, W., Hu, H., & Shi, X. (2015). Does organizational learning lead to higher firm performance? *The Learning Organization*, 22(5), 271–288.
<http://doi.org/10.1108/TLO-10-2012-0061>

IX. AUTHORS

First Author – Gregory Makabila, Master in Business Administration, Jomo Kenyatta University of Agriculture and Technology, and gregory.makabila@gmail.com.

Second Author – Mike Iravo, PhD Business Administration, Jomo Kenyatta University of Agriculture and Technology and miravo@jkuat.ac.ke.

Third Author – Waititu Gichuhi, PhD. Statistics, Jomo Kenyatta University of Agriculture and Technology and agwaititu@gmail.com.

Correspondence Author – Gregory Makabila, gregory.makabila@gmail.com, +254722439179

