UNIVERSITY OF CAPE COAST

COMMUNITY EXTENSION AGENTS' PERCEIVED EFFECT OF KNOWLEDGE MANAGEMENT CAPACITY ON THE PERFORMANCE OF COCOA HEALTH AND EXTENSION DIVISION IN GHANA.

JONES, EBENEZER OSEI

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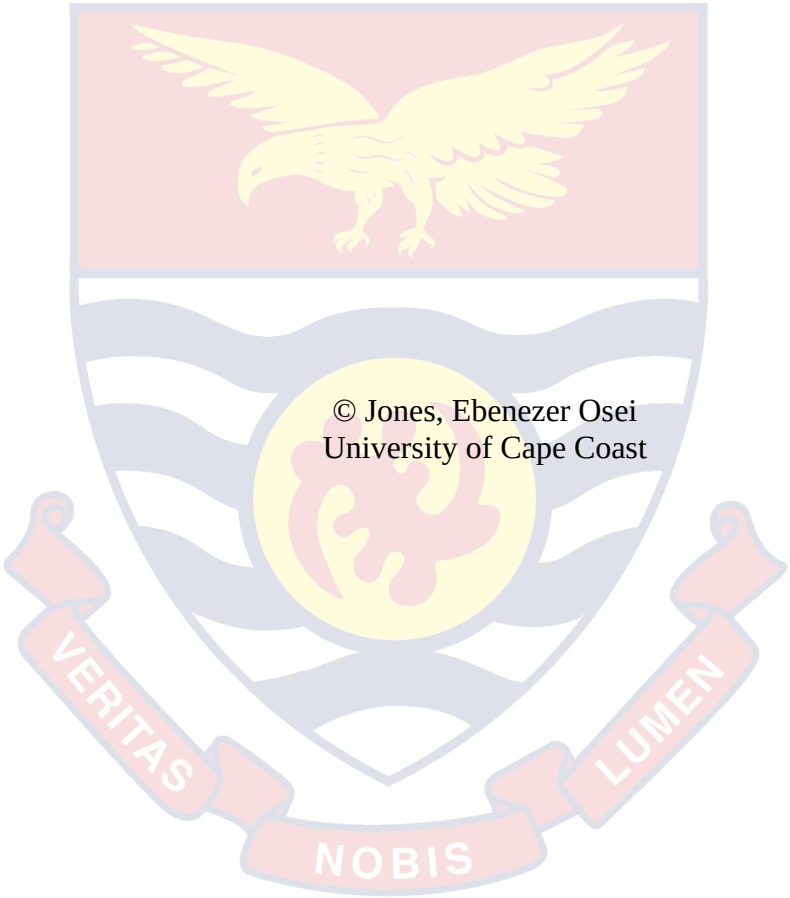

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BY

JONES, EBENEZER OSEI

Thesis submitted to the Department of Agricultural Economics and Extension College of Agriculture and Natural Sciences, University of Cape Coast, in Partial Fulfilment of the Requirements for the Award of Doctor of Philosophy Degree in Agricultural Extension

DECEMBER 2019

DECLARATION

Candidate's Declaration

I hereby declare that this thesis is the result of my own original work and that no part of it has been presented for another degree in this University or elsewhere

Candidate's Signature: ……. Date…….

Name: Jones, Ebenezer Osei

Supervisors' Declaration

We hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by the University of Cape Coast.

Principal Supervisor's Signature……. Date…… …

Name: Professor Joseph A. Kwarteng

Co-supervisor's Signature……Date…….

Name: Dr. Martin Bosompem

ABSTRACT

The study assessed community extension agents' perceived effect of knowledge management capacity on the performance of Cocoa Health and Extension Division (CHED) in Ghana. A descriptive correlation survey design was used. A hundred and sixty-six (166) randomly sampled CEAs from thirty (30) districts in three (3) Cocoa regions of Ghana partook the study. A questionnaire was used to collect data and analyzed using frequencies, percentages, means, standard deviation, correlation coefficients and ordinary least square regression using SPSS version 21. A significant relationship was found between organizational performance and both knowledge management process and infrastructure at an alpha level of 0.05. However, organizational performance had no significant relationship with sex, age, level of education and leadership style. Inadequate infusion of ICT (27.2%) was rated as the most severe of all the challenges of knowledge management in CHED. The best predictors of organizational performance were knowledge management culture (35.7%), knowledge management acquisition (4.8%), sex (6.1%), highest level of education (3.3%) and knowledge management application (1.4%). The study concluded that, the overall rating of knowledge management process, knowledge management infrastructure and leadership style were high in CHED. The study recommended among others that, CHED should boost its knowledge management technology infrastructure, develop a unique knowledge management culture, improve its knowledge management acquisition process by revamping its ICT units, intensifying on the job trainings, inspiring self-search and discovery, encouraging knowledge sharing and minimizing bureaucratic structures.

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DEDICATION

My Parents Mr. & Mrs. Jones

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LIST OF ACRONYMS

CEA	Community Extension Agent
CHED	Cocoa Health and Extension Department
CI	Confidence Interval
CRIG	Cocoa Research Institute of Ghana
CSD	Cocoa Services Division
CSSVDCU	Cocoa Swollen Shoot Virus Disease Control Unit
GCB	Ghana Cocoa Board
GDP	Gross Domestic Product
ICCO	International Cocoa Organization
INGO	International Non-governmental Organizations
ISSER	Institute of Statistical Social and Economic Research
KM	Knowledge Management
KMC	Knowledge Management Capacity
KMI	Knowledge Management Infrastructure
KMP	Knowledge Management Process
MoFA	Ministry of Food and Agriculture
OP	Organizational Performance
PPP	Public Private Partnership
SE	Standard Error
SPU	Seed Production Unit
WCF	World Cocoa Foundation

CHAPTER ONE

INTRODUCTION

Background to the Study

Agriculture remains the backbone of many African economies, accounting for about 60 percent of total employment, 18.5 percent of Gross Domestic Product (GDP) and 14 percent of export earnings on the continent (World Bank, 2016). It is estimated that, the agricultural contribution to Ghana's Gross Domestic Product (GDP) in 2015 only was 51.3 percent (World Bank, 2016). In Ghana, the agricultural sector employs more than 56% of the labor force and provides 30% of the gross domestic product and 41.1% of the foreign exchange earnings (Feed the Future, 2015). Over the last 15 years, Africa has firmly established itself as the leading cocoa supplier (International Cocoa Organization [ICCO], 2015). Appiah, (2004), revealed that, Ghana's agricultural success has mainly been in cash crops, particularly in cocoa.

Although cocoa beans were first introduced to Ghana by the Dutch missionaries at the beginning of the 19th century, its widespread cultivation is attributed to Tetteh Quarshie, a Ghanaian who lived and worked in Fernando Po (now Equatorial Guinea) for several years and on his return to Ghana in 1879, brought with him the Amelonado Cocoa pods. The crop soon assumed the role of the leading export crop and foreign exchange earner for the country (Amoah, 1995). Presently, cocoa still remains the mainstay of the Ghanaian economy accounting for over 40% of agricultural exports and 12% of gross domestic product (GDP) (ISSER, 2015). More so, cocoa production supports the livelihoods of more than

800,000 smallholder households and many others who depend on it for a significant share of their income (Anim-Kwapong & Frimpong, 2004). In 2009-2010, Ghana was the second biggest producer of cocoa after Cote d'Ivoire, representing 21 percent of global production (ICCO 2010) and still retained its position in 2018.

Nonetheless, like all other enterprises, the cocoa production industry is not void of its own peculiar challenges. For instance, in 1930 after Ghana had been the leading producer for twenty years, pests and disease problems plagued cocoa production and production fell drastically (ISSER, 2006). To battle this, Sir Stockdale, the then advisor to the secretary of state of the British Colonies, in 1935 recommended the setting up of a cocoa research station at Tafo in the Eastern Region of Ghana to investigate production problems of pests and diseases in order to maintain production levels (ISSER, 2006). Some of the achievements of this Cocoa Research Institute-Ghana (CRIG) are the control of capsids, characterization of cocoa swollen shoot disease as caused by a virus, discovery of mealy bugs as vectors of the virus, the control of diseases by eradication, and development of early bearing-high yielding hybrids (Appiah, 2004). But Anim-Kwapong and Frimpong, (2004) have brought to the fore that, the key challenges in cocoa production still does include; diseases and pest infestation, climate, poor soil quality and the erratic setting of cocoa producer price. The cocoa industry in Ghana is faced with a number of challenges, from diseases to insects which have the potential to destroy the industry with its adverse consequences for the country's economy (Appiah, 2005).

Yet, effective extension is confronted with glitches such as; a lack of a single line of command, attenuation of efforts by assigning too many jobs to extension workers, excessively large areas of operation without providing any logistic support, lack of regular training for updating knowledge of extension workers, lack of research findings appropriate to condition of farmers field, low status and morale of extension staff, the duplications of services by various development departments and uneven extension agent to farmer ratio (Asiedu-Darko, 2013).

Meera, Jhamtani and Rao (2004), hinted that as new paradigm of agricultural development emerges, old ways of delivering important services to clients should be transformed. In response to some of these challenges, the government of Ghana has since 1990 reformed the operation of community extension by adopting new nationwide extension approach. In the early 1990s, the Cocoa Services Division (CSD) under COCOBOD was responsible for all extension works within the cocoa sector in Ghana (Agricultural Extension Policy, 2003). To provide a unified extension education to farmers, the cocoa extension was merged with the Department of Agricultural Extension Services of the Ministry of Food and Agriculture (MoFA) from 1998 to 2000 (Agricultural Extension Policy, 2005; Baah, 2007). However, in 2001, the Government of Ghana, in consultation with the World Bank and other stakeholders in the cocoa industry initiated a program to review the unified extension policy in order to better serve cocoa farmers (Agricultural Extension Policy, 2003). Following serious concerns from farmers and other stakeholders for effective and efficient extension system for

cocoa farmers, the Public Private Partnership (PPP) in Cocoa Extension, which was coordinated by Cocoa Swollen Shoot Virus Disease Control Unit (CSSVDCU) came into being in early 2010 (Frimpong, 2016). To bring extension services closer to the cocoa farmers, the government of Ghana through Ghana Cocoa Board (COCOBOD) introduced the Cocoa Health and Extension Division (CHED) in 2013 and additionally increased its operational district from 41 to 60 in 2014 all with the aim of transferring information and knowledge to cocoa farmers (Frimpong, 2016). For this reason, CHED has position itself since 2013 to build the knowledge management capacity of community extension agents (CEAs) through knowledge management capacity building activities to ensure cocoa farmers cultivate healthy and productive cocoa trees (Ghana's Cocoa Extension Service, 2013).

Petrash (1996, p. 370), defined knowledge management as the process of getting the right information to the right people at the right time. Thus, knowledge management defines the major roles of extension which includes but not limited to dissemination of agricultural information, building capacities of farmers and empowering the members of farm household (Sinkaye, 2005). Basically, the extension system in Ghana helps farmers and other clientele to use scientific information, new technologies and improved practices on agricultural production and processing (Abankwa, 2004). Asiedu-Darko (2013), reported that, the development and dissemination of the right information at the appropriate time among farmers is key to providing change in agriculture. Fawole (2008), reiterated

that, information dissemination to farmers in rural areas is an important part of adoption of innovations and agricultural development.

It is therefore crucial that farmers are provided with accurate knowledge and information in a timely manner (Arokoyo, 2005). Kamhawi, (2012) brought to the fore that, the contribution of information and knowledge in bringing about social and economic development has been well recognized globally and in particular, agriculture. Knowledge management has been described as a key driver of organizational performance (Bousa & Venkitachalam, 2013), and one of the most important resources for the survival and prosperity of organizations (Teece, Pisano, & Shuen, 1997). Thus the issue of knowledge management is more important than just the sheer possession of knowledge (Paquette & Desouza, 2011).

Hence the Government of Ghana in 2013 introduced Cocoa Health Extension Division (CHED) to help bridge the information gap between research and cocoa farmers through effective knowledge management strategies. Community extension agents' (CEAs) knowledge management capacity is key to CHED's performance with respect to the organization's primary mandate of knowledge transfer to stakeholders (chiefly, cocoa farmers). Hence the perception of CEAs on the effect of the knowledge management capacity on the organizational performance of CHED is necessary for managerial decision making. This is because, knowledge management is now widely recognized as a competitive advantage, and an increasing number of organizations are incorporating the knowledge management strategy (Davenport, De Long & Beers, 1998). CHED has since its inception in 2013 incorporated, practiced and monitored its knowledge

management strategies to optimize the attainment of organizational goals through seminars, monthly meetings and field evaluations for a better organizational performance.

Statement of the Problem

The community extension service delivery in Ghana continues to support agricultural development in Ghana through the linkages and support to agricultural research and technology transfer to farmers in rural communities (Baah, 2008). However, information flow among extension agents and farmers has not been adequate due to the inadequate extension to farmer ratio (Jirli, 2011). The timely availability of relevant information is vital for effective performance of managerial functions such as planning, organizing, leading, and control of agricultural enterprise (Asiedu-Darko, 2013). Frimpong (2016) reported that, the average productivity rate of cocoa in Ghana was about 450 kilograms per hectare in 2015, and the vision was to increase this to 1,000 kilograms per hectare through best agronomic practices in 2016. According to Frimpong, (2016) the decreasing trend of Ghana's cocoa yield from 2010 to 2015 may be attributed to the high stock of aged trees, high population of aged farmers, diseases and pests, poor soil fertility and farmers' lack of access to credit facilities.

To confront these challenges militating against productivity in cocoa production, a strong collaboration has been established between Cocoa Research Institute of Ghana (CRIG), Cocoa Health and Extension Division (CHED) and the Seed Production Unit (SPU) of COCOBOD (Frimpong, 2016). Frimpong explained that, through this synergy, members of CRIG research into diseases and pests

affecting cocoa trees and recommend a cost-effective means of addressing them, then SPU management develops a comprehensive program to replace the tree stock of all the seed gardens with newly developed planting materials by CRIG and finally, Cocoa Health Extension Division bridges the information gap between research and cocoa farmers. Demiryurek, (2010) confirmed the effectiveness of this collaboration stating that, the development of agricultural technologies requires timely and systematic transmission of useful and relevant agricultural information (messages) through relatively well-educated technology dissemination (extension) from formal technology generation system (research) through various communication media (channels) to the intended audience (farmers). Ekoja, (2003) added that, among all the factors of adoption, the efficiency of the adoption of technologies generated and disseminated to farmers has been found to depend on effective communication undertaken by extension agents.

Statrasts (2004), indicated that the good characteristics of information source that will enhance use are relevance, timelessness, accuracy, cost effectiveness, reliability, usability, exhaustiveness and aggregation level. Nevertheless, the inadequate transport for extension agents to maintain close and regular contact with farmers is a major setback in agricultural technology transfer (Abbey-Mensah, 2000). This situation also contributes to the weak linkages between research, extension agents and farmers (Osei & Entsua-Mensah, 2003).

For this reason, CHED of COCOBOD has introduced a mobile telephony platform called COCOLINK, through which messages are sent to farmers in english and local Ghanaian languages ((Frimpong, 2016). Through that platform, cocoa

farmers receive on regular basis; technical, socio-economic and health related information on their phones. The uniqueness about the platform is that, it allows farmers to provide feedback for the messages they receive; and this has revolutionized the farmer-extension officer relationship. Again, the Ghana COCOBOD in clear wisdom increased the operational district of the Cocoa Health and Extension Division (CHED) from 41 to 60 in 2014. COCOBOD also increased, substantially, the number of extension staff at the districts by 35 percent, to ensure that the extension officer-farmer gap is reduced drastically in 2016 (Frimpong, 2016). Additionally, all district offices have been re-equipped with computers and modern extension tools to improve service delivery to the cocoa farmers ((Frimpong, 2016). There is also the farmer business school training program in which farmers are trained in the basis of business skills to help farmers appreciate cocoa farming as not only a way of life, but big business (Frimpong, 2016). The program has been expanded to all cocoa districts and has enabled business savvy farmers to organize themselves into groups, to enable them to enjoy services from the banks and other financial institutions. Again, to ensure that cocoa farmers receive only credible and timely technical and allied information, COCOBOD, working with its partners, have produced the "Cocoa Manual" as a Source book for training Extension Officers (Frimpong, 2016). A Project Coordination Unit has also been established at CHED to monitor and evaluate all interventions that deal with cocoa farmers and the farming communities, to also ensure that interventions actually benefit cocoa farmers (Frimpong, 2016). With a highly-motivated staff of over 400 across Ghana, CHED is poised to support cocoa farmers in all aspects of

their cocoa farming activities, to ensure higher productivity (Frimpong, 2016). The government through COCOBOD has put pragmatic moves in place to add some 750,000 Metric ton to cocoa production in the nearest future through initiatives such as free supply of hybrid cocoa seedlings, free supply of fertilizers, improved mass spraying exercise, massive improvement in cocoa roads and youth-in-cocoa which at the moment, are yielding positive results (Frimpong, 2016).

Despite the provision of all the afore mentioned support, little empirical data is available about how these measures put in place by CHED is improving organizational performance through community extension agents' (CEAs') ability to manage knowledge in extension delivery. Frimpong, (2016) alerted that, evidence of a single, reliable source for knowledge management practices, related best practices and standard operating procedures is missing and this causes units to recreate systems, documents and methods. There is therefore the need to assess CEAs' perception on CHED's knowledge management capability levels that ensures proper acquisition, conversion, application and documentation of knowledge in extension delivery. One may ask, what then are the components of knowledge management capacity? Is knowledge being properly managed by extension agents in CHED? Does the practice of knowledge management have effect on the performance of CHED? What are the challenges involved in practicing knowledge management? Are there solutions to help mitigate these challenges? This study therefore seeks to provide answers to the above questions.

General Objective

The general objective of the study was to assess Community Extension Agents' Perceived Effect of Knowledge Management Capacity on the Performance of Cocoa Health and Extension Division (CHED) in Ghana.

Specific Objectives

The specific objectives of the study were to:

1. Examine CEAs perceived level of knowledge management capacity in terms of: People Characteristics, Process capacity and Infrastructural capabilities in CHED.
2. Examine CEAs perceived level of organizational performance with respect to: Effectiveness and Efficiency of performance in CHED.
3. Compare the level of perceived effect of knowledge management on the organizational performance of CHED among male and female CEAs.
4. Compare CEAs perceived effect of knowledge management on the organizational performance of CHED among any three (3) cocoa regions of Ghana.
5. Examine the relationship between the level of efficacy of knowledge management capacity and organizational performance in CHED.
6. Explore the best predictors of organizational performance from the main components of knowledge management capacity of CHED.
7. Investigate the barriers to effective knowledge management among CEAs.

Research Questions

1. What is the perception of CEAs on the level of efficacy of knowledge management capacity in CHED?
2. What is the perception of CEAs on the level of organizational performance of CHED?
3. What is the level of perceived effect of knowledge management on the organizational performance of CHED among male and female CEAs?
4. What is the level of perceived effect of knowledge management on the organizational performance of CHED among any three cocoa regions of Ghana?
5. What is the relationship between the level of efficacy of knowledge management capacity and organizational performance of CHED?
6. What are the best predictors of organizational performance from the main components of knowledge management capabilities of CHED?
7. What are some barriers to effective knowledge management in CHED?

Research Variables

The Dependent variable:

Performance of CHED. This is expressed in terms of the following;

- Effectiveness of the performance of CHED
- Efficiency of the performance of CHED

The independent variables

Components of Knowledge Management Capabilities in terms of the following;

- KM Processes: - Acquisition, conversion, application and protection

- KM Infrastructure: - Technology, structure and culture
- People Characteristics- Sex, age, educational level, years of experience and leadership style of CEAs.

Hypotheses of the Study

The following formulated hypothesis was tested at 0.05 alpha level:

1. **H_0**: There is no significant difference between the age range of male CEAs and the age range of female CEAs in CHED.

   H_1: There is a significant difference between the age range of male CEAs and the age range of female CEAs in CHED.
2. **H_0**: There is no significant difference in the various educational levels of CEAs and their respective work experience levels in CHED.

   H_1: There is a significant difference in the various educational levels of CEAs and their respective work experience levels in CHED.
3. **H_0**: There is no significant difference between male CEAs and female CEAs perceived level of the effect of knowledge management on the organizational performance of CHED.

   H_1: There is a significant difference between male CEAs and female CEAs perceived level of the effect of knowledge management on the organizational performance of CHED.
4. **H_0**: There is no significant difference between CEAs perceived level of the effect of knowledge management capacity on organizational performance among any three (3) cocoa regions of Ghana.

H_1: There is a significant difference between CEAs perceived level of the effect of knowledge management capacity on organizational performance among any three (3) cocoa regions of Ghana.

5. **H_0**: There is no significant relationship between sex of CEAs and organizational performance of CHED.

   H_1: There is a significant relationship between sex of CEAs and organizational performance of CHED.

6. **H_0**: There is no significant relationship between age of CEAs and organizational performance of CHED.

   H_1: There is a significant relationship between age of CEAs and organizational performance of CHED.

7. **H_0**: There is no significant relationship between years of experience of CEAs and organizational performance of CHED.

   H_1: There is a significant relationship between years of experience of CEAs and organizational performance of CHED.

8. **H_0**: There is no significant relationship between the level of education of CEAs and organizational performance of CHED.

   H_1: There is a significant relationship between the level of education of CEAs and organizational performance of CHED.

9. **H_0**: There is no significant relationship between leadership style and organizational performance of CHED.

H_1: There is a significant relationship between leadership style and organizational performance of CHED.

10. **H_0**: There is no significant relationship between the level of efficacy of KM acquisition process and organizational performance of CHED.

    H_1: There is a significant relationship between the level of efficacy of KM acquisition process and organizational performance of CHED.

11. **H_0**: There is no significant relationship between the level of efficacy of KM conversion process and organizational performance of CHED.

H_1: There is a significant relationship between the level of efficacy of KM conversion process of CEAs and organizational performance of CHED.

12. **H_0**: There is no significant relationship between the level of efficacy of KM application process and organizational performance of CHED.

    H_1: There is a significant relationship between the level of efficacy of KM application process and organizational performance of CHED.

13. **H_0**: There is no significant relationship between the level of efficacy KM protection process and organizational performance of CHED.

    H_1: There is a significant relationship between the level of efficacy KM protection process and organizational performance of CHED.

14. **H_0**: There is no significant relationship between the level of efficacy of KM technological infrastructure and organizational performance of CHED.

    H_1: There is a significant relationship between the level of efficacy of KM technological infrastructure and organizational performance of CHED.

15. **H_0**: There is no significant relationship between the level of efficacy of KM structural infrastructure and organizational performance of CHED.

    H_1: There is a significant relationship between the level of efficacy KM

structural infrastructure and organizational performance of CHED.

16. Ho: There is no significant relationship between the level of efficacy KM cultural infrastructure and organizational performance of CHED.

H_1: There is a significant relationship between the level of efficacy KM cultural infrastructure and organizational performance of CHED.

Justification of the Study

The study sought to investigate into how CEAs perceive the effectiveness of knowledge management capacity of CHED and its subsequent effect on organizational performance of CHED in Ghana. Primarily, the findings of the study will add up to the body of knowledge in the use, documentation and re-use of known (explicit) and discovered (implicit) knowledge management strategies employed by community extension agents in extension delivery. This information will be useful for CHED to plan knowledge management training programs for community extension agents in Ghana.

The results of the objective one of this study, which is to examine CEAs perceived level of knowledge management capacity, has implications for agricultural policy formulation to improve information use, retrieval and dissemination mechanisms in the cocoa sector of Ghana.

Again, investigating the relationship between knowledge management capability and organizational performance is essential as the findings can help CHED further explore the consequences of knowledge management (Liu & Deng, 2015). This is because, there is a nominal empirical data that investigates the relationship between knowledge management capability and non-financial

performance (Cho & Korte, 2014) in CHED of Ghana. Thus, the findings of this study will assist CHED, COCOBOD and other stakeholders to subscribe to relevant knowledge management methodologies and extension information packages appropriate to meet information needs of the farmers.

Delimitations of the Study

According to Bhatt (2001) knowledge is context dependent and may differ from one occupation to the other. Therefore, the knowledge management capabilities considered in this study are knowledge and skills that Community Extension Agents (CEAs) should possess in present-day society. Hence, the level of efficacy of knowledge management capacity in the study is delimited to the opinions of community extension agents' (CEAs) with regards to their performed tasks as stipulated by CHED in Ghana.

Further, Ketokivi and Schroeder (2004) argued that organizational performance dimensions cannot be directly observed because they only exist in cognitive sense and therefore, their objective measures may be defined differently across industries or even within industries because of implicit relationships among their varied components. On the other hand, subjective measures of organizational performance data can be collected through questionnaires or interview surveys that simultaneously obtain information on practices at a cost-effective level (Zumitzavan & Michie, 2015). Hence organizational performance as measured in this study in terms of efficiency and effectiveness of performance is at the non-financial performance level of measurement and is delimited to the opinions of community extension agents (CEAs) in Ghana.

Limitations of the Study

The limitation of the study is related to the use of Ghanaian community extension agents working in a public sector for testing the hypothesis. Although the results of this study are cautiously generalizable to the community extension agents in other backgrounds, using a hand full number of Ghanaian community extension agents who operate in a developing country under specific circumstances, limits the generalizability of the results to other frameworks especially to a developed country context.

Assumptions of the Study

The basic assumption of the study is that, knowledge management capacity is an important tool needed for extension delivery. It is also assumed that all respondents would provide sincere responses to the questions in the questionnaire. The population is homogeneous and normally distributed. The respondents have the ability to evaluate the level of knowledge management skills possessed and required in CHED. The outcomes of the study will be beneficial to stakeholders, like CHED, COCOBOD, farmers, NGOs and academia.

Organization of the Study

The study was organized into five chapters. Chapter one covers background to the study, statement of the problem, objectives of the study, research questions, significance of the study, delimitations of the study, limitations of the study, organization of the study and definition of terms used in the study. Chapter two is a review of related literature, theories and conceptual framework issues in the study. Chapter three which is the methodology, has the following sub-headings: research

design, population, sample and sampling procedure, instrumentation, data collection and data analysis procedures. Chapter four presents the findings and discussion based on the research questions and hypothesis. Lastly, Chapter five comprises of the summary, conclusions and recommendations.

Definition of Terms

For the purpose of this study a number of terms were defined:

Community Extension Agent: all technical field workers of CHED who facilitate the transfer of research knowledge on cocoa to cocoa farmers.

Effect: the ultimate planned and unplanned consequences of Knowledge Management on organization performance of CHED.

Knowledge Management: the process of transferring research findings on cocoa to cocoa farmers at the right time and taking feedback from cocoa farmers to researchers at the right time for the purpose of increasing cocoa production and productivity.

Knowledge Management capabilities: the ability to properly coordinate people, process and infrastructure for the purpose of achieving the organizational goals of CHED.

Performance: the level of effectiveness and efficiency to which CHED achieves its organizational goals with minimal resources at a judicious cost.

CHAPTER TWO

LITERATURE REVIEW

The purpose of this study was to assess community extension agents' perceived effect of knowledge management on the performance of CHED of COCOBOD in Ghana. This chapter reviews literature relevant to the demographic and work characteristics of community extension agents, concept of Knowledge Management, leadership styles and organizational performance. The theories, conceptual framework, connections, variations highlighted by existing research and their empirical findings that emphasize the concepts explored in this research are delved into in this chapter.

Theoretical Framework

This study combines three theoretical frameworks to guide the conceptual support needed for the study. These are (i) Self-efficacy theory (ii) Social learning theory and (iii) knowledge-based theory which set out in the foundation of the study. This section plays important role in the understanding of how each theory influences day-to-day knowledge management practice of CEAs as specified by CHED in order to establish the level of the organizational performance.

Self-Efficacy Theory

Bandura's theory of self-efficacy originated from Bandura's Social Cognitive Theory. Self-efficacy is defined as the "belief in one's capabilities to organize and execute the course of action required to produce given accomplishments" (Bandura, 1997, p. 3). Self-efficacy influences a person's choices, actions, the amount of effort they give, their perseverance when faced with obstacles, their resilience, their thought patterns and related emotional reactions,

and the final level of achievement (Bandura, 1986). According to Holden, Cuzzi, Spitzer and Rutter (1997), the concept of capability is central to theories of learning. The ability to effectively manage knowledge to impact organizational performance in a positive light is relatively linked to self-efficacy because the concept constructs how confident a person is to successfully perform required tasks. Capabilities gained over time as a result of engaging in proper knowledge management practices has an influence on the perception of CEAs mastery of skills and their confidence level.

If individuals continue to make ongoing improvements despite occasional setbacks, they are likely to be confident about their level of competency (Petrovich, 2004) which in this case is the ability of CEAs to properly acquire, convert, apply and protect knowledge to effectively argument organizational performance. Petrovich (2004) further stressed that, capability levels may decline over time when individuals are deprived of adequate learning environment and ongoing effort to maintain capabilities. The learning environment is operationalized in this context as the organizational structure, culture and technologies available to CEAs in CHED. Bandura (1986) pinpoints five channels through which informal learning occurs: Mastery performance (successful practice), Vicarious experiences (observing others), Verbal persuasion (receiving encouragement and support from others), the Physical space (clean environment) and Emotional state (feeling of well-being and belongingness) of a person. Bandura's five channels of learning is reflected in the Kind of people, process and infrastructure availed in CHED to help

CEAs manage knowledge as they go about their day to day activities of educating cocoa farmers.

Saucier (2010) found that, some disparities in self-efficacy may be related to level of the subject matter, variations in personality, motivation, and the task itself which in turn, may influence the efficacy and perceptions of the extension worker. Saucier stated that, "self-efficacy is a belief about what one is capable of doing; however, it is not the same concept as knowing what to do". This axiom is important in the assessment of the perception of CEAs on knowledge management capabilities and its effect on organizational performance. This is because the axiom proposes measuring knowledge management capabilities from a practical point of living what you are taught to do through proper usage and consistent practice, rather than just believing it can be done. Thus, "Practice makes perfect" and leads to better performance. In essence, the theory of self-efficacy, illustrates how daily practice interactions leads to the perfecting of acquired skills (self-efficacy) which finally results in behavior (performance).

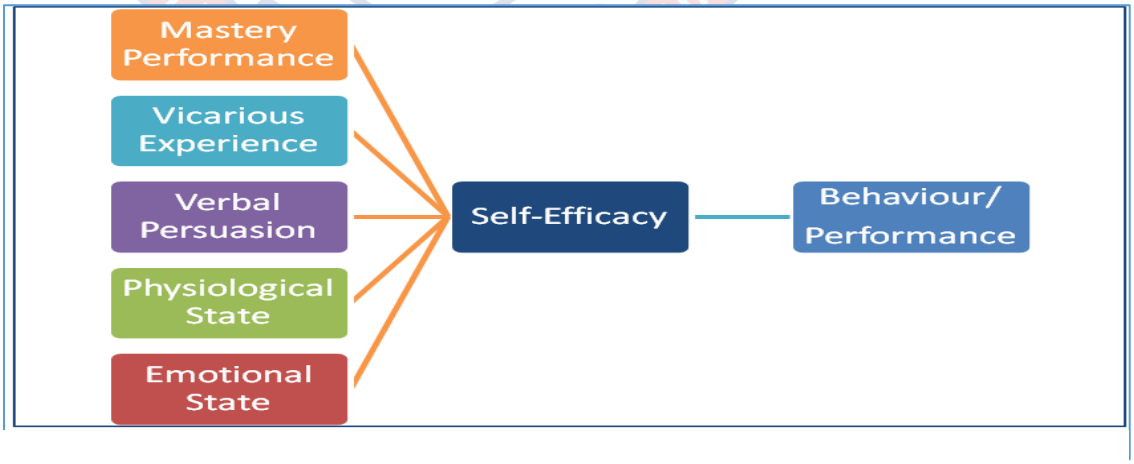

Figure 1: Self-Efficacy Theory (adapted from Bandura, 1997)

Social Learning Theory

Bandura's Social Learning Theory posits that people learn from one another, via observation, imitation, and modeling. Learning takes place when learners make an observation and change their behavior or attitude as a result of that observation (Payne, 2005). This concept proposes that, how successfully an individual performs a task is dependent on what they have learnt through practice (Holden, et al., 1997).

This conception is relevant to the study because, community extension work requires the ability to continue to integrate new knowledge and seek continuous improvement. It is an important theory when analyzing how community extension agents learn to solve problem and learn from their practice experiences; thus, how community extension agents develop practice wisdom (Petrovich, 2004). Incidental learning (informal learning) which is the dominant means of adult learning, enables community extension agents to acquire, convert, apply skills and techniques in problem solving and self-empowerment.

The Social Learning Theory can be used for the purpose of studying behaviors that are heavily influenced by both the physical and social environment in which the individual lives (Bandura, 1977). The theory tells us the importance of creating an enabling environment, in which the desired behavioral change is made easier. It also tells us that seeing the behavior in practice can help others adopt it. This can be done through modeling, where the desired behavior, as well as the resulting benefits, can be demonstrated and popularized by role models. Social learning theory explicates how human behavior in terms of continuous and

reciprocal interactions occur between cognitive, behavioral, and environmental influences.

This theory supports the assumption that, the knowledge management capabilities of CEAs come from the consistent interaction between knowledge acquisition and knowledge application via an individuals' personal interpretation of their everyday experiences as they engage in their routine mandate of knowledge transfer from cocoa research to cocoa farmers in the social context of operation. Hence the theory of Social Learning purports that, CEAs build their knowledge management capacities as they work through the interaction of personal factors, environmental factors and behavioral factors. Thus "Learning by Doing".

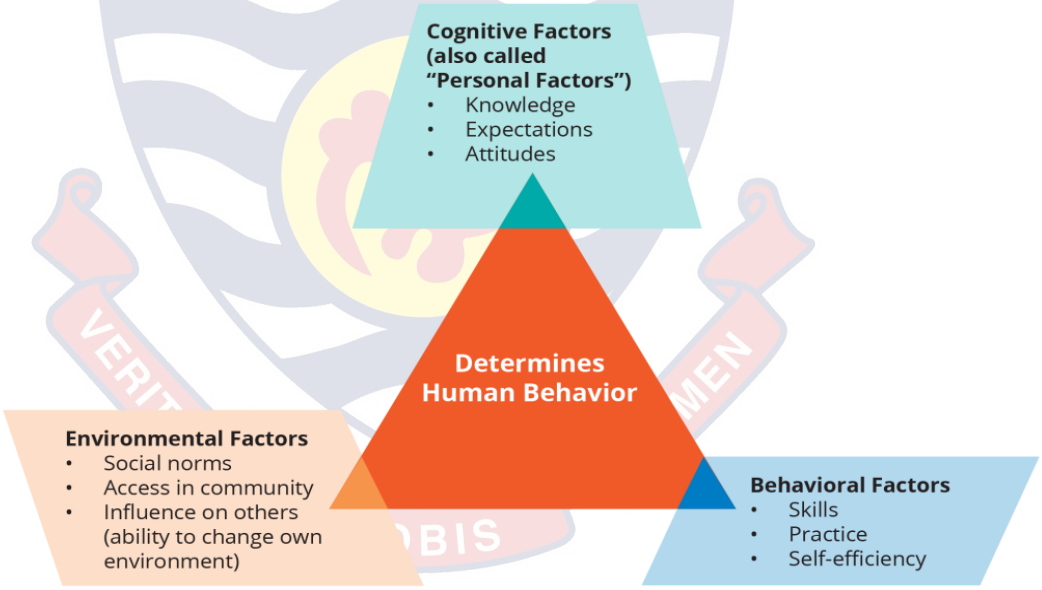

Figure 2: Social Learning Theory

Source: Bandura, (1977)

Knowledge-Based Theory

The relevant theory that helps significantly towards realizing the important role of knowledge management in organizational performance is the knowledge-

based theory developed by Grant, (1996). He argues that the source of competitive advantage in dynamic business environment is not the knowledge that is repository to the organization, because the value of such knowledge erodes quickly due to obsolesce and imitation. Rather, sustained competitive advantage is determined by non-proprietary knowledge in the form of tacit individual knowledge. Tacit knowledge can form the basis of competitive advantage because it is both unique and relatively immobile. Yet, because tacit knowledge is possessed by individuals and not the organization, knowledge is lost when the organization losses the bearer of that particular knowledge.

Hence, a crucial element of competitive advantage is the ability to integrate the specialized and tacit knowledge of individuals to positively influence organizational performance. The main idea of the knowledge-based theory of the firm is that, organizations exist in the way that they do because of their ability to manage knowledge more efficiently than is possible under other types of organizational structures (Hakanson, 2010). In other words, organizations are social entities that use and store internal knowledge, competencies and capabilities that are vital for the firm's survival, growth and success (Hakanson, 2010). The theory assumes that organizations are all heterogeneous knowledge-bearing entities that apply knowledge to the production of their goods and services (Foss, 1996). Firms are able to organize the way they do because they are depositories of productive knowledge captured and applied using available technologies in specific context for the achievement of organizational goals.

This theory therefore seeks to establish a link between the concept of knowledge management capabilities and how organizations (CHED) as a social entity uses and stores internal knowledge, competencies and capabilities that are vital for the firm's survival, growth, success and performance. Grant theorized that, for a business (CHED) to perform, workers (CEAs) should be able to properly work within the organization's infrastructure (by being alert), properly work within the organization's processes (through prior knowledge) and appropriately manage the human relationship with other workers (through positive social networking). He explained that, the theory helps to make individual knowledge (tacit) available to the organization in the form of cooperate knowledge (explicit) for a better organizational performance. Thus "knowledge gives power but a well-organized knowledge, gives authority" as evident in the performance of the firm.

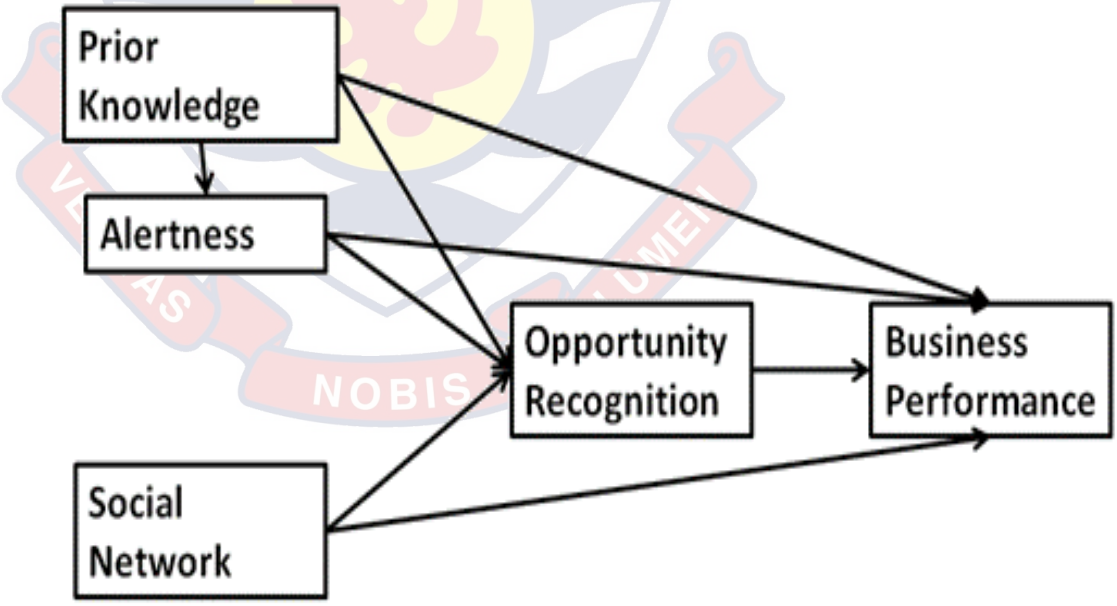

Figure 3: Knowledge-Based Theory

Source: Grant (1996)

Definition of Knowledge

Nonaka and Takeuchi (1995) claim the concept of knowledge has been unfolded chronologically over time. For this reason, the distinction between data, information, and knowledge also needs to be clarified (Bhatt, 2001). Although these three terms are usually used interchangeably in practice, data are merely raw, objective facts, whereas information is considered as structured and organized data, whiles knowledge, on the other hand, is described as an organized combination of data assimilated with a set of rules, procedures, and operations learnt through experiences and practices (Bhatt, 2002). Knowledge is a value-added information that combines experience, context, interpretation, and reflection to make communicable meaning (Davenport, De Long & Beers, 1998). Information represents a flow of messages but knowledge is created and organized from information, anchored by the commitments and beliefs of concerned individuals (Bhatt, 2002). Knowledge is meaning of the mind and without meaning, the supposed knowledge is just data (Davenport, et al., 1998). Knowledge, therefore, is context dependent (Bhatt, 2002). It is worth noting that no definition of knowledge encompasses all disciplines, professional levels, and organizations, since almost every discipline has its own definition of knowledge (Bhatt, 2001).

Awad and Ghaziri (2004) view knowledge as "understanding gained through experience or study", while Nonaka and Takeuchi (1995) see knowledge as a dynamic human process of justifying personal belief toward the truth created by the flow of information anchored in the belief and commitments of its holder. Davenport and Prusak (1998) defined knowledge as "a fluid mix of framed

experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences" as applied in the minds of the knower. Knowledge, therefore, is a mixture of various elements; it is fluid as well as structured; it involves experience, truth, judgment, and rules of thumbs (Davenport & Prusak, 1998). In other words, it is contended that knowledge does not exist independently of human experience; instead, it develops through social creation of meanings and concepts (Sabherwal & Becerra-Fernandez, 2003).

Probst, Raub and Romhardt (2000, p. 24) define Knowledge as the whole body of cognitions and skills which individuals use to solve problems. Knowledge always begins with the individuals, and that an individual's personal knowledge is transformed into organizational knowledge valuable to the company as a whole (Beckman, 1999; Bhatt, 2001; Davenport & Prusak, 1998; Nonaka & Takeuchi, 1995). However, in the organization, it often becomes embedded, not only in the documents or repositories but also in organizational routines, practices, and norms (Wiig, 1999). The subjective and context-sensitive nature of knowledge implies that, knowledge categories and meanings depend on individual perception (Davenport & Prusak, 1998).

Dimensions of Knowledge

According to Blackler (1995), knowledge dimension model can be typified in five distinct forms as embodied, embedded, embrained, encultured, and encoded. He defines embodied knowledge as knowledge that is gained through training of the body to perform a task. Yakhlef (2010) pointed out that it is impossible to totally disembody this knowledge from people to facilitate the translation of individual knowledge to corporate knowledge. Embedded knowledge is a knowledge that is

found in routines and systems (Blackler, 1995). Organizational common tasks, routines or the common ways people go about their jobs, can hold embedded knowledge, as the routines facilitate learning amongst the employees that go beyond their job tasks (Strati, 2007). Hislop (2010) corroborates this fact with a statement that knowledge that is embedded, is inseparable from practice. That is, knowledge that is embedded in work practices is simultaneously embodied by the workers who carry out these practices (Strati 2007; Yakhlef, 2010). Embrained knowledge is defined as the knowledge that a person can possess, but has difficulty expressing in words or sharing with others (Blackler, 1995). He further described this as a knowledge that one cannot easily write down, talk about with others, or represent with pictures or other tools. It is gained through experience over time and may reflect one's perceptions, opinions, values and morals (Hislop, 2010). Encultured knowledge is described as a set of knowledge that is shared among groups of people who share a similar environment or culture, such as what is accepted, what actions and opinions are considered normal, and what behaviors are expected of people (Blackler, 1995).

Encoded knowledge is a form of knowledge that can be easily written down, expressed in words or diagrams, and is transferrable through multiple channels and means (Blackler, 1995). Procedure manuals, guidelines, process diagram, flowcharts, recipes and instructions are all examples of encoded knowledge, because they are encoded in a physical form that is understandable by a lot of people (Strati, 2007). Therefore, in organization, it can be said that organizational knowledge is embodied and embrained in the staff, embedded in routines/common

tasks, encultured among the staff, and encoded in manuals, guidelines and procedures. It is therefore an embedded knowledge which is found primarily in specialize relationships among individuals and groups and in particular norms, attitudes, information flows, and ways of making decisions that shape their dealings with each other (Badaracco, 1991).

Polanyi (1967) in essence, categorized knowledge as being either explicit or tacit. Nonaka and Takeuchi (1995) also classify knowledge as tacit and explicit knowledge. Tacit knowledge is the personal and context specific knowledge of a person that resides in the human mind, behaviour, and perception (Duffy, 2000). Hislop, (2013) explained that tacit knowledge evolves from people's interactions and requires skill and practice. Tacit knowledge is highly personal (held within the holder), subjective, difficult to formalize, articulate and communicate fully, it is experience based, contextualized, job specific, transferred through conversation or narrative, not captured by formal education or training and may even be subconscious but capable of becoming explicit knowledge (Nonaka & Takeuchi, 1995).

Tacit is the type of knowledge that is used mostly by organizational members in the performance of duties (Von Krogh, Nonaka, & Aben, 2010). Tacit knowledge is hard to verbalize because it is expressed through action-based skills and cannot be reduced to rules and recipes. It is deeply rooted in action, procedures, commitment, ideals, values and it can only be indirectly accessed (Baloh, Desouza, & Paquette, 2011). Thus, tacit knowledge is embrained knowledge and is at the ontological dimension in which its explication requires the use of metaphors and

an extensive process of socialization (Nonaka, 1994). Explicit knowledge in contrast is formal and systematic; can be codified, collected, stored, and disseminated (Beckman, 1999). Nonaka, explained it as not bound to a person and as a result has primarily the character of data at the epistemological dimension where explanation is possible using written or coded formats. Explicit knowledge is a knowledge that is documented, structured, fixed content, externalized, and cognizant (Duffy, 2000). Explicit knowledge is what can be captured and shared through information technology. It can be codified into formal information that comes in tangible forms as written books, documents, manuals, white papers, guidelines, blueprints, technical specifications, scientific formulas, databases, organizational designs and policy manuals (Polanyi, 1966). Thus, explicit knowledge can be easily formalized, documented, articulated, expressed in words or numbers, processed, transmitted, and stored relatively easily with no difficulty for organizations to capture this knowledge in repositories, operating technologies and share it throughout organizations (Nonaka & Takeuchi, 1995).

Koenig (2012) suggests three dimensions of knowledge which he described as explicit, implicit, and tacit. He defined explicit knowledge to mean information that is set out in tangible form whiles implicit knowledge is information that is not set out in tangible form but can easily be made explicit, whereas tacit knowledge is information that one would have extreme difficulty operationally setting out in tangible form. Baloh, et al. (2011) illustrated explicit, implicit and tacit knowledge using a cooking recipe. They explained the explicit knowledge component to include the written list, measures and short description of ingredients to be used in

the cooking process. The implicit knowledge component is the understanding of what and how much of ingredients to include in preparing the particular dish. The tacit component are the practices such as adding particular ingredients in a certain order, in a certain way, using certain method within a certain timing of cooking.

Choo (2002) on the other hand, categorizes knowledge into tacit, explicit and cultural dimensions. He explained that, accepted knowledge starts with people sharing their internal tacit knowledge by socializing with others or by capturing it in digital or analogue form. Other people then internalize the shared knowledge, and that process creates new knowledge. These people, with the newly created knowledge, then share this knowledge with others, and the process begins again. Hibbard (1997) confirmed this process to be the cycle of innovation and invention.

By understanding the various dimensions of knowledge, it becomes evident that an organization's task with KM should focus on transposing tacit knowledge into implicit and explicit knowledge and further, see to it that individual knowledge becomes organizational knowledge. This can be explained not only by a need for organizations to better manage knowledge by establishing core competencies for individuals, judging success and performance indicators via recognition of invisible assets, but also for organizations to strive to become an innovative organization and a learning organization with a knowledge sharing culture (Martensson, 2000).

Organizational Knowledge

Although many organizational theorists and psychologists attempt to define organizational knowledge by establishing a bridge between individual knowledge and collective knowledge, Bhatt cautioned that organizational

knowledge is not a simple exercise of collating individual knowledge. (Bhatt, 2001). Nonaka and Takeuchi (1995) pointed out four basic patterns for creating and transforming knowledge from a tacit to an explicit form in any organization by shared languages, experiences and models through socialization (from tacit to tacit), externalization (from tacit to explicit), combination (from explicit to explicit), and re-contextualization (from explicit to tacit). Illustrating the movement between these two types of knowledge, Nonaka and Takeuchi (1995) rationalized organizational knowledge creation as a process of making tacit knowledge explicit.

However, Weiss (1999) claims that the ability to articulate knowledge cannot be equated with its availability for use by others. Weiss (1999) therefore, has further classified knowledge in professional service firms into rationalized knowledge and embedded knowledge. According to Weiss, rationalized knowledge is "general, non-context dependent, standardized, widely applicable, publicly known, official, and depersonalized" (p. 66) whiles embedded knowledge is "specific, context-dependent, unstandardized, narrowly applicable, private, personalized, unofficial, and may be personally or professionally sensitive" (p. 66). An example of rationalized knowledge would be methodologies for conducting projects, standard operating procedures, and legal references. On the other hand, embedded knowledge is linked to daily routines and experiences of knowledge workers.

O'Dell, Grayson, and Essaides, (1998) separated knowledge into individual, organizational and structural knowledge. Quinn, Anderson, and Finkelstein (1996) proposed that individual knowledge in an organization should consist of four

different types of knowledge. They explained "Know-what", also called cognitive knowledge to be the basic knowledge that an individual can achieve through extensive training and certification; "Know-how" is the ability to apply know-what knowledge to complex, real-world problems; "Know-why", also called systems understanding, is deep knowledge of cause-and-effect relationships; and "Self-motivated creativity" is the highest level of knowledge, consisting of will, motivation, and adaptability. Quinn et al. (1996) contend that the value of organizational knowledge can increase markedly as an organization helps its employees develop self-motivated creativity and to leverage this type of knowledge throughout the organization.

Boland and Tenkasi (1995) viewed knowledge as being subjective rather than objective and thus, complete organizational knowledge is achieved only when individuals keep modifying their knowledge through interactions with other organizational members. Organizational knowledge can also be seen as knowledge that is shared among organizational members; thus, it is distributed, created, and managed by individuals who act autonomously within a decision domain (Gupta & Govindarajan, 2000; Yahya & Goh, 2002).

However, Kogut and Zander (1997) categorized organizational knowledge into information and know-how. Kogut and Zander argued that know-how may be likened to procedural knowledge because they both consist of statements that describe processes and existing practices inside a firm. It is in the regularity of the structuring of work, and of the interactions of employees conforming to explicit and implicit recipes, that one finds the content of the firm's know-how (Kogut &

Zander, 1997). Consequently, organizational knowledge involves both people and context within which people interpret, organize, plan, develop, execute, and use available models (Guzman & Wilson, 2005). The challenge lies within the context nature of knowledge which makes the measurement of organizational knowledge management more difficult because, the chances of success in culture change are low, especially when the purpose of the culture change is not understood or accepted by employees (Park, Ribiere, William & Schulte, 2004). Hence the importance of the understanding of organizational knowledge management and its effect on the performance of the organization to firm mangers.

Defining Knowledge Management

Hislop (2013, p. 56) define KM as "an umbrella term which refers to any deliberate efforts to manage the knowledge of an organization's workforce, which can be achieved via a wide range of methods including directly, through the use of particular types of ICT, or more indirectly through the management of social processes, the structuring of organization in particular ways or via the use of particular culture and people management practices". Knowledge management is now widely recognized as a competitive advantage, and an increasing number of organizations are incorporating the knowledge management strategy (Davenport & Volpel, 2001).

Many firms have reached the conclusion that effective knowledge management is the only way to pedal their core competencies and achieve competitive advantage (Bhatt, 2001; Demarest, 1997). Thus, organizations are interested in knowledge management to boost the efficiency of their organization,

increase productivity and quality of their services, and achieve innovative solutions and products for their customers (Arora, 2002).

Within the research community, however, knowledge management is considered as a catalyst for understanding the role of knowledge in an organization (Moffett, McAdam, & Parkinson, 2003). According to Tiwana (2000) the scope of knowledge management ranges from "Personal management of knowledge" to "management of organizational knowledge" for creating business value and generating competitive advantage through the creation, communication, and application of knowledge of all kinds. Wiig (1997) defined knowledge management as "the systematic administration of knowledge-related activities, practices, programs, and policies within the enterprise". Again, Quintas, Lefrere, and Jones (1997) explained that knowledge management is "the process of continually managing knowledge of all kinds to meet existing and emerging needs, to identify and exploit existing and acquired knowledge assets and to develop new opportunities".

Martinez (1998) considers knowledge management as encouraging individuals to communicate their knowledge by creating environments and systems for capturing, organizing, and sharing knowledge throughout the company. Further, Bhatt (2001, p. 71) defined Knowledge management as a process of knowledge creation, validation, presentation, distribution and application. Blake (1998) stated that, knowledge management is the process of capturing a company's collective expertise wherever it resides, and distributing it wherever it can help produce the biggest payoff. In his work, Martinez (1998, p. 89) added that knowledge

management is about reassuring individuals to communicate their knowledge by creating environments and systems for capturing, unifying and distribution knowledge throughout an establishment. Hence, knowledge management is the practice of creating, capturing, transferring and accessing the right knowledge and information when needed, to make better decisions, take actions, and delivery results in support of underlying business strategies (Horwitch & Armacost, 2002).

On the other hand, Jones (2006, p. 117) identified knowledge management as a process of acquiring knowledge from the organization or other sources and turning it into explicit information that employees can use to transform into their own knowledge, allowing them to create and increase organizational knowledge. In a study, Beijerse (1999, p. 102) indicated that knowledge management is the act of achieving organizational goals through strategy-driven motivation and the facilitation of knowledge workers to develop, enhance and use their capability to interpret data and information (by using available sources of information, experience, skills, culture, characters, personality, feeling, etc.) through processes that give meaning to these data and information.

Wiig (1999) specified that Knowledge management should include systematic and explicit management of knowledge-related activities, practices, programs, and policies within an organization. Rastogi (2000) collaborated that Knowledge management is a systematic and integrative process of co-coordinating organization-wide activities of acquiring, creating, storing, diffusing, developing and deploying knowledge by individuals and groups in pursuit of major organizational goals.

Hence, knowledge management is essentially a deep social process that must take into account human and social factors (Thomas, Kellogg & Erickson, 2001). This represents a formidable challenge for most managers (Davenport & Prusak, 2000). Searching through so many definitions from various authors, the definition from Petrash, (1996, p. 370) is adopted for this work, which state that, Knowledge Management is getting the right information for the use of the right people at the right time.

Components of Knowledge Management

Many organizations have realized that technology-based competitive advantages are temporary and that the only sustainable competitive advantage they have is for their employees to remain at the forefront and maintain a competitive edge. Organizations must have a good capacity to retain, develop, organize, and utilize their employee competencies (GroÈnhaug & Nordhaug, 1992).

Literature reveals that a number of studies have addressed the components of knowledge management. Demarest's (1997) process model of knowledge construction comprises dissemination, use, and embodiment as the components of knowledge management. However, Darroch (2003) posited a three-stage model that consisted of knowledge acquisition, Knowledge use-responsiveness relationship and knowledge dissemination.

Bhatt (2001) illustrated a five-process step of knowledge creation, validation, presentation, distribution, and application as the components of knowledge management. However, Meyer and Zack, (1996) KM cycle is rather made up of the technologies, facilities, and processes for manufacturing products

and services. Bukowitz and Williams (2000) described a knowledge management process framework that outlines "how organizations generate, maintain and deploy a strategically correct stock of knowledge to create value" as the main composition of KM. In this framework, knowledge management consists of knowledge repositories, relationships, information technologies, communications infrastructure, functional skill sets, process know-how, environmental responsiveness, organizational intelligence, and external sources.

Wiig (1993) focused on the three conditions that need to be present for an organization to conduct its business successfully. He outlined these as; it must have a business (products/services) and customers; it must have resources (people, capital, and facilities); and it must have the ability to act. The cycle focuses on identifying the functions and activities that are engaged in the making of products and services as knowledge workers. These processes, while often concurrent, are not always in a linear sequence (Beckman, 1999; Lee & Choi, 2003). McElroy (1999) described a knowledge management life cycle that consists of the processes of knowledge production and knowledge integration, with a series of feedback loops to organizational memory, beliefs, claims and the business-processing environment. McElroy emphasized that organizational knowledge is held both subjectively in the minds of individuals and groups but objectively in explicit forms such as written documents.

The subjective perspective of knowledge contends that knowledge does not exist independent of human experience; instead, it develops through the social creation of meanings and concepts; therefore, losing a universal objective character

(Von Krogh & Roos, 1995). The organization therefore, serves as a knowledge-integrating institution, incorporating the knowledge of many different individuals and groups in the process of producing goods and services (Soo, Devinney, Midgley, & Deering, 2002). It is worth noting that, processes and technology alone are not enough to drive an organization but its human force (staff) are integral pivot in organization's success (Kogut & Zander, 1997). Desouza (2011) therefore recommended that, in order to manage knowledge effectively, attention must be paid on four key components: Knowledge, People, Processes and Technology (KP^2T). Baloh, Desouza, and Paquette (2011) revealed that without having knowledge to manage, there would be no knowledge management. Thus, in essence, the focus of KM is to connect people, processes, and technology for the purpose of leveraging knowledge (Holtshouse, 1998). Gold, Malhotra, and Segars (2001) also stated that the components of knowledge management to be comprised of process and infrastructure.

Drawing from the Gold, et al., (2001) and Desouza (2011), this study operationalizes knowledge management as made up of people, process and infrastructure. Thus, this study views knowledge management as being subjective rather than objective because, people are the creators and consumers of knowledge (Nonaka, 2005). Baloh et al. (2011) define processes as mechanical and logical artifacts that guide how work is conducted in organizations. Processes govern work in an organization and so are critical to the functioning of organizations (Lee & Choi, 2003). Technology is a critical enabler and foundational element of a KM plan (Amayah, 2013). However, it is worth noting that technology does not make

organization share knowledge, but if people want to share, technology can increase the reach and scope of such exchanges using the contextualized processes in the organization (Kogut & Zander, 1997).

Knowledge Management Processes

KM is a dynamic and continuous set of processes and practices embedded in individuals as well as in group and physical structures (Moffett, McAdam, & Parkinson, 2003). At any point in time in a given organization, individuals and groups may be involved in different aspects of the KM process (Pirkkalainen & Pawlowski, 2014). Thus, KM processes must be considered as a sequence of activities and events (i.e. acquisition, storage, transfer or application of knowledge) that ultimately lead to KM outcomes (Eaves 2014). According to Edvission (2000), KM process consists of four steps: sharing tacit knowledge, creating concepts, justifying concepts, and facilitating cross-leveling knowledge. Conversely, Cui, Griffith and Cavusgil (2005) mentioned that KM capabilities consist of three interrelated processes: acquisition, conversion, and application. However, Alavi and Tiwana (2003) suggested a KM process framework that consists a different set of four stages: creation, storage/retrieval, transfer, and application. Gold, et al., (2001) offered another four-stage KM model that includes knowledge acquisition, conversion, application, and protection. By grouping processes from other empirical studies, Gold et al. (2001) brought to the fore that, KM capabilities refer to the KM processes in an organization that develop and use knowledge within the firm.

Madhoushi, Sadati, Delavari, Mehdivand, and Mihandost (2011) admonished that, proper knowledge acquisition, conversion, application and protection can help to transform knowledge from being a potential power tool into actual innovations or inventions which can enhance overall performance of organizations. Although there are still many classifications of KM process, this study addresses the viewpoints of organizational capabilities and focuses on these four dimensions as laid out by Gold et al. (2001). Thus, the KM model that includes acquisition, conversion, application, and protection of knowledge at the KM process level. Madhoushi, Sadati, Delavari, Mehdivand, and Mihandost (2011) admonished that, proper knowledge acquisition, conversion, application and protection can help to transform knowledge from being a potential power tool into actual innovations or inventions which can enhance overall performance of organizations. This study adopted scaled items to measure the four constructs of knowledge management process capability (in terms of acquisition, conversion, application, protection) and their descriptions are as follows;

Acquisition

Acquisition is concerned with seeking knowledge outside the organization and creating new knowledge from the interaction between new knowledge and previous knowledge in the organization (Gold et al., 2001). Thus, the organization seeks new knowledge that will benefit innovation, development and organizational effectiveness both within and outside of the organization (Svenson, 1979). Acquisition refers to the ability of an organization to identify, access and collect the internal and external knowledge that is necessary for its activities (Zahra &

George, 2002). Knowledge acquisition results from individual participation and interactions between tasks, technologies, resources and people within a particular context (Anha, Baughnb, Hanga, & Neupertc, 2006).

The knowledge which is externalized and captured by people who need it can increase the productivity, profitability and subsequently organizational performance (Mtega, Dulle, & Benard, 2013). Within the firm, individuals share perceptions and jointly interpret information, events, and experiences (Cohen & Levinthal, 1990). However, at some point, knowledge acquisition extends beyond the individuals and is coded into corporate memory (Inkpen, 1995; Nonaka & Takeuchi, 1995). Knowledge acquisition also includes the identifying and documenting best practices or creating expert directories to foster knowledge sharing through human–human collaboration (Smith, 2000). Smith, cautioned that, unless knowledge is embedded into corporate memory, the firm cannot leverage the knowledge held by individual members of the organization.

Organizational knowledge acquisition is the "amplification and articulation of individual knowledge at the firm level so that it is internalized into the firm's knowledge base" (Malhotra, 2000). The feedbacks from information used, questions asked, actions taken, alternatives considered, and decisions taken are the types of knowledge sought for at the acquisition process level (McGraw & Seale, 1987; Gammack & Young, 1985). Huber (1991) defined grafting as the migration of knowledge between firms. He explained it as learning process whereby the firm gains access to task-specific, process-specific and product-specific knowledge that was not previously available within the firm. This is typically achieved through

mergers and or alliances that promotes direct passing of knowledge between firms (Huber, 1991).

Experiential knowledge acquisition involves knowledge acquisition within a given firm—that is, knowledge created by doing and practicing (Pennings, Barkema, & Douma, 1994). Argyris and Schon (1978) referred to the acquisition processes to involve the refinement and improvement of existing procedures and technologies as opposed to developing new ones. Field (2003) explained that, employees need to understand just what it is that they know, that others need to know, and why this content needs to be shared with their peers.

Knowledge acquisition is expected to have a significant influence on organizational performance (Cho & Korte, 2014). He explained knowledge acquisition involves the process of acquiring knowledge from either inside or outside of the organization. Appropriate acquisition of knowledge increases the stocks of knowledge available to the organization, thereby providing organizations better capability to make timely decisions that are essential to superior organizational performance (Chen, 2004). Malhotra (2000) asserted that, knowledge acquisition is simply individual knowledge that has been incorporated into the firm's knowledge base to help boost productivity, profitability and subsequently organizational performance. Knowledge that is acquired has to be organized, integrated and presented in a more effective way in order to be useful (Reisi, Hoseini, Talebpour, & Nazari, 2013). Liu and Deng (2015) found that the knowledge acquisition dimension of knowledge management capability has a positive effect on performance.

Conversion

Knowledge conversion is an important process of KM in organizational settings because it deals with the transformation of knowledge into needed and useable forms (Pirkkalainen & Pawlowski, 2013). Knowledge conversion enables organizations to improve their expertise and efficiency by converting acquired knowledge into applicable organizational knowledge that aids easy distribution of the knowledge to where it is needed (Bhatt, 2001; Daud & Yusoff, 2010; Gold et al., 2001; Mills & Smith, 2011). Therefore, organizations must carefully transform aspects of tacit knowledge into explicit knowledge; otherwise, the tacit knowledge may be lost (Gold et al., 2001).

Conversion is the ability for enterprises to transform knowledge to forms that are easily assimilated or accessible within the organization (Gold et al., 2001). He outlined some of the processes that enable knowledge conversion in a firm as, an organization's ability to organize, integrate, combine, structure, coordinate, or distribute knowledge. If enterprises can transform tacit knowledge into explicit and codified knowledge, enterprises would utilize the more explicit knowledge efficiently and effectively to revolutionize performance (Egbu, Sturgesand & Bates, 2004). These transformations, which occur along with the supply of data, information and knowledge cycle, are transient and must transform data into information and transform information into organizational knowledge to maximize the benefits of this process (Bhatt, 2001). Moreover, knowledge conversion means packaging knowledge to create value in the organization, which can be reflected in innovations, creations and new products (Mills and Smith, 2011). Knowledge

conversion is expected to have a significant influence on organizational performance (Cho & Korte, 2014).

However, Dixon (2000) outlined factors that affect knowledge conversion as characteristics of the receiver (skills, shared language, technical knowledge), the nature of the task (routine, non-routine), and the type of knowledge being transferred (a continuum from explicit to tacit). Hence the organization serves as a knowledge-integrating institution that acquires, converts and incorporate the knowledge of many different individuals and groups in the process of producing goods and services (Holtshouse, 1998). Knowledge conversion and its subsequent integration may occur in organizations through organizational routines, directions, or processes involving the sharing of explicit or tacit knowledge (Nonaka, 1995). Egbu, (2004) indicated that, if an enterprise can transform tacit knowledge into explicit and codified knowledge, then the enterprise would be able to utilize the more explicit knowledge efficiently and effectively to innovate and thus performs better. Liu and Deng (2015) established that the conversion domain of knowledge management capability has a positive effect on performance.

Application

Application is the knowledge use process (Collins, 2003). Process characteristics that have been associated with the use of knowledge include storage, retrieval, usage, contribution and sharing (Gold et al., 2001). The application process is defined as the way knowledge is used to solve problems within the organization (Cope, 2000*)*. Carrillo, Robinson, AlgGhassani and Anumba (2004) explained that, processes of application such as sharing or distributing knowledge

is important for knowledge management With the assistance of information technology such as an intranet, database systems, or non-information technology tools such as brainstorming sessions and research collaboration, enterprises can explore the knowledge within the organizations to adjust strategic direction (Carrillo et al., 2004).

Therefore, knowledge application refers to the integration of acquired knowledge into the organization's products, processes, and services in order to sustain its competitive advantage (Bhatt, 2001). Knowledge application involves activities that show that the organization is using its knowledge learnt from experience and experimentation (Bhatt, 2002). Knowledge application is expected to have a significant influence on organizational performance (Cho & Korte, 2014).

Again, Chen and Fong (2015) empirical findings of previous studies also showed that knowledge application has strong effect on business performance. Dröge, Claycomb and Germain (2003) implied that companies will be successful in creating a competitive advantage in the long run if they produce knowledge with lower cost and higher speed compared to competitors and apply it effectively and efficiently for refining existing products. Hence, many knowledge management applications make use of intelligent agents such as people (Seleim, & Khalil, 2007). Deng (2015) found that, KM application has a positive effect on organizational performance. Similarly, Liu and Deng (2015) observed that, the knowledge application dimension of knowledge management capability has a positive effect on performance.

Protection

Knowledge portals provide access to diverse enterprise content, communities, expertise, and internal and external services and information that must be protected from inappropriate use both inside and outside the organization (Collins, 2003). The protection process is the security-oriented knowledge management process designed to defend the knowledge within an organization from illegal and inappropriate use or theft (Gold et al., 2001). Protecting the knowledge within an organization from illegal or inappropriate use or theft both inside and outside is an important security measure for every organization (Firestone, 2003). Knowledge protection processes preserves the rare and inimitable (trade secrete) quality of knowledge thus ensuring competitive advantage (Gold et al., 2001).

Matin, Nakchian, and Kashani (2013) indicated that, knowledge protection can help to conserve knowledge for innovations or inventions which can enhance overall performance of organizations. Desouza and Vanapalli, (2005) reiterated that, since knowledge is considered as an important source of sustainable competitive advantage for modern business, increasing attention should be paid on protection of knowledge in order to prevent imitation by competitors.

Jean, Sinkovics and Hiebaum (2014) added that, the use of certain knowledge protection processes such as copyrights, trademarks and nondisclosure contracts to ensure knowledge is secured is an important component for knowledge conservation in an organization. Knowledge protection is expected to have a significant influence on organizational performance (Cho & Korte, 2014).

Additionally, Liu and Deng (2015) also found that the protection dimension of knowledge management capability has a positive effect on performance.

Knowledge Management Infrastructure

As mention afore, KM capabilities include KM infrastructure and KM Processes (Gold et al., 2001) that are aimed to strengthen the organizations by giving competitive advantage internally and externally. KM infrastructure consists of technology, structure and culture (Rasula, Vuksic, & Štemberger, 2012). KM infrastructure is the environment of the organization through which knowledge acquisition, knowledge retrieval, knowledge application, knowledge protection and knowledge storage become easy and thus, the best facilitator for organizations to implement the KM systems, framework and capabilities efficiently and effectively (Tiwana, 2000). Knowledge management infrastructure is the building blocks of KM processes for improvement and effectiveness of all activities related to implementation of best KM systems (Tiwana, 2000).

Emadzade, Mashayekhi, and Abdar (2012) explained regarding KM infrastructure as broad environment through which organizations attain the effective implementation of activities related to KM and supports vital operational and innovative activities. KM infrastructure creates collaborative environment that push the elements of KM to interact with one another by becoming the facilitator between KM applications and problem solving (Theriou & Chatzoglou, 2008). Therefore, Knowledge infrastructure capabilities (KIC) are required to build and maintain generic capabilities that are shared with organizational activities and functions (Gold et al., 2001; Liao & Wu, 2010). According Gold et al. (2001),

knowledge infrastructure capabilities can be assessed through three major constructs: structural infrastructure, technological infrastructure, and cultural infrastructure. Pandey and Dutta (2013) examined the role of knowledge infrastructure capability in knowledge management practices within an organization and suggested that organizational structure, culture and technology plays a facilitating and steering role in developing organizational performance. This study adopted scaled items to measure the three constructs of knowledge infrastructure capability (in terms of technology, structure, culture) and their descriptions are as follows:

Organizational Technology

Technology consists of the mechanism within organization that facilitates the creation, collaboration and dissemination of knowledge in the best possible way (Gold et al., 2001). Technology is all about the technical mechanism that an organization holds for effective knowledge transmission within and outside the organization (Rašula et al., 2012). Information technology helps organizations in timely transmission of organizational goals to employees of the organizations (Gold et al., 2001) and to also prove the best facilitator to achieve the desired goals of the organizations (Yang, 2011). Lee and Lan (2011) suggested that current era is the technological era and the organizations that have best technology have greater competitive edge over others.

Technology has the core position in the integrated KM framework to make portable the new knowledge and repository of existing knowledge for easy retrieval and protection from misuse (Gold et al., 2001). Lee and Lan (2011) hypothesized

that technology has positive effect on the organizational performance. Technology helps organizations to increase productivity by giving timely information (Sandhawalia & Dalcher, 2011) and reduce response time by efficient utilization of IT tools (Zaied, 2012) and have the ability to minimize the cost of operations and processes (Rašula et al., 2012).

Again, technology is used for acquiring new knowledge, retrieve knowledge about their products and stakeholders, acquiring knowledge and information about market and effective communication within the organization (Gold et al., 2001). Some researchers affirm that if technology was abolished from the integrated KM framework and systems, then the whole system may fail (Kiessling, Richey, Meng, & Dabic, 2009). Technology is positively correlated with KM performance and firm performance (Pettersson, 2009). KM performance is the term that is used to measure the Organizational Performance (Mehregan, Jamporazmey, Hosseinzadeh, & Kazemi, 2012) and technology has best fit with KM performance (Tare, 2003).

KM success is dependent on some factors and technology is one that is included in KM success factors (Rulke, Zaheer, & Anderson, 2000). Technology is helpful to make the right decision by emphasizing on two factors, i.e. capturing knowledge and facilitating the use of IT tools (Rašula et al., 2012). Capturing knowledge is very fast using the latest technology and aids in setting the strategic direction that will lead to KM performance and ultimately enhancing the organizational performance (Mehregan et al., 2012). Technology is expected to have a significant influence on organizational performance (Cho & Korte, 2014).

Gold et al. (2001) stated that technology refers to the crucial element of the structural dimension needed to mobilize social capital for the creation of knowledge. Additionally, they identified the technological dimensions as those that are part of effective knowledge management to include business intelligence, collaboration, distributed learning, knowledge discovery, knowledge mapping, opportunity generation, and security. Information technology is often cited in literature as an important KM infrastructural capability, enabling or supporting core knowledge activities such as knowledge creation, knowledge distribution and knowledge application (Gold et al., 2001).

Cha (2010), focusing specifically on internet chat rooms, found that education, social inclusion, maintaining relationships, meeting new people and social compensation are some of the gratifications for using these chat rooms. Ko, Chang-Hoan Cho., and Roberts (2005) discovered that the social–interaction motivation for using KM technology such as the internet has a positive effect on the use of human to human interaction features that encourages connectedness and reciprocal communication. From the KM perspective, the technological knowledge management capability can assist firms in enabling the rapid acquisition, storage, and exchange of knowledge, mapping internal or external knowledge sources, integrating organizational knowledge flows, and applying existing knowledge to create new knowledge (Chuang, 2004; Gold et al., 2001).

ICT technologies enhance knowledge management and usually involve more people in knowledge creation process as they allow multiple people to collaborate when creating knowledge (Majchrzak, Wagner, &Yates, 2013).

Technology is a critical enabler and foundational element of a KM plan (Amayah, 2013). However, it is worth noting that technology does not make organization share knowledge, but if people want to share, technology can increase the reach and scope of such exchanges using the contextualized processes in the organization (Kogut and Zander, 1992). Liu and Deng (2015) detected that the technology dimension of knowledge management capability has a positive effect on performance.

Organizational Structure

Structural infrastructure refers to the physical layout and organization hierarchy (Armbrecht, Chapas, Chappelow, Farris, Friga, Hartz, McIlvaine, Postle & Whitwell, 2001). Again, structural infrastructure may refer to the physical layout of an organization that promotes the creation of new knowledge (Armbrecht et al., 2001). A proper physical structure, such as office design and office locations, is favorable for knowledge creation and easy sharing (Gold et al., 2001). Flexible hierarchical structures, (such as matrix teams or flattened organizations) can also increase communication with individuals and sharing behavior within the organization and therefore make information readily accessible (Armbrecht et al., 2001).

Gold et al. (2001) labelled organizational structure as encompassing of the essential rudiments of the infrastructural dimension that determines the channels from which knowledge is accessed and how it flows. Enterprises can establish strategies to form a knowledge sharing path ways, which creates a desire for knowledge sharing among their employees to help keep the enterprises themselves

steady with regard to the continual application, distribution, and creation of knowledge as aided by proper organizational structures (Hauschild et al., 2001). Cho & Korte (2014) predicted organizational structure to have a significant influence on organizational performance. Liu and Deng (2015) observed that the structural dimension of knowledge management capability has a positive effect on performance.

Organizational Culture

Organizational Culture is a set of shared values, belief and attitude that employees of the organization possess (Chen & Huang, 2007; Yesil & Kaya, 2013). Culture of an organization tells about the rights and rituals, methods of problem solving and the oval all work environment (Zaied, 2012), style of decision making, knowledge sharing habits (Rašula et al., 2012), and behaviors of human resource of any organizations (Gold et al., 2001). In KM framework the cultural context is always a prominent element as it helps in acquiring, sharing and dissemination of knowledge within and outside the boundaries of the organization and is the predictor of efficient KM infrastructure which leads to KM performance and firm performance (Meihami & Meihami, 2014). The organizational performance will increase if the cultural context within which tasks are performed relates to relates knowledge acquisition, knowledge creation, knowledge sharing, knowledge dissemination and knowledge protection increases (Rašula et al., 2012). KM culture creates competitive advantage to help organizations move in the right directions (Zaied et al., 2012). The attaining of competitive advantage and superior performance is only achievable through KM if the cultural environment is helpful

to remove the barriers between the human resource and available information in the organization so that individuals use this information for innovation and productivity (Rahman, Sambasivan, & Wong, 2013). Organizations that have vast social network and collaborative culture have performed better and their integrated KM framework creating the KM performance effectively and when social network interact it will boost the socialization and internalization process (Lopez-Nicolas & Merono-Cerdan, 2011).

The KM culture also emphasizes the cross-cultural context especially when organizations work globally and in that organizations the roots of culture are vast in comparison to organization acting locally and this aids in identifying the performance dimensions, KM success criteria (Ozbağ, Esen & Esen, 2013), knowledge sharing culture which will work better in the KM atmosphere (Gold et al., 2001) and addressed to the human resource skill set of the organization that will never end even if key knowledge workers leave the organization because, through knowledge sharing all other employees have already captured their knowledge and skills to solve the specified problems (Zaied, 2012). A proper km culture boosts the knowledge sharing environment to create continuance commitment and hence, individuals are kept interested in enhancing their skills (Nonaka & Takeuchi, 1995).

Cavusgil, Calantone, and Zhao (2003) worked on tacit knowledge transfer among individuals within the organization in Ukraine and have suggested that to effectively transfer tacit knowledge, one requires collaborative cultural context because of the significant positive relationship between tacit knowledge transfer and cultural context of organization in attaining superior KM performance.

They suggested that organizations can achieve efficient knowledge and business processes if their organizational cultural is supportive. Zaied (2012) was of the same view regarding the cultural context and Organizational Performance of an organization. The KM performance is dependent on how much time is required to transfer knowledge from one individual (who has) to another (who requires), and this is only possible if cultural context is supportive in making decision taking easy (Jennex, Smolinik & Croasdell, 2012).

Gold et al. (2001) argued that culture is the supportive capability for the valuation of organizational knowledge and builds an interactive, collaborative atmosphere among the organization's members. The organizational culture is considered a complicated set of values, beliefs, behaviors, and symbols affecting the knowledge management in organizations (Ho, 2009). Thus, a friendly knowledge culture is regarded as the main factor that influences knowledge management and the application of its outcomes (Miils & Smith, 2011). Sin and Tse (2000) concluded that organizational culture values such as consumer orientation, service quality, informality, and innovation are significantly related to organizational performance. Moreover, the failure of many knowledge transfer systems is often a result of cultural factors rather than technological oversights (Pirkkalainen & Pawlowski 2013). For this reason, organizational culture may become a major barrier to success in the KM if involvement, consistence, adoptability, vision and mission are not well formulated for the organization.

Many scholars have pointed out that corporate vision is an imperative element of the organizational culture (Leonard, 1995). The overall vision of an

organization states a clear goal of the organization and ignites the mandatory actions in the organization to achieve those goals (Nonaka &Takeuchi, 1995). A vision incorporates two things: first it shows the desired future direction of the organization and secondly it shows the organizational values. A well-articulated and well communicated vision can be utilized to develop involvement and contribution among the employees (O'Dell & Grayson, 1998). Vision and the corporate values determine the knowledge that is required by the organization and the knowledge related activates accepted by the organization (Leonard, 1995; Levinthal & March, 1993). Hence the clearly stated visions foster the knowledge management behaviors in the organization (von Krogh, 1998). That is to say, the focus in vision statements should be on those components of the organization that promote the knowledge management processes to occur. Organizational culture is expected to have a significant influence on organizational performance (Cho & Korte, 2014). Effective knowledge management practices require a culture that fosters and rewards the creation and use of knowledge, as well as its sharing among individual members and groups (Davenport, et al., 1998; O'Dell, et al., 1998). However, in reality, companies may foster an environment where individual expertise is highly rewarded, but mentoring and assisting are not (Leonard & Sensiper, 1998).

Involvement refers to the level of participation that organization members have in decision making (Denison, 1990; Denison & Mishra, 1995). Involvement is frequently mentioned as a desirable trait of an organization. High-involvement organizations are described as having the characteristic of a “clan” rather than a

normal bureaucracy (Ouchi, 1980). Out of this ownership grows a greater commitment to an organization and a lesser need for an overt control system (Denison, 1990). The high-involvement culture provides a friendly place to work where people can share a lot of themselves. Hence, participation of knowledge sharing and creating activities are encouraged (Kayworth & Leidner, 2004). Ruppel and Harrington (2001) found from their study on intranet adoption that, in organizations whose culture displays a high concern for other people and an atmosphere of mutual confidence and trust, early adoption of intranet use is most likely to occur. De Long and Fahey (2000, p. 118) point to the example of one of their case sites where senior management placed very high emphasis on individual expectations by the firm's engineers. While this management strategy motivated individual accomplishment, it had a de-motivating effect on individual propensity to share knowledge and expertise.

Additionally, the interaction between individuals is essential to the innovation process (Davenport & Prusak, 1998; De la Mothe & Foray, 2001; Nonaka, 1994). Dialog between individuals or groups is often the basis for the creation of new ideas and can therefore be viewed as having the potential for creating knowledge (Gold, Malhotra, & Segars, 2001). Employee interaction is encouraged in high-involvement cultures, both formally and informally, so that relationships, contacts, and perspectives are shared by even those not working side-by-side (O'Dell, et al., 1998). This type of interaction and collaboration is important when attempting to transmit tacit knowledge between individuals or convert tacit knowledge into explicit knowledge, thereby transforming it from the individual to

the organizational level (Nonaka, 1994). In general, involvement is crucial in every step of knowledge management because the purpose of knowledge management is primarily to elevate personal knowledge to organizational knowledge where individual involvement is a precondition. In the other words, effective knowledge management requires a high level of involvement; these strategies should be a part of the method used by a manager to shape the culture. This is because, knowledge management is widely understood as the one that includes the knowledge community, where people can interact in the discovery, use and manipulation of knowledge (Thomas, Kellogg, & Erickson, 2001).

Consistency refers to the extent to which beliefs, values, and expectations are held consistently by members (Denison & Mishra, 1995). Because communication is fundamentally a process of manipulating symbols, a high level of agreement about the meaning of each symbol greatly enhances the encoding-decoding process necessary for communication (Denison, 1990). A strong culture thus has a much greater potential for implicit coordination and control of behavior, and facilitates the exchange of information (Denison, 1990). Moreover, one of De Long and Fahey's (2000) frameworks proposed that organizational culture shapes members' common assumptions about what knowledge is, what individual versus collective knowledge is, and how culture dictates the norms and expectations that govern organizational members' behavior. The shared assumptions and values can establish the basic mental schema that helps individual employees cognitively progression and evaluate information in similar ways, as well as provide members with a common set of heuristic that shapes decision making, task performance, and

shared interpretations of information (O'Neill, Beauvais, & Scholl, 2001). Also, consistency is helpful in reaching a high level of efficiency in applying knowledge (Brockman & Morgan, 2003).

Adaptability refers to the degree to which an organization has the ability to alter behavior, structures, and systems in order to survive in the wake of environmental changes (Denison & Mishra, 1995). The concept of adaptability is similar to the concept of entrepreneurship, flexibility and change friendliness. Brockman, Deshpande and Webster (1989) suggest that, in a change-friendly organizational culture, the gathering of information and sharing of knowledge is encouraged. In contrast, knowledge management practices may be hindered by organizational culture that is highly formalized and depends heavily on standard operating procedures, rules, and regulations as templates for decision making (De Long & Fahey, 2000). These rules may stifle the creation of new knowledge as members attempt to address novel problems with fixed patterns of thinking that may no longer be appropriate (Gold, et al., 2001). Kotter and Heskett (1992) also propose that adaptive culture surpass non-adaptive culture in problem solving, enthusiasm, and innovation.

Mission refers to the existence of a shared definition of the organization's purpose (Denison & Mishra, 1995). This process of internalization and identification contributes to short and long-term commitment and leads to effective performance (Denison & Mishra, 1995). A vision that permeates the organization can provide people with a needed sense of purpose that transcends everyday activities (Gold, et al., 2001). The overall vision is intended to generate a clear

organizational purpose and prompt the necessary changes in the organization so that it can achieve its desired goals (Nonaka & Takeuchi, 1995). The vision does not only incorporate a vision statement that conveys a clear and unambiguous statement of the future and the desired direction of the organization, it can also incorporate a system of organizational values (Denison, 1990). Through an articulated and communicated vision, it is important to engender a sense of involvement and contribution among employees (O'Dell, et al., 1998).

Denison (1990) suggests that an effective firm must have a strategic plan and a clear direction as well as express the plan in a way that is meaningful to members of the organization. Vision fosters motivation (Dierkes, 2001) because it activates not only the cognitive potential of individuals, groups, and organizations, but also their emotional, volitional, and affective potential. Dierkes (2001) suggests that vision does more than just appeal to the logical and rational mind; they touch upon the internalized norms, values, and preconceived notions underlying people's perceptions, thinking, and decisions. Thus, vision has the power to motivate people to think and act in a particular direction. A vision also facilitates and fosters coordination by mediating between people's different ways of perceiving and thinking (Dierkes, 2001). Davenport and Pruskas's (1998) noted that clarity of vision and language are important knowledge management factors. They argued that it is vital to clarify the specific objectives and terms used in a knowledge management project because the terms of knowledge, information, and learning are subject to many interpretations, and people's attention and energy can dissipate if there is not a clear vision and language for the knowledge management project.

Denison's mission dimension incorporates clear purpose and language for an organization's overall goals; hence, it can provide a general direction and objective for knowledge efforts. In general, organizational culture creates the context for social interaction, thus shaping the processes by which new organizational knowledge is created, legitimated, and distributed (De Long & Fahey, 2000).

A study was conducted by Reisi, Hoseini, Talebpour, and Nazari, (2013) to investigate the relationship between individual dimensions of knowledge management process capability and organizational effectiveness among selected sport organizations in Iran. Employing multi-variant regression analysis, the results demonstrated that all dimensions of knowledge management capabilities (knowledge acquisition, knowledge conversion, knowledge application, and knowledge protection) have direct and a significant relationship with organizational effectiveness. They further suggested that knowledge and learning activities are necessary for organizations to improve their effectiveness. Furthermore, Liu and Deng (2015) found that each dimension of knowledge management capability has a positive effect on business process outsourcing performance. Knowledge application was found to be the most significant dimension correlated to business process outsourcing performance. They concluded that knowledge management capability is an effective tool to enhance performance as it provides organizations with competitive advantages that their competitors find difficult to imitate.

In addition, Kimaiyo, Kapkiyai and Sang (2015) mentioned that all processes of knowledge management are very important for enhancing firm performance. Firms are suggested to apply knowledge management continuously

by creating new knowledge, converting knowledge into new design or strategy, learning from previous experience, and protect their knowledge in order to achieve better performance. On the other hand, Mills and Smith (2011) conducted a study in Jamaica to examine the relationship between knowledge management capability and organizational performance. They found that knowledge acquisition, knowledge application, and knowledge protection are positively related to organizational performance, but not knowledge conversion. They argued that the relationship between knowledge management and performance is complex and that, each knowledge management process is not necessary directly linked to performance even they are found to be correlated to performance from a composite model.

Theories of Knowledge Management

The von Krogh and Roos (1995) KM Model of Organizational Epistemology takes an organizational epistemology approach and emphasizes that knowledge resides both in the minds of individuals and in the relations, they form with other individuals. Knowledge is said to be "embodied"; that is, "everything known is known by somebody" (von Krogh & Roos, 1995, p. 50). However, Nonaka and Takeuchi (1995) Knowledge Spiral Model focuses on knowledge spirals that explain the transformation of tacit knowledge into explicit knowledge and then back again as the basis for individual, group, and organizational innovation and learning. This theory emphasis that Organizational knowledge creation should be understood as a process that organizations amplify the knowledge created by individuals and crystallizes it as a part of the knowledge

network of the organization through the process of socialization, externalization, internalization and combination. Choo (1998) adopted a sense-making approach to model knowledge management that focuses on how information elements are fed into organizational actions through sense making, knowledge creating, and decision making through the shared interpretation of individuals.

Weick (2001) also proposed that sense making in organizations consists of four integrated processes: ecological change, enactment, selection, and retention. Specific decisions do not follow an orderly process from problem to solution, but are outcomes of several relatively independent streams of events within the organization" (Daft, 1982, p. 139). Hence the Wiig Model for Building and Using Knowledge is based on the principle that in order for knowledge to be useful and valuable, it must be organized through a form of semantic network that is connected, congruent, and complete, and that has perspective and purpose. Some useful dimensions to consider in Wiig's KM model include: completeness, connectedness, congruency, perspective and purpose.

More so, the Intelligent Complex Adaptive Systems (ICAS) KM theory views the organization as an intelligent complex adaptive system (Beer, 1981; Bennet & Bennet, 2004). Beer (1981) was a pioneer in the treatment of the organization as a living entity. In his Viable System model (VSM), a set of functions are distinguished, which ensures the viability of any living system and organizations in particular. The Viable System model (VSM) depicts how a simple data can move to the information and to the knowledge level to make a huge organizational impact (Beer, 1981). Beer (1981) exemplifies it as a step by step

process that moves from Scanning to Problem solving to Abstraction to Diffusion, to Absorption and then to Impact.

This study combines the Model of Organizational Epistemology, Knowledge Spiral Model, sense-making approach and the Intelligent Complex Adaptive Systems KM theory to show that knowledge created by people can be better converted into usable forms through KM processes and made sense of through well-organized KM infrastructure for an impactful organizational performance.

Measurement of Knowledge Management

To achieve organizational goals, a firm must engage in a wide range of strategies to create, store, and apply knowledge within their organizational context. These strategies generally fall into one of two categories of codification or personalization of explicit and tacit knowledge (Hansen, Nohria, & Tierney, 2005). Personalization strategy focuses on sharing knowledge via person-to-person contact and dialogue (Hansen, et al., 2005). These includes transfer of knowledge with respect to business strategies, best practices, customer-focused knowledge, personal responsibility for knowledge, intellectual asset management, innovation, and knowledge creation from one person to the other (O'Dell, Wiig, and Odem, 1999). Thus, a successful KM system is one that includes knowledge community, where people can interact in the discovery, use, and manipulation of knowledge (Thomas, et al., 2001). By contrast, codification refers to the approach in which knowledge is extracted from the person who developed it, made independent of that person, and reused for various purposes (Hansen, et al., 2005). This strategy can

also be seen as a way to withdraw knowledge from the person who possesses it, so that it remains in an organization for use. Thus, codification focuses on converting tacit knowledge to explicit knowledge for the competitive advantage of individual in an organization. The codification strategy is intended to collect, codify, and disseminate information, which relies heavily on information technology (IT) to manage explicit knowledge. In order to understand the impact of organizational KM on organizational performance, this study focused on the codification of knowledge management practices.

Again, knowledge management can be viewed from the process perspective and or the outcome perspective (Al-Ghassani, Kamara, Anumba, & Carrillo, 2004). The process perspective definition tends to promote the development of processes to capture and measure organizational knowledge. These processes do not necessarily need to involve the use of information technology. For example, Davenport et al. (1998) view knowledge management as a process of collection, distribution, and the efficient use of the knowledge resource. The outcome perspective, on the other hand, focuses on the benefits and competitive advantage that an organization gets from managing its knowledge. An outcome perspective definition considers knowledge management as a conscious strategy of getting the right knowledge to the right people at the right time, and helping people share and use their information in ways that strive to improve organizational performance (O'Dell, et al., 1998). Knowledge management is broadly treated as a process of leveraging knowledge for the purpose of achieving innovative outcomes through process and products services, effective decision making, and organizational

adaptation to the market in order to improve the overall organizational performance (Yahya & Goh, 2002).

This study, however, posits that KM must be considered by both its process and outcome perspectives. From the process perspective, knowledge management will be articulated with processes of acquisition, conversion, application and protection. From an outcome perspective, organizational knowledge aspects such as technology, organizational culture, organizational structure, leadership style, educational level, and years of work experience, will act as regulating factors that will determine how knowledge management capabilities should be implemented for a positive effect on organizational performance.

Overview of Organizational Performance

Organizational performance has been used widely as the most important criterion in evaluating organizations; however, researchers often pay little attention to what performance is and how it is measured (Richard, 2008). Griffin (2003) explained that, organizational performance reflects the ability of an organization to fulfil its stakeholders' requirements and survive in the market. However, organizational performance can also be defined in terms of quality of work, effective employee decision making, improved processes, relationship of management and employees, diverse products and services, innovations, market shares, employee skills to solve problem quickly and new methods for product development (Delaney & Huselid, 1996; Kiessling et al.,2009; Zaied, 2012). Creation of knowledge is the focal building block of the KM theory towards the performance and will be effectively attained through training, self-search and

knowledge sharing (Zaied, 2012). Again, if the infrastructure components like technology, culture and hierarchical structure support and facilitates effective decision making, it can help in measuring the organizations performance (Gold et al., 2001).

Increase in productivity as a result of KM function is also a measure of organizational performance and shows that if the KM tools are working effectively and efficiently then productivity will move up and is the basic indicator of organizational performance (Gold et al., 2001). The productivity will be enhanced if the KM tools are effectively applied and will ultimately lead to organizational performance (Zaied et al., 2012; Gold et al., 2001). KM capability measures the organizational performance through innovative products. Zaied et al. (2012) has measured the organizational performance in terms of perceived usefulness of product, increase in market share, profitability and growth rate, innovativeness, customer satisfaction and competitiveness. He combined the KM capabilities and processes to measure the organizational performance on the above-mentioned determinants and proved that there is positive relationship between productivity, innovativeness and customer satisfaction as organizational performance raises when tested on KM framework.

Definitions of Organizational Performance

Organizational performance reflects the ability of an organization to fulfil its stakeholders' requirements and survive in the market (Griffin, 2003). It also known as the outcome of the actions or activities carried out by the members of an organization to measure how well an organization has accomplished its objectives

(Ho, 2009; Chung & Lo, 2007). Previously, organizational performance has been mostly assessed through financial based performance measures. Most widely used financial measures are return on assets (ROA), return on investments (ROI), and return on equity (ROE), market share, sales growth, and profitability. Even though these indicators are still the ultimate aim of most organizations' operation, but measuring performance solely on these indicators are no longer adequate to measure competencies that modern organizations are looking for (Gomes, Yasin, & Libsboa, 2004; Kaplan & Norton, 1992). According to Richard, Devinney, Yip, and Johnson (2009), organizational performance should be viewed as a multidimensional construct. A balance and complete assessment of organization's performance should consist of different performance dimensions (Tangen, 2003) because organizational performance cannot take place without integration of systems, operations, people and management (Jyoti & Sharma, 2012).

Moreover, researchers claimed that non-financial performance measures are more useful on predicting future performance and facilitating the performance of the organizations because this method combines aspects of financial with non-financial measures (Crabtree & DeBusk, 2008). Therefore, it is necessary for organizations to use non-financial performance measures too in order to assess their intangible benefits such as client satisfaction, employee satisfaction, innovation ability, internal business process efficiency, and performance enhancement from intangible assets (Kaplan & Norton, 2001).

In addition, there are practical issues concerning which measures to use; whether subjective vs. objective measures or financial vs. non-financial measures

(Devinney et al., 2005). The objective method is the narrowest concept of performance measured in terms of financial performance such as sales growth or profitability (Venkatraman & Ramanujam, 1986). The subject is the broader notion that puts emphasis on non-financial performance such as efficiency in product quality and marketing effectiveness which are sometimes referred to as business performance (Venkatraman & Ramanujam, 1986).

Venkatraman and Ramanujam, (1986) explained that, business performance (non-financial) still primarily focuses on factors that lead to the achievement of an organization's financial goals. Venkatraman and Ramanujam argue that researchers should focus on the measurement domain identified by either financial or business performance and not use both in the same work to prevent overlapping of measurement indicators. Combs, Crook, Shook and David (2005) advise against using measures that combine both non-financial and financial performance.

Performance data can be obtained either from a primary source (i.e., collecting data directly from organizations) or from secondary sources (i.e., collecting data from publicly available records or databases) (Venkatraman & Ramanujam, 1986). Dess and Beard (1984) assert that subjective measures can be useful to operationalize organizational performance. Thus, by providing respondents with prior warning about multidimensionality of organizational performance together with a subjective 'overall performance' question, respondents tend to produce consistent both within and between each firm (Dess & Robinson, 1984). Similarly, Venkatraman and Ramanujam (1987) emphasize that researchers should not conclude that objective measurement of performance is universally

superior to subjective measurements of performance. Ketokivi and Schroeder (2004) examined the association between objective and subjective measures by looking at the use of multiple dimensions of performance and multiple informants. Their analysis revealed high reliability and moderate validity of the subjective measures; therefore, they conclude that the use of subjective measures is justified**.** However, Ketokivi and Schroeder urge researchers to consider identifying salient performance dimensions of organizational performance and use multiple items and multiple informants where possible.

Further, Walls, Reed, Enders, Lindor, McClees, and Lindor (2011) found significant evidence of construct validity indicated by the equivalent relationships of subjective and objective performance measures with a range of independent variables. Although several empirical studies suggest that subjective performance measures could be a viable alternative, Richard, Devinney, Yip, and Johnson (2008) urge that researchers should weigh the tradeoffs between subjective and objective measures against their research contexts and pay attention to their research design.

In summary, general recommendations for using subjective measures of organizational performance are: to develop a priori theory and empirically test relationships between operational performance and financial performance (Combs et al., 2005), collecting measures from multiple dimensions using multiple items (Combs et al., 2005; Ketokivi & Schroeder, 2004); to employ multiple informants (Ketokivi & Schroeder, 2004; Venkatraman & Ramanujam, 1987); to consider using quasi-objective measures or providing cues for respondents to the performance dimension of interest to reduce measurement error (Combs et al.,

2005; Dess & Robinson, 1984; Richard et al., 2008), to avoid measures that are composites of operational and organizational performance (Combs et al., 2005); and to evaluate validity of selected measures by testing convergent and discriminant validity (Ketokivi & Schroeder, 2004; Wall et al., 2004).

Following Venkatraman and Ramanujam, this research defines organizational performance in a broader sense (subjective) in non-financial performance as measured in terms of effectiveness and efficiency to be consistent with the terminology used in organizational performance literature. For the purpose of this study, the researcher used the non-financial performance indicators to measure organizational performance because the organization in question is a public extension institution whose performance is not measured based on profits made but rather on its efficiency and effectiveness in creating surplus by the process of transferring research findings on cocoa to cocoa farmers at the right time and taking feedback from cocoa farmers to researchers for the purpose of increasing cocoa production and productivity in Ghana.

Components of Organizational Performance

Mouzas (2006) emphasized two indicators to assess performance: the efficiency and the effectiveness of an organization. Effectiveness oriented companies are concerned with output, sales, quality, creation of value added, innovation, cost reduction. It measures the degree to which a business achieves its goals or the way outputs interact with the economic and social environment. Usually effectiveness determines the policy objectives of the organization or the degree to which an organization realizes its own goals (Zheng, 2010). Meyer and

Herscovitch (2001) analyzed organizational effectiveness through organizational commitment. They concluded that, commitment in the workplace may take various forms such as relationship between leader and staff, employee's identification with the organization, involvement in the decision-making process and psychological attachment felt by an individual.

Shiva and Suar (2010) agree that superior performance is possible by transforming staff attitudes towards organization from lower to a higher plane of maturity and therefore human capital management should be closely blinded with the concepts of effectiveness. According to Heilman & Kennedy-Philips (2011) organizational effectiveness helps to assess the progress towards mission fulfillment and goal achievement. To improve organizational effectiveness, management should strive for better communication, interaction, leadership, direction, adaptability and positive environment including planning, manufacturing, and maintenance (Fu-Kwun, 2006; Muthiah & Huang, 2006). According to Porter (1996), Total Productive Maintenance System (TPMS) could be applied as a tool not the strategy for managers to ensure operational effectiveness. The author stressed the fact that effectiveness management tools and techniques such as benchmarking, time-based competition, outsourcing, partnering are slowly taking the place of the strategy. An organizations' frustration is its inability to translate goals into sustainable profitability.

Efficiency measures relationship between inputs and outputs or how successfully the inputs have been transformed into outputs (Low, 2000). According to Pinprayong and Siengthai (2012), there is a difference between business

efficiency and organizational efficiency. Business efficiency reveals the performance of input and output ratio (usually applied by profit making organizations) while organizational efficiency reflects the improvement of internal processes of the organization, such as organizational structure, culture and community (usually applied by not for profit organizations). Excellent organizational efficiency could improve entities performance in terms of management, productivity, quality and profitability. Pinprayong and Siengthai (2012) said effectiveness and efficiency are exclusive, yet, at the same time, they influence each other because every organization must achieve set targets in order to survive; therefore, it is important for management to ensure the success in both areas where applied. Pinprayong and Siengthai suggested that mathematically, Organizational performance = effectiveness x efficiency. Efficiency is all about resource allocation across alternative uses (Kumar & Gulati, 2010). Organizations can be managed effectively, yet, due to the poor operational management, the entity will be performing inefficiently (Karlaftis, 2004). Inefficient and ineffective organization is set for an expensive failure. In such case there is no proper resources allocation policy and there is no organizational perspective of their future. Such an organization has leadership issues, high employee turnover rate and no clear vision where the organization will be standing tomorrow (Porter, 1996).

If the organization is able to manage its resources effectively, yet it does not realize its long-term goals, it will bankrupt slowly. This strategy is cost efficient but it is not innovative and creates no value. Management has no clear customer-oriented policy set in place, which leads to constant focus on efficiency. Such

organization uses all its efforts to implement strict resource allocation policy, which translates into strict staff cost control, training cost reduction or even elimination (Porter, 1996). These actions lead to low morale of the organization high turnover rate of the employees and low customer satisfaction. Efficient but ineffective organization cannot be competitive and it will bankrupt eventually (Porter, 1996).

History of Cocoa Production in Ghana

The origin of cocoa takes us back to the mysterious Olmecs and Mayas. These highly cultivated Central-American civilizations gave us the cocoa tree. They believed cacao to have originated from a divine source and legend states that the good and wise god *Tula Quetzalcoatl* brought with him its seeds that he cultivated in his garden, thus bringing the tree to earth (Motamayor et al, 2002). The cultivation of *Theobromacacao* soon spread throughout the world. As the demand for cocoa increased in Europe in the nineteenth and twentieth centuries, cocoa became a pan-tropical crop. Firstly, cocoa spread to Trinidad and other islands in the Caribbean from where it was taken further to the Philippines and the East Indies, and then to Sri Lanka, Brazil and West Africa (Young, 1994).

Acquah (1999) noted that cocoa has been a commodity in the world trade for nearly 400 years. The first exports were from Mexico to Spain. Soon Venezuela became the principal exporter and apparently held the position for over 100 years. Ecuador became the principal exporter around 1830 and held the position for some 60 years, Brazil took over from Ecuador but 20 years later, the leading position was taken over by Gold Coast (now Ghana), the principal exporter in 1911 and held this position for 66 years, only ceding it to Ivory Coast in the late 1970s.

From annual production of less than 125,000 tones in the early twentieth century, annual global output rose to reach a record of 3.1 million tonnes and 3.45 million tonnes in the 1999/2000 and 2003/04 cocoa seasons respectively with an annual average growth rate of 3.5%. Despite the large number of producing countries, production is extremely concentrated in few countries. In 1999/2000, 70% of output was produced by just three countries: - Ivory-Coast, Ghana and Indonesia. The success of these countries in producing cocoa lies in their low costs of production, the comparative advantage of cocoa over competing crops within these countries, and the relative success in limiting the incidence of disease. Outside these three countries, Nigeria, Brazil, Cameroon, Malaysia and Ecuador are the other substantial producers, accounting for slightly more than 20% of output, with the remaining forty or so countries producing just 10% (Gray, 2000). According to Earth Satellite Corporation's Cast Service (ESCCS), 2003-04 world production totaled 3.45million metric tons; Ivory Coast the world's leading producer contributed 1.39 million metric tons forming 39.3% whilst Ghana the second highest producer also contributed 734,000 metric tons representing 21.3% of the global output (Dizolele, 2005; Ganes-Chase, 2004; ICCO, 2006; UNCTAD, 2005).

The Cocoa Services Division (CSD) under COCOBOD managed all organizational works with cocoa in Ghana (Agricultural Extension Policy, 2003). To provide a unified extension education to farmers the cocoa extension was merged with the Department of Agricultural Extension Services, of the Ministry of Food and Agriculture (MoFA) in 1998 (Agricultural Extension Policy, 2003).The responsibility to develop the capacity for cocoa extension was thus transferred to

MOFA in collaboration with relevant agencies and private sector organizations in Ghana. In 2001, the Government of Ghana, in consultation with the World Bank and other stakeholders in the cocoa industry initiated a program to review the unified extension policy in order to achieve its objectives (Agricultural Extension Policy, 2005). The aim of this policy was to effectively assist cocoa farmers to obtain sufficient cocoa farm management information from extension officers. Currently the cocoa health and extension division (CHED) provides all the necessary cocoa extension education to cocoa farmers in the country.

Demographic Characteristics of Community Extension Agents (CEAs)

Studies on demographics of CEAs have shown that there is a close relationship between CEAs' demographic characteristics and Knowledge management (Hefny, 2013). The main demographic characteristics that this study focused on are age, sex, educational level, years of experience, and leadership style.

Demographic Characteristics of CEAs in terms of Age

Anumaka and Ssemugenyi (2013) found the age bracket of majority of workers in academic institutions to fall between 20 and 39. A study by Ojha (2005) and Watson & Hewett (2006) showed that age does not affect knowledge sharing behavior. However, Reige (2007) suggested that difference of age could be also a potential factor for knowledge sharing behavior. This is supported by Gumus (2005) who indicated that there were significant differences between age groups concerning knowledge collection not knowledge donation. People within the age range of 36 to 40 are poor on collecting knowledge. A study by Keyes (2008) uncovered a more definite relationship between age and knowledge sharing.

Anandarajan, Simmers, and Igbaria (2000) concluded that age and sex do not have any significant associations with knowledge related factors, except that women are less likely to access information from the internet. Hedge and Borman (2012) emphatically specified that, when it comes to knowledge work, age cannot be used as a determinant factor to performance. At the organization level, O'Reilly, Snyder, and Boothe (1993) found that within top management teams, age diversity was not related to organizational innovation and performance.

Demographic Characteristics of CEAs in terms of Sex

Agwu, and Chah (2007) noted in their study on extension workers in Nigeria, that majority of extension workers were males which is due to the gender difference found in public services in Nigeria. Zhang (2004) showed that female employees view information from the internet to be equally useful as male employees do except that women are less likely to access information from the internet. In terms of relationship between gender and knowledge sharing, previous studies by Ojah (2005) reported that gender did not have a significant impact on knowledge sharing. However, a study by Miller and Karakowsky (2005) discovered that there are differences between men and women in their effort to seek knowledge. Women gained more benefits from knowledge sharing (Irmer, 2002). A study by Lin (2006) indicated that women are more willing to share knowledge because they are more sensitive to instrumental ties and have need to overcome traditional occupational challenges. Pangil and Nasrudin (2008) confirmed that, there is a difference between men and women in terms of tacit knowledge sharing behavior. However, according to Arvey and Murphy (1998), task and contextual

performance are not entirely separate and both of males and females contribute substantially to overall measures of performance.

However, Ojha (2005) studied on extension workers in Nigeria and reported that the share numbers of the men and the under-representativeness of women in extension hampers efficient knowledge management. Ogunleye, (1998) showed that women are still under represented in these professions. Elleus, (1994) supported that disproportionate male-female ratios in some professions make it difficult for several women to interact well with their male colleagues. Gamble and Gamble, (2002) rationalized that, men and women perceive different realities, have different expectations set for them and that while women are categorized as emotional, men are classified as rational.

Nonetheless, Andoh, Biako and Afranie (2011) point out importance of recognizing the fact that there are only a few, gender related differences that will affect the performance of men and women. He explained that, in most cases, there are no significant difference between sexes when it comes to organizational performance. However, Ancona & Caldwell (1992) asserted that sex as a demographic composition has an influence on work group processes through the phenomenon of "information/decision-making perspective variations". This logic is predicated on the idea that, individuals with different demographic characteristics also have different perspectives. Thus, this decision-making theory suggest a relationship between gender diversity and firm performance. According to Barney (1991), diverse sets of employees generate an organizational resource that cannot be replicated by homogenous organizations. He explained that, to the extent that

they generate unique ideas as a group, the firm can create a competitive advantage exemplified in firm performance. McLeod Cox, Lobel (1991) added that, employees with varied perspectives present a wider range of ideas for decision making.

Demographic Characteristics of CEAs in terms of Work Experience

Researchers suggest that experience is the job relevant knowledge gained over time (Fiedler, 2007; McCall 2004). However, individuals are products molded by every experience in life, our past and present experiences continuously affect the development and shape of knowledge, skills, attitudes, ambitions, beliefs and behaviors (McDonald & Siegall, 2008). Judge and Ilies, (2002) found the relationship between work experience and job performance to be influenced by two variables: length of experience and job complexity. Work experience is therefore a central force of influence on performance and behavior. In a study on willing of employees to share knowledge, Ardichvili, Maurer, Li, Wentling, and Stuedemann (2006), found that top managers and middle managers were not interested to participate in knowledge sharing activities. This indicates that job position has a significant impact on knowledge sharing behavior. In contrary, a study by Collin (2004) indicated that senior employees often acted as mentors to junior employees. In most cases, knowledge sharing often occurs in mentoring relationship (Sackmann & Friesl, 2007). A study titled, academics versus administration by Gumus (2005) showed that collecting knowledge is influenced by position.

Adesope, Asiabaka, and Agumagu (2007) who found that majority of extension agents' working experience ranges from 5 to 15 years. The importance

of experience was confirmed by Sackmann and Friesl (2007) who inveterate that in most cases, knowledge transfer often occurs in mentoring relationships between the more experienced and the less experienced. Hefny (2013), observed that, the type of information sought by extension officers in Egypt on the internet focused more on the extension duty and productivity. Additionally, Ruzgar (2005) also revealed in a sturdy that sending and receiving emails topped the list, followed by reading news and chat. However, Yeatts and Hyten (1998) reported that, the number of years that one has spent within an organization can have an impact of whether they will perform better or not. According to Easterlin (2007) the skills gained through years of experience are a mark of performance level that an employee can exhibit but does not necessarily translate into higher performance.

Demographic Characteristics of CEAs in terms of Educational Level

Hacket (2014) defines education as a process of acquiring background knowledge of a subject that relates to one's mandate. In most studies, educational level is not included or considered as a main construct but measured as part of demographic characteristics (Teo, 2001). However, Agwu, *et al.* (2008) showed that educational level has a significant positive influence on perceived usefulness of knowledge on performance. Zhang (2004) concluded that, the more educated people are, the more useful knowledge is to them. According to Rohde and Shapiro (2000) knowledge management and educational level are highly correlated. Strongly related to educational achievement are cognitive resources that are largely responsible for differences in performance among the digital skills of different educational groups (De Haan, Huysmans, & Steyeart, 2002). Goldin and Katz

(2008) argue that the more highly educated are able to keep up with technological advancements and therefore increase the lead over people who are not able to keep up. Bunz (2004) contended that users who lack formal instruction are likely to have trouble performing at an optimum level.

Findings by Agwu, et al. (2008) showed that majority of extension workers in Abia and Enugu States of Nigeria had HND certificates while only 32.5% had BSc. Meanwhile, Ahmadpour and Soltani (2012) observed that, 77.6% of extension staff in Iran were BSc and higher degree holders. Level of education was also reported not to have influence on knowledge sharing among workers (Ojha, 2005). However, Riege (2005) found that there is likelihood of contributory relationship between education level and knowledge sharing behavior. A study by Keyes (2008) indicated that education somewhat affect knowledge sharing. He reported that, the lower the education level, the less likely persons would share knowledge. Schmidt and Hunter (2008) found that academic qualification was strongly related to task completion and was an important contributor to completion of every job at the right time.

Benson, Bugnitz, and Walton (2004) in an article "moving from business strategy to IT action", specified that educated employees give quality output of the work and hence improve the performance of the organizations, the quality output of due care and skills and hence, improve the performance standards of their organizations. Drucker (2003) explained that, knowledge workers have two main needs: formal education enabling them to enter knowledge work in the first place, and continuing education throughout their working lives to keep their knowledge

up-to-date. However, Cushway (2003) observed that in modern times, individuals may be used productively in a flexible manner disregarding their original qualifications when they were being employed. He explained that, no matter a person's educational qualification, the person will have to be oriented to be able to apply learnt skills. Hence, the essence of on the job training. Although it is generally believed that education plays an important role in employee job performance, the relationship between the measures of education and job performance is not largely known (Wise, cited by Hassan & Ogunkoya, 2014). In a widely cited work based on meta-analysis of the relationship between education level and core task performance, Ng and Feldman (2009) found that education was related to task performance. Kuneel, Hezlett, and Ones (2004) also found out that education facilitates performance in most jobs. Gold et al. (2001) argued that educated respondents are suitable for knowledge management capacity practices because they are aware of the knowledge management activities in the organization.

Definitions of Leadership

The term leadership is a word taken from the common vocabulary and incorporated into the technical vocabulary of a scientific discipline without being precisely redefined (Yukl, 2006). Stogdill (1974, p. 259) concluded that "there are almost as many definitions of leadership as there are persons who have attempted to define the concept". To further complicate matters, leadership has been defined in terms of group processes, influences, personality, compliance, particular behaviors, persuasion, power, goal achievement, interaction role differentiation, and a combination of two or more of these (Bass, 1990; Northouse, 2001; Yukl,

2006). Hence the definition of leadership differs in who exerts the influence, the intended purpose of the influence, the manner in which the influence is exerted, and the outcome of the influence attempt (Yukl, 2006). For example, Hemphill and Coons, (2004) defined leadership as "the behaviour of an individual when he is directing the activities of a group toward a shared goal". According to Robbins (2001) "leadership is the ability to influence a group toward the achievement of goals". Tosi, Rizzo, and Carroll (1994) suggested that "leadership is interpersonal influence in which one person is able to gain compliance from another in the direction of organizationally desired goals". Leadership is a process of interpersonal influence (Chemers, 1984; Hitt, Black, Porter, & Hanson, 2007).

Indeed, acts of leadership behaviors can be exhibited by anyone in an organization and are not limited only to those holding designated positions (Hitt, et al., 2007; Northouse, 2001). Interpersonal influence is directed through communication, and the art of influencing is motivation and persuasion (DuBrin, 1998). Transactional leader-follower relationships are based on a series of rational exchanges or bargains that enable each follower to reach his or her own goals (Bass, 1985). In these exchanges, transactional leaders clarify the different roles that a follower must play, and the task requirements they must complete, to reach their personal goals and fulfil the organization's mission (Kuhnert & Lewis, 1987).

If a leader wishes for his/her followers to accomplish a task, they clearly have to tell them what their job consists of and what is expected of them (Schermerhorn, 2001). Howell and Avolio (1993) postulate that both leaders and the followers must reach an agreement concerning what the follower will receive

for achieving the negotiated level of performance. This is because, most people work because they want to satisfy their needs (Ribiere & Sitar, 2003). Hence, the transactional leadership process involves influencing a group of individuals who have a common purpose, such as a small task group, a community group, or a larger group encompassing an entire organization (Chemers, 1984; Northouse, 2001). Therefore, leadership includes attention to goals by directing the group of individuals toward a set of goals (Chelladurai, 2006; DuBrin, 1998; Northouse, 2001). Hence, leadership occurs and has its effects in context where individuals are moving towards a goal (Northouse, 2001). DuBrin (1998) posits that the key function of the leader is to create a vision (mission or agenda) for the organization. Although, some definitions may be more useful than others but there is no "correct" definition for leadership (Yukl, 2006). In research, the operational definition of leadership will depend to a great extent on the purpose of the researcher (Karmel, 1978).

With the purpose of studying the role of leadership in knowledge management to better influence organizational performance, the definition from Yukl and Van Fleet, (1992) is adopted: "leadership is a process that includes influencing the task objectives and strategies of a group or organization, influencing people in the organization to implement the strategies and achieve the objectives, influencing group maintenance and identification, and influencing the culture of the organization" (p. 149). In this definition, leadership includes motivating people, shaping organizational objectives, and maintaining the group and organizational culture. Thus, leadership pervades not only at the individual level but also at the

group and organizational level. Additionally, as leadership is viewed as behavioral processes, the focus is on what the leader does rather than what the leader is.

Ribiere and Sitar, (2003) put to the fore that, while organizations need strong managers to formulate a detailed plan and oversee day-to-day operation, leaders are needed to challenge the status quo, to create a vision for the future, and to inspire organizational members to want to achieve that vision. Thus, strong organizational vision, a culture that cultivates learning and sharing of a common knowledge base, a structure facilitating the wide use of individual and group knowledge, and leadership that fosters learning are seen as determinants for creating knowledge-based organizations (Dierkes, 2001).

Leadership and Knowledge Management

Leadership includes motivating people, shaping organizational objectives and maintaining the group and organizational culture; therefore, leaders have a direct impact on how the company approaches and deals with knowledge management (DeTienne, Dyer, Hoopes, & Harris, 2004). Without effective leaders, who set appropriate examples, employees will not be motivated to participate in the knowledge management programs (DeTienne, et al., 2004; Lam, 2002). Leaders create conditions that allow participants to readily exercise and cultivate their knowledge-manipulation skills, to contribute their own individual knowledge resource to the organization's pool of knowledge, and to have easy access to relevant knowledge (Crawford, 2005).

Drucker (1992) prompted an entry of the present age into what he called "knowledge society", along with its respective knowledge economy and industry;

the workforce would be rapidly dominated by knowledge workers, and managing them all effectively would be a substantial challenge for most leaders. Leading them can be done only through intellectual power, conviction, persuasion, and interactive dialogue (Ribiere & Sitar, 2003) as knowledge workers are not objects to be manipulated. Drucker (2002) noted that "knowledge workers may have a supervisor, but they are not subordinating but rather they are associates", they do not identify themselves as workers but as professionals (p.12). They are not doing things that are easily observable and also do not follow a set of predictable results (Drucker, 2001). Such knowledge workers have two main needs: formal education enabling them to enter knowledge work in the first place, and continuing education throughout their working lives to keep their knowledge up-to-date (Drucker, 2003).

Thus, Politis (2002) suggests that the role of leadership is increasingly changing from information and knowledge gate-keeping to knowledge creation and knowledge sharing for all employees. Vermaak and Weggeman, (1999) point out that those professionals who do not develop and share their knowledge together rest on their laurels. Hence, the level of trust that exists between the organization, its sub-units, and its employees greatly influences the amount of knowledge that flows between individuals and from individuals into the firm's database and into best practices achievement (De Long & Fahey, 2000).

Leadership is key to building a trust-based culture by demonstrating concerns, keeping promises, morality, fairness, openness, honesty, discretion, consistency, integrity, accessibility, and delivering expected results (Ribiere & Sitar, 2003). Leaders, thus, can create psychological conditions and encourage

people to be more accountable, more willing to be transparent, and to be less defensive (Fairholm, 1994). A strong, trusting leader is willing to take risks in empowering all members of the learning organization by developing a shared vision, providing resources, delegating authority, celebrating success, and more importantly being a learning architect (Hitt, 1995). In contrast, incompetent or unethical leaders can quickly erode whatever trust exists within an organization or team. Every organization is in competition for its most essential resource: qualified and knowledgeable people (Nonaka, Toyama, & Konno, 2000). Drucker (2001) envisions that the management of knowledge workers should be based on the assumption that the corporation needs them more than they need the corporation. Bukowitz and Williams (1999) stressed that, in a knowledge-intensive organization, leaders are no longer the primary source of knowledge; moreover, they are found in the center of the organization, not just at the top. They need to have an ability to grasp value-creating knowledge for potential organizational uses.

Consequently, knowledge management processes cannot be managed in the traditional sense of "management", which centers on controlling the flow of information (Nonaka, Toyama, & Konno, 2000). Instead, leaders need to proactively and rapidly evaluate and adapt management concepts and approaches to motivate and retain knowledge workers. Hence, Drucker (2002) suggests that the only way to achieve leadership in a knowledge-based business is to spend time with the potential knowledge professionals: to get to know them and to be known by them; to mentor them and to listen to them; to challenge them and to encourage them. It also appears that leadership is, and has always been, the principal approach

to convince and motivate employees to do what managers have planned for them in advance. Leadership, thus, by its influence component, facilitates the implementation of knowledge activities in an organization.

DeTienne et al. (2004) believe that "without effective leaders who set appropriate examples, employees will not be motivated to participate in the KM programs". Beckman (1999) expands management's responsibilities in the KM process to include motivating employees, providing equal opportunities and development, and measuring and rewarding the performance, behaviours, and attitudes that are required for effective knowledge management. Bailey and Clarke (2000) have defined knowledge management as "how managers generate, communicate and exploit knowledge (useable ideas) for personal and organizational benefits". In other words, the core competences for effective leaders of knowledge organizations are being a catalyst, a coordinator, an evaluator, and through exercising cautious control (Holsapple & Joshi, 2000). It is widely acknowledged in the literature that the key function of the leader is to create a vision (mission or agenda) for the organization. The leader specifies the far-reaching goal as well as the strategy for goal attainment (DuBrin, 1998).

Leadership is the part of management where employees are brought into the picture (Ribiere & Sitar, 2003). A strong organizational vision, a culture cultivating learning and sharing of a common knowledge base, a structure facilitating the wide use of individual and group knowledge, and leadership that fosters learning are seen as determinant for creating a knowledge-based organization (Dierkes, 2001; Ribiere & Sitar, 2003). Organizational culture, on the other hand, has been

identified as the main impediment to knowledge activities; leaders should, therefore, model the appropriate behaviors, thus causing the organizational culture to evolve in a way that enables and motivates knowledge workers to create, codify, transfer, use, and leverage knowledge (Ribiere & Sitar, 2003). Baines (1997) holds that leaders, first and foremost, are responsible for learning – both personally as well as organizationally. Leaders create conditions that allow participants to readily exercise and cultivate their knowledge-manipulation skills, to contribute their own individual knowledge resource to the organization's pool of knowledge, and to have easy access to relevant knowledge (Crawford, 2005). It is the strength of leadership that determines how efficiently the culture changes, and how quickly it adopts organizational learning and knowledge management within an organization (Ribiere & Sitar, 2003). Consequently, leaders play a crucial role in building and maintaining an organizational, culture of learning, and making knowledge management happen in the organization (Bollinger & Smith, 2001; Crawford, 2005; Horak, 2001).

Eppler and Sukowski (2000) place leadership at the top of the pyramid of the platforms, norms, processes, and tools necessary for effective knowledge management; emphasizing the need for knowledge managers to achieve and maintain a balance between motivating team members with urgency and providing them opportunities to develop competencies and knowledge. Takeuchi (2001) describes three ways that leaders should provide direction for where the company is to head, in terms of knowledge management: first, leaders articulate a grand theory of what the company, as a whole, ought to be; second, leaders must

incorporate its vision for knowledge management into the company's corporate objectives or policy statement; and third, leaders must strategically decide which knowledge management efforts to support and develop; they must then follow that strategy.

Numerous studies have found that transformational and transactional leadership behaviors positively relate to a learning organization, organizational innovation, organizational commitment, job satisfaction, and job performance (Awamleh & Gardner, 1999; Bass & Avolio, 1990; Chang & Lee, 2007; Howell & Avolio, 1993; Lam, 2002; Ogbonna & Harris, 2000; Tichy & Devanna, 1986). For example, Lam's (2002) cross-national research investigating research into transformational leadership and organizational learning indicates that transformational leadership can actually affect the process and achievement of an organization's learning. Indeed, transformational leadership has a significantly positive effect on encouraging and emphasizing teamwork spirit and involvement (Podsakoff, MacKenzie, Moorman & Fetter, 1990). By motivating followers to question assumptions, be inquisitive, take intelligent risks and come up with creative observations, transformational leaders encourage individuals to break through learning boundaries and to share their learning experiences both within and across departments (Vera & Crossan, 2004).

Transactional leadership and the operation of a learning organization also come with significant relationships; thus, organizations can improve the efficiency of organizational learning through transactional leadership (Bass & Avolio, 1990; Vera & Crossan, 2004). Emphasizing existing values and routines, and focusing on

increasing efficiency in current practices, enables transactional leaders to foster rule-based ways of doing things (Bass, 1995; Bass & Avolio, 1993). Vera and Crossan (2004) posit that transactional leaders stimulate the flow of learning from the organization to individuals and groups by assigning a strong value to organizational rules, procedures, and past experiences. They also provide organizational members with formal systems and training programs that disseminate existing learning to guide future actions and decisions. Transformational/transactional leadership behaviors are related to knowledge acquisition attributes and knowledge management (Politis, 2002; Crawford 2005). In Politis' (2001) study, five leadership styles, which includes self-management leadership (Manz, 1986), transformational and transactional leadership (Bass, 1985), initiating structure and consideration (Stogdill, 1974), have been conducted to examine their relationship to knowledge acquisition attributes.

Politis (2001) found that the self-management, transformational, and transactional leadership styles are positively correlated to some dimensions of knowledge acquisition attributes. Consideration and initiating structure leadership, however, are not, and are negatively related to knowledge acquisition attributes. Politis (2002) found that the dimension of attributed charismatic leadership has a positive and significant relationship with the knowledge acquisition of knowledge workers. Crawford, (2005) found a strong relationship between transformational leadership and knowledge management behaviors. He also found a relationship between transactional leadership and knowledge management. Crawford, (2005) found significant correlations between knowledge management and contingent

reward. The major gap in the literature, however, is the lack of attention to the impact of organizational culture on such relationships between leadership and knowledge management (Block, 2003; Chang & Lee, 2007; Ribiere & Sitar, 2003).

Leadership process cannot be divorced from the broader situational context in which leadership takes place (Chemers, 1984; Northouse, 2001). Unless the culture is supportive of leaders, leadership based on common values is impossible. Culture determines a large part of what leaders do and how they do it (Fairholm, 1994). Furthermore, according to Bass (1985), transactional leaders work within their organizational cultures and maintain consistent rules, procedures, and norms. Bass (1985) also notes that transformational leaders frequently change their organizational culture with a new vision and revise its shared assumptions, values, and norms. In a transformational culture, there is generally a sense of purpose and a feeling of family; assumptions, values, and norms do not preclude individuals from pursuing their own goals and rewards, and superiors feel a personal obligation to help new members assimilate into the culture. Leaders and followers share mutual interests and a sense of shared fates and interdependence (Bass & Avolio, 1993).

When employees are rewarded for knowledge management practices, it positively impacts the knowledge management performance (Yu, Yang, Fan, Chen, & Shao, 2004). The interaction between individual employees in an organization is key to innovation (Sensiper, 1998). Leaders have been found to influence followers in many ways, including coordinating, communicating, training, motivating, and rewarding (Yukl, 1989). It is argued that effective leadership has a positive sway

on the performance of organizations (Maritz, 1995; Bass, 1997; Charlton, 2000). Behling and McFillen (1996) confirmed the link between high performance and leadership in the United States by developing a model of charismatic/transformational leadership where the leaders' behavior is said to give rise to inspiration, awe and empowerment in his subordinates, resulting in exceptionally high effort, exceptionally high commitment and willingness to take risks. Effective leadership is helpful in ensuring organizational performance (Cummings & Schwab, 1973; Hellriegel, Jackson, Slocum, Staude, Amos, Klopper, Louw & Oosthuizen, 2004).

It has been widely accepted that effective organizations require effective leadership and that organizational performance will suffer in direct proportion to the neglect of this (Fiedler and House, 1988). Furthermore, it is generally accepted that the effectiveness of any set of people is largely dependent on the quality of its leadership – effective leader behavior facilitates the attainment of the follower's desires, which then results in effective performance (Fiedler & House, 1988; Maritz, 1995). Leadership is perhaps the most investigated organizational variable that has a potential impact on employee performance (Cummings & Schwab, 1973). When organizations seek efficient ways to enable them to outperform competitors, a longstanding approach is to focus on the effects of leadership and its positive effect on subordinates (Mehra, Hui, Radzi, Jasimah, Jenatabadi, Maryam & Son, 2006). Accordingly, a survey conducted in Kenya by Bono and Judge (2003) found that, leadership behaviors, as evaluated by followers, was positively related to followers' job performance.

Barriers to Knowledge Management

Notwithstanding the benefits and drivers of knowledge management, and the fact that many organizations are gradually embracing knowledge management, there are lots of potential barriers to the successful implementation of knowledge management. In order to establish a conducive environment for knowledge management, it is necessary to identify and tackle the various barriers to knowledge management. Bonfield (1999) identified cultural, technological, economic and market place barriers to knowledge management. Ndlela and du Toit (2001) considered people-related issues as major barriers to successful implementation of knowledge management. Bollinger and Smith (2001) considered people related barriers from an individual, group and organizational perspective. Depres and Chauvel (2000) identified structural, cultural, managerial, people and cost factors. Syed-Ikhsan and Rowland (2004) identified culture, technology, people, human resources, staff turnover and political directives as barriers to knowledge management. Mason and Pauleen (2003) considered culture, lack of awareness, and poor leadership as barriers to knowledge management; while Squire and Snyman (2004) see technology, structure, culture and costly mistakes as barriers to knowledge management.

Several knowledge management theorists have identified cultural barriers as the prevalent challenge to successful implementation of knowledge management in most organizations. A 1998 survey of 431 USA and European organizations, identified culture as the biggest barrier to knowledge transfer (Ruggles, 1998). Later studies have also presented culture as a barrier to knowledge management

(Blair, 2002; Bollinger & Smith, 2001; Soliman & Spooner; 2000). Most organizations do not have the culture that naturally supports the sharing of knowledge (Syed-Ikhsan & Rowland, 2004). They are trained to use knowledge for their own good and to share it grudgingly (Squire & Snyman, 2004). The "knowledge is power" culture enables one to better understand these cultural barriers (Butler, 2003). Butler said this type of culture describes situations where professionals with the highest reputation and monopolies of knowledge perceive knowledge as a source of power. That is, people who have knowledge are more powerful than people who do not have and there is a sense of worth and status to be gained because of expertise. People who are knowledgeable in an organization believe that their career prospects depend on the ability to keep their unique information and knowledge because it will enable them to reap value from knowing what others do not know (Quinn, Andersen & Finkelstein, 1996). Therefore, sharing of knowledge may result in loss of power, revelation, and uncertainty. Hence, many organizations end up encourage a knowledge hoarding culture by recognizing and rewarding those who have knowledge rather than those who share it (Quinn et al., 1996). It therefore becomes very difficult when such information hoarders leave the organization because they go away with the knowledge, leaving the organization with knowledge gaps (Butler, 2003).

In addition, at the team level, members may be reluctant and uncertain to share knowledge because they fear criticism from their peers, or recrimination from management (Bollinger & Smith, 2001; Disterer, 2003). Lack of respect and trust will result in subversion of group efforts (Bollinger & Smith, 2001). Young and

inexperienced colleagues may face the challenge of publicly justifying their true belief to others peers (Blair, 2002). Sharing of knowledge is often regarded as an additional work particularly in organizations where performance is measured by billable hours and reward systems are based on what a person knows (Butler, 2003).

Knowledge management is deeply a social process therefore the failure to address people related issues results in many social barriers to effective knowledge management in organizations. The major social barriers identified in the literature are insufficient communication, lack of employee learning and interaction, performance management, lack of appropriate incentive schemes, ambiguous reward systems, lack of leadership commitment and resource constraints (Ndlela & du Toit, 2001). Butler (2003) identified other social barriers such as language, conflict avoidance and the lack of alignment between the personal intention of the individual and the paradigms of the organization. People may lack a common language to communicate and externalize tacit knowledge hidden in individual paradigms and beliefs (Nonaka 1994). In addition, spoken and written language such as English, may involve high-order "literacy" in more technical languages such as blueprints or statistics. Also, conservative habits such as conflict avoidance may prevent the sharing of knowledge. For example, if the leading members of the firm are not willing to take risks and have the “don’t rock the boat attitude”, new ideas may be covered very easily and different views and perspectives would be hidden (Disterer, 2003). This is why one of the eleven deadliest sins of knowledge management is not to establish, challenge and align a shared context for the members of the organization (Fahey & Prusak, 1998). Fahey and Prusak (1998)

said that, this shared context requires engagement in open, honest, supportive and critical dialogue to develop different views. The lack of alignment between the personal intention of the individual and the paradigms of the organization will make it difficult to articulate and justify personal believes that do not fit into the operating paradigms of the organization (Mason & Pauleen, 2003). For example, in most organizations the ruling paradigms vision, mission, and strategic issues are made known only to a few employees who have over time gained the confidence of management (Ndlela & du Toit, 2001).

The structure of the organization may be organized in a way that inhibit the flow of information (Disterer, 2003). The bureaucratic and hierarchical structures prevalent in most organizations with formal and administrative procedures prevent cross-functional communication, cooperation and sharing of knowledge and new ideas (Kofoed, 2002). Knowledge management can be very time-consuming and labor intensive (Disterer, 2003). People are already busy in their day to day activities, and sharing knowledge may mean changing the way they work or adding extra steps to reflect on knowledge management initiatives (Kofoed, 2002). Knowledge is constantly changing both at the individual and organizational levels and this has resulted to difficulty in codifying tacit knowledge (Bollinger & Smith, 2001).

Cost issues may have negative effects on knowledge management (Diakoulakis, Georgopoulos, Koulouriotis, & Emiris, 2004). In order for a knowledge management strategy to be effectively and gainfully implemented, organizations have to grapple with many cost-related issues such as the cost of

investment in information communication technologies, the cost of acquisition of knowledge from external sources, the cost of creating, sharing and using of knowledge, the cost of hiring employees, the cost of redesigning the organization, and the cost of educating employees amongst other factors (Davenport, 2000).

The size of a firm may have something to do with the willingness of the firm to devote personnel and money to new technologies (Daghfous, 2003). He reported that, small firms where people communicate with others easily and pass along information in the hallway may not consider knowledge management a priority. Notwithstanding their inaccessibility to technology, small firms still have the potential to benefit from the flexibilities of knowledge management because as already noted technologies are only enablers to knowledge management.

The political status of knowledge management is yet another barrier (Diakoulakis et al., 2004). Knowledge is often associated with power, money and success and there is no secret that power related issues are often political issues involving money and the drive for success. It is therefore not surprising that political undertakings such as knowledge hoarding rather than sharing, ambiguous reward systems, lobbying, intrigue and back-room deals are associated with knowledge management (Davenport, 2000; Daghfous, 2003; Diakoulakis et al., 2004).

Insufficient communication may result in the lack of awareness and understanding of the knowledge management vision in an organization (Mason & Pauleen, 2003). Organizational blindness is yet another barrier to the effective implementation of knowledge management (Eman, 2003). This arises over time, as

knowledge embedded in procedures become stagnant due to the fact that people are making no effort to improve on current practices because of the believe that these practices are the best (Daghfous, 2003).

Although information communication technology is the cornerstone for the implementation of knowledge management, there are several limitations that may result from the use of information communication technology. First, information communication technology may lead to a flood of information thus diminishing the ability of the employee to make sense of the organization's knowledge management (Okunoye, 2001). Without an active oversight, technology may just add to the information glut in the organization (Soliman & Spooner, 2000). Second, technology by their very nature they may be complex and difficult to use (Daghfous, 2003). There are no "one-size-fits-all" technology solutions for knowledge management although some software products are represented in this manner (Daghfous, 2003). Third, the unavailability of information communication technology in an organization is itself an impediment to knowledge sharing since they are major enabler to knowledge management (Reimus, 1997).

It is worth noting that the diffusion and effective utilization of information communication technology has not spread evenly over the world (Andrews, 2001). They are mostly utilized in Western industrialized nations and less in developing nations. It is not uncommon to find small businesses in developing countries with little or no information communication technology tools or with tools that have not been infused into business practices (Okunoye, 2001; Eman, 2003). Finally, resistance is often met in the use of information communication technology

particularly amongst the older employees who are often overwhelmed with the ubiquitous presence of information communication technology, and rely on the information communication technology skills of the younger employees (Daghfous, 2003).

The study listed and explored inadequate infusion of ICT into business practices, prevalent bureaucratic structures, inadequate financial support for knowledge capacity building, preventable political interference, people's reluctance to share knowledge, lack of time to undertake all necessary knowledge management protocols and ambiguous reward systems as the major challenges to implementing proper knowledge management system that will enhance the organizational performance of CHED.

Enablers to Knowledge Management

There has been general agreement amongst scholars that a psychologically healthy, open, positive, non-secretive, knowledge-sharing, cooperate, organizational culture where ideas are sharply criticized, individuals are respected and staff are encouraged to discuss their mistakes is crucial for knowledge management to flourish (Nonaka & Takeuchi, 1995). Aadne, von Krogh, and Roos, (1996) define a cooperative culture as a horizontal and vertical connection within the firm that shares compatible goals, strive for mutual benefits and acknowledges high level mutual interdependence. Ristow, Rousseau, Kesen, Haggard, and Turban, (1999) concluded in a study on leadership that, the effectiveness of any set of people is largely dependent on the quality of its leadership. Trust is the expectation, assumption or belief that a person’s future action will be beneficial,

favorable or at least not detrimental to one's interest (Robinson, 1996). Trust reduces the fear that others would act opportunistically. Krogh, (1998) relates trust to care and defines it as, leniency in judgment, courage to voice opinions, the feeling of concern and interest for different viewpoints and experiences within the organization.

A number of instances have been recorded in the literature where recognition of ownership has been used as a means of encouraging knowledge sharing. According to Hansel, (1999) knowledge sharing may be encouraged by massaging the egos of the contributor or by recognizing their contribution and paying them for contributing. Rewards and incentives may also be used as an extrinsic motivation to encourage knowledge sharing. An exploratory study by Bock & Kim, (2002) on what actually motivates people to share knowledge suggests that a positive organizational attitude towards sharing and expectations of benefits from the organization provide better results than external reward. Similarly, drawing from the expectancy theory, Davenport et al. (1998) reported that the strengths and the willingness to contribute to the knowledge management system depends on the strengths and the expectations that contributing to the system will be followed by a given outcome and the attractiveness of that outcome to the contributor.

Reward systems are based on equitable recognition, trust and commitment (Stover, 2004). For example, an awareness that working with knowledge management will be considered when performance evaluation comes up or in any future career decisions is important. In certain organizations, knowledge sharing is

part of the employees' performance review and has a major impact on salary (Quinn et al., 1996). This could be attained by locating people who normally work together closer to each other; or encouraging people to share their precious knowledge assets with each other in a complementary manner through collaborative relationships, informal conversations and formal information transfer (Nonaka, 2005).

Interaction may also occur through training, interactive learning, working experiences and dialogue and can also take the form of formal interviews between outside observers and employees on their personal and organizational knowledge base (Baumard, 1999). Therefore, staff with appropriate linguistic backgrounds will support knowledge management activities (Soliman & Spooner, 2000). Also, the availability of a common language to communicate and externalize tacit knowledge hidden in individual paradigms and beliefs will facilitate knowledge sharing (Nonaka, 1994). Post-study debriefs during which groups seek to find out what they have learned from a project and how the project could be improved in future is a way of facilitating knowledge management. Encouraging employees to engage in reflexive practices that is, making employees think and analyze their actions in a critical manner that would improve professional practice will also facilitate knowledge management (Baumard, 1999).

Most knowledge management researchers recognize the important role of top management and leadership commitment to knowledge management (Baumard, 1999). It has been observed that top management and leadership act as peers in providing leading examples of knowledge sharing, identifying specific barriers to knowledge management and sending messages throughout the firm that

knowledge management is crucial (Davenport et al., 1998; McDermott & O'Dell, 2001). The leadership also funds and supports knowledge management activities, recognize and appreciate members' efforts and achievement in the area of knowledge management, and positively communicate the need to nurture, enhance, and care for knowledge initiatives (Nonaka & Konno, 1998). If top management addresses the cultural barriers to knowledge management, members will begin to adopt knowledge management in their daily work practices (McDermott & O'Dell, 2001).

Functional, technical, cultural fit and costs are major variables to consider in the selection of the appropriate technology for each organization (Smith, 2001). The widely accepted structures in Western organization are the top-down, bottom-up, and the hypertext organization also known as the up-down management (Nonaka & Takeuchi, 1995). Internal analysis involves assessing the function of the business and how the business resources such as human resources, information resources, and technology support these functions, while external analysis determines and understands the conditions, forces and changes in the firm's business environment (Synman & Kruger, 2002).

There is a direct relationship between an organization's approach to knowledge management and its ability to achieve its business objectives (Hansel, 1999; Ndlela & du Toit; 2001; Synman & Kruger, 2002). Wiig (1997) identified five strategies used by organizations to implement knowledge management systems: business strategy, intellectual asset management, personal knowledge asset, knowledge creation strategy and the knowledge transfer strategy.

Successful knowledge management initiatives have generally been approached with a selection of priority areas ranging from a discrete high impact pilot program to mid-term phase and then the final phase (Kofoed, 2002). Buckler (2004), refers to the pilot phase as a period of faith. It is only after a successful pilot project that a successful mid-term phase can be implemented. While firms tend to adopt one strategy in favor of the other, the reality is that a combination of strategies will result in an optimal maximization of a firm's knowledge resource (Yu, et al., 2011). Above all, the knowledge management team should designate a chief knowledge officer with good communication skills and visionary leadership to develop and drive the knowledge initiative (Soliman & Spooner, 2000).

There must be a continuous process of knowledge creation and sharing to ensure that businesses remain innovative and healthy (Argris & Schön, 1978). Some examples of environmental factors that influence and affect the organization are competition, fashion, markets, technological edge, and the GEPSE, that is, the governmental, economic, political, social and educational climate (Okunoye, 2001; Diakoulakis, 2004). The environmental influences to knowledge management identified in a study of knowledge management in six research institutes in Sub Saharan Africa are: government commitment, funding level, transport, telecommunication, and electricity (Okunoye, 2001).

Conceptual Framework

From the "Practice makes perfect" assumption of self-efficacy theory, it can be deduced that, as CEAs execute their routine duties, they build up their capabilities to organize and better execute the retrieval and transfer of relevant

information to cocoa farmers in a better way to help augment organizational performance. This achieved performance is further influenced by cognitive (personal), behavioral and environmental factors as illustrated by the social learning theory. Using their prior knowledge at the cognitive level, alertness at the behavioral level and social networking at the environmental level, CEAs influence all aspects of organizational performance directly and indirectly through their capabilities to reorganize opportunities and to better execute their mandate of knowledge transfer as proposed by the knowledge-based theory.

Figure 4 shows that, as CHED properly coordinates knowledge management processes (behavioral), knowledge management infrastructure (environmental) and people (personal), there is a direct improvement of organizational outputs, such as innovation, collaborative decision-making, individual and collective learning. These improved organizational outputs produce intermediate outcomes such as better decisions, organizational behaviors, products, services and relationships. These outcomes in turn, lead to improved organizational performance in terms of effectiveness and efficiency at impact level.

Thus, if community extension agents (People) are developed in areas of education, work experience and leadership then process for acquisition, conversion, application and protection of knowledge will be better chosen and practiced. Further, community extension agents (People) will be better equipped to operate within CHED's organizational structure, culture and technological advancement levels. This will invariably make community extension agents (People), more innovative, collaborative and more willing to learn both as individuals and as a

group. Furthermore, better decisions, organizational behaviors, and relationships are strengthened to aid the organization improve on its services at the outcome level.

Hence, the ultimate effect of a strong knowledge management system on organizational performance is made evident by the significant levels at which the organization is well able to use its available resources to achieve organizational goals (effectiveness) and how well the organization is able to use less resources to achieve great organizational results (efficiency) at the impact level.

Therefore, the social learning theory is instrumental to the measuring of the level of KM capacity in CHED as stated in objective one (1). The self-efficacy theory is helpful to the computing of the level of organizational performance in CHED as stipulated in objective two (2). Finally, the knowledge-based theory demonstrates the relationship that exist between KM capacity and organizational performance which is instrumental to the measuring of objective five (5).

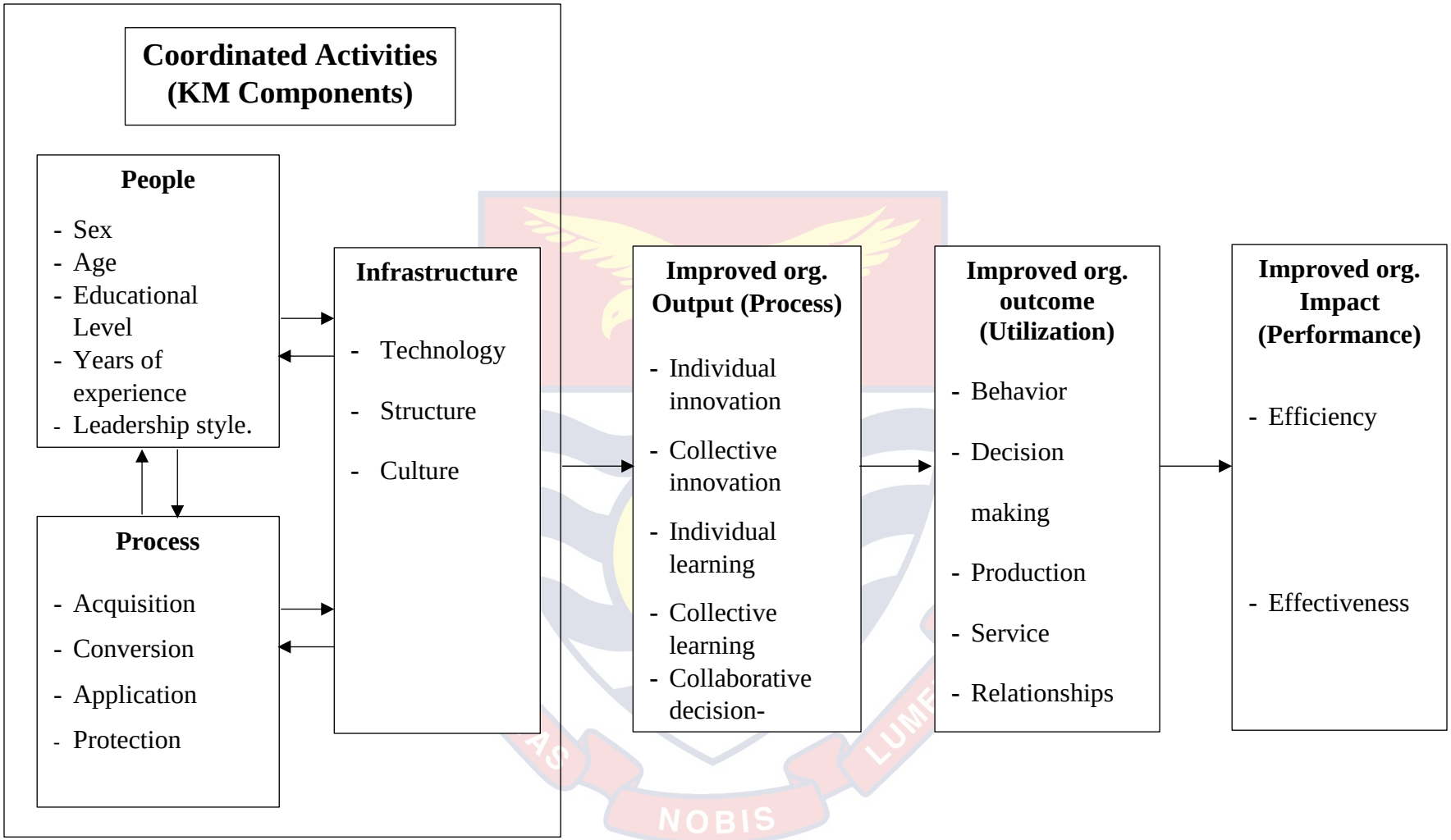

Figure 4: Conceptual Framework of the Effect of Knowledge Management on Organizational Performance in CHED.

Source: Author's Construct. Jones, (2018)

CHAPTER THREE

METHODOLOGY

Introduction

This chapter describes the procedures and techniques employed in the collection and analyzes of data for the study. This includes the study area, research design, study population, sample size, sampling procedure, the instrumentation, data collection, data processing and analysis that were used as well as the rational for using them.

Study Area

There are six agro-ecological zones in Ghana: Sudan Savannah, Guinea Savannah, Coastal Savannah, Forest-Savannah transitional zone, Deciduous Forest zone and the Rain Forest zone. Cocoa cultivation spreads to all forest areas of Ghana, particularly Eastern, Ashanti, Brong Ahafo, Volta, Central and Western Regions (Appiah 2004). These regions have been demarcated by COCOBOD as cocoa regions of Ghana and all seven (7) of the cocoa regions fall within the three main forest ecological zones of Ghana. Namely, Forest Transitional Zone, Deciduous Forest Zone and the Rain Forest Zone. The deciduous forest region covers land of 3% of the total land area of Ghana and receives rainfall of 1500mm annually. The forest transitional zone is the zone that separates the forest and the Savannah. It is called a transition zone because it shares a climate that exhibits both the forest and savannah zones and receives an annual rainfall of 1200mm. The rain-forest is located in the tropical parts in the South western section of Ghana and experiences the highest rainfall of up to 22000 mm annually.

The Eastern Region is the sixth largest region in terms of land area, falls within the deciduous rain forest and occupies a land area of 19,323 kilometer square and constitutes 8.1 per cent of the total land area of Ghana (Ministry of Local Government, 2013). It lies between latitudes 6^0 and 7^0 North and between longitudes 1°30' West and 0°30' East. The region shares common boundaries with the Greater Accra, Central, Ashanti, Brong Ahafo and Volta Regions (Ministry of Local Government, 2013). The Cocoa Health and Extension Division (CHED) operates in ten (10) cocoa growing districts in the Eastern Region. Namely, Tafo, Suhum, Oyoko, Osino, Oda, Nkawkaw, New Abirem, Kade, Bawdua, Asamankese.

Brong Ahafo which is located in the forest transitional zone is the second largest region of Ghana in terms of landmass with a territorial size of 39, 557 kilometers square (Ministry of Local Governmen, 2013). The region is bordered on the north by the Northern Region, Ashanti and Western on the South, Eastern and Volta on the Southeast and east respectively, and the Republic of La Cote d'ivoire to the west. The Region has a tropical climate with high temperatures of between 23^0C and 39^0C, enjoying however maximum rainfall of 45mm in the northern parts to 65^0 in the south of the region. There are two main types of vegetation namely the moist semi deciduous forest mostly in the southern western and southeastern parts of the region, and the guinea savannah woodland predominantly in the Northeastern portion of the region. The Cocoa Health and Extension Division (CHED) operates in eight (8) cocoa growing districts in the Brong Ahafo Region. Namely, Berekum, Bechem, Dormaa Ahenkro, Nkrankwanta, Goaso, Sankore, Dediesoaba and Techiman.

The Western Region covers an area of approximately 23,921 kilometer square which is about 10 per cent of Ghana's total land area (Ministry of Local Governmen, 2013). The region has about 75 per cent of its vegetation within the high forest zone of Ghana, and lies in the equatorial climatic zone that is characterized by moderate temperatures. It is also the wettest part of Ghana with an average rainfall of 1,600mm per annum. It is bordered on the east by the Central Region, to the west by the La Côte d'Ivoire, to the north by Ashanti and Brong-Ahafo regions, and to the south by the Gulf of Guinea. The southernmost part of Ghana lies in the region, at Cape Three Point near Busua, in the Ahanta West District. The region houses two cocoa regions of Ghana. These are the Western-North and the Western-South cocoa regions of Ghana. For the purpose of the study, the Western-North cocoa Region of Ghana of the western region was randomly sampled. The Cocoa Health and Extension Division (CHED) operates in ten (12) cocoa growing districts in the Western-North region, namely, Bodi, Akontombra, Adjofua, Boako, Sefwi Bekwai, Bibiani, Dadieso, Boinso, Enchi, Juabeso, Essam, and Adabokrom. In all Cocoa Regions, units in each district is headed by a Districts Cocoa Officer and assisted by a District Extension Coordinator. The CEAs are in charge of operations within the operational zones in the districts (Frimpong 2016).

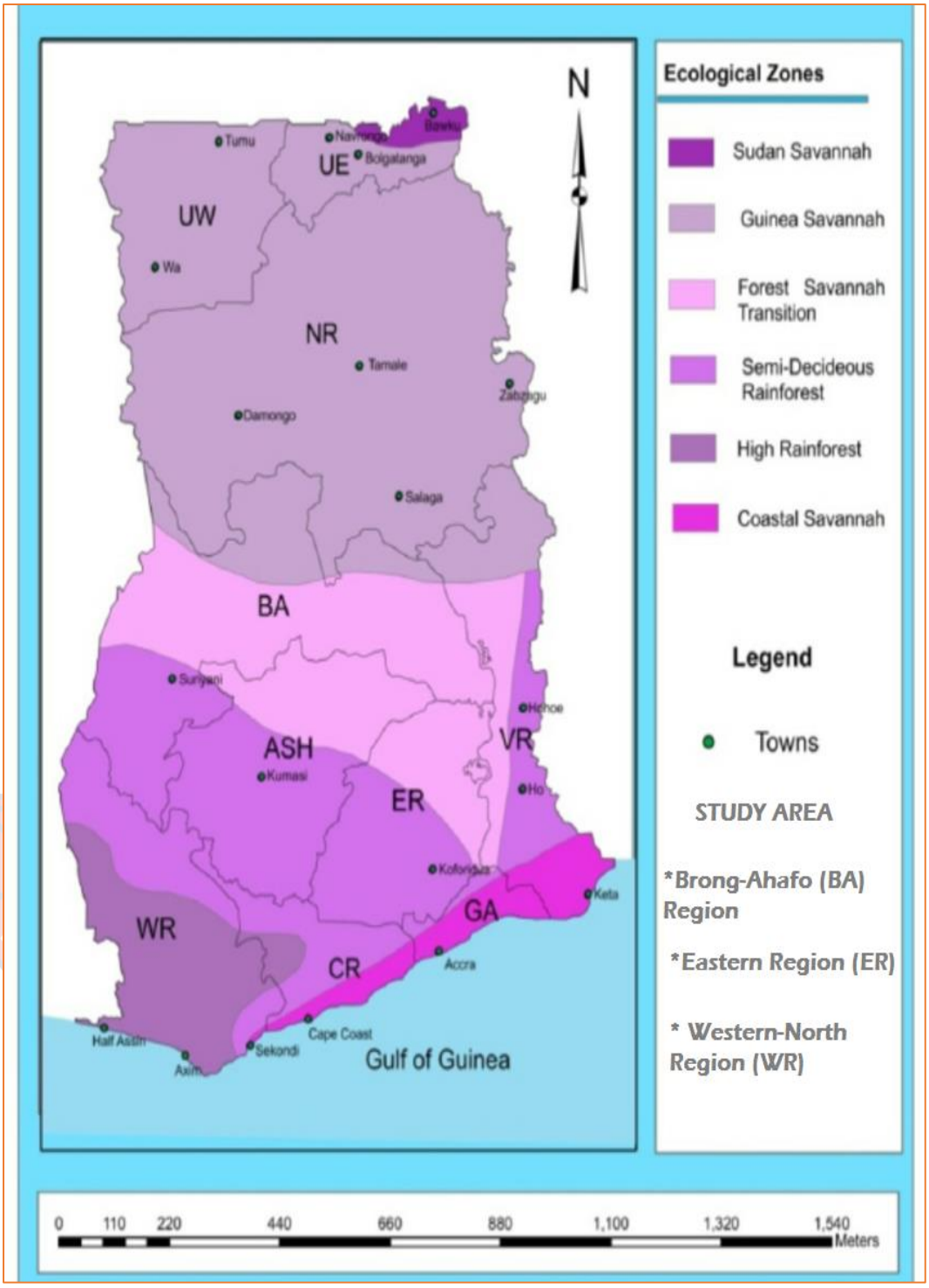

Figure 5: Map of Ghana's ecological Zones showing the study areas

Source: MoFA (2012)

Research Design

Babbie and Rubin (2010), described research design as a pattern by which researchers indicates questions to answer, relevant data to collect and how to analyze the data to provide results. Thus, research design provides valid and accurate answers as possible to research questions (McMillan & Schumacher, 2001).

The study design was a descriptive correlation survey. Surveys are good for impact studies as far as data collection on opinions and perceptions are concerned, although it may vary in level of complexity right from those that provide simple frequency counts to those that present relational analysis (Cohen, Manion & Morrison, 2007). According to Vanderstoep and Johnston (2009), surveys usually examine a single sample for the purpose of making conclusion about the population from which the sample was drawn. To determine the extent of a relationship between two or more variables using correlation coefficient and to make predictions, the descriptive correlation survey design is the best approach to use (Stanovich, 2007).

In this study, the descriptive correlation survey design was chosen because the study sought to explore the relationship between the dependent variable (organizational performance) and independent variable (knowledge management capacity) to aid in selecting the best predictor(s) of the dependent variable from the independent variables of the study.

Further, the bias-corrected and accelerated (BCa) bootstrap which was developed by Efron in 1987 (Agresti, 2002) as a rigorous method of correcting bias

was used to authenticate the efficacy of statistical tools used in the study particularly, t-test and regression. Bootstrapping seeks to uncover more information about the properties of estimators for "unknown" populations and ill-behaved parameters (Arostegui, Nunez-Anton, & Quintana, 2007). Bootstrapping is a method for deriving robust estimates of standard errors and confidence intervals for estimates such as the mean, median, proportion, odds ratio, correlation coefficient or regression coefficient (Barber & Thompson, 2000). It may also be used for constructing hypothesis tests (Canty & Ripley, 2010). It is often used as an alternative to statistical inference based on the assumption of a parametric model when that assumption is in doubt, or where parametric inference is impossible or requires complicated formulas for the calculation of standard errors (Binks, Fenton, McCarthy, Lee, Adams & Duggan, 2006). At the heart of statistical inference is estimating the precision of an estimate and this can be done by calculating the standard error (SE) and the confidence interval (CI), which are the basis of hypothesis testing (Wright, 2003).

While traditional tests often protect against falsely rejecting a hypothesis in the presence of outliers, the traditional methods tend to overestimate the standard error and width of the confidence interval, thus decreasing the power of studies (Wilcox, 1998). Most importantly, bootstrapping is usually more accurate than traditional approaches (Efron & Tibshirani, 1993). Thus, if the mean of the statistics is biased and does not give a true representation of the sample mean value, then the BCa method helps to correct the bias (Chambers, 2008). The acceleration attached to the bias correction factor refers to the limits of the confidence interval converging

more quickly around the corrected statics (Chernick, 2008). Efron and colleagues have developed improved methods and recommend the bias-corrected and accelerated or BCa method is the most stringent for correcting biases (Casella, 2003). Several papers have shown that the BCa alternative tends to produce more accurate intervals than the percentile method (Efron & Tibshirani, 1993). Micceri (1989) found that most real data deviate greatly from the normal distribution, implying that the traditional methods for calculating SEs and CIs are not often appropriate. Bootstrapping offers a flexible and general alternative that can be used to find SEs and CIs for any statistic because fewer assumptions are made than the traditional approaches (Delucchi & Bostrom, 2004).

Bias corrected and accelerated (BCa) intervals are adjusted intervals that are more accurate at the cost of requiring more time to compute (Derisley, Libby, Clark & Reynolds, 2005). Bootstrap confidence interval is asymptotically more accurate than the standard intervals obtained using sample variance and assumptions of normality (Efron, 1979). Confidence intervals are based on the sampling distribution of a statistic and therefore if a statistic has no bias as an estimator of a parameter, its sampling distribution is centered at the true value of the parameter (Field, 2009). A bootstrapping distribution approximates the sampling distribution of the statistic and therefore, the middle 95% of values from the bootstrapping distribution provides a 95% confidence interval for the parameter (Gilchrist, 2009).

The confidence interval helps one to assess the practical significance of estimate for the population parameter (Hlatky, Boothroyd, & Johnstone, 2002).

Bootstrapping is less hampered by standard distributional assumptions of some tests than the traditional methods for constructing confidence intervals by including values that have practical significance for a particular situation (Howell, 2007). If the 95% BCa confidence interval boundaries on one side of the zero (0) region on the number-line, the result is significant and hence the researcher would fail to accept the null hypothesis at the stated alpha level of α=.05 but if the 95% BCa confidence interval goes beyond the zero (0) boundary on the number line from one end of the positive to the other of the negative, then the result is not significant and hence the researchers would fail to reject the null hypothesis at the stated alpha level of α=.05 (Roldán Nofuentes, Luna del Castillo & Montero Alonso, 2009). BCa confidence interval is preferred over the percentile intervals because the percentile intervals simply use the ordered bootstrap values corresponding to the confidence interval percentile (Kraemer & Gibbons, 2009). However, when one chooses to use percentile confidence interval (PCI) instead of bias-corrected and accelerated bootstrap confidence interval (BCa), then a 95% percentile confidence interval uses the 2.5th and 97.5th percentiles of the bootstrap values as the lower and upper bounds of the interval and thus, interpolating the bootstrap values if necessary (Lunneborg, 2000).

Sturdy Population

The study population was all the five hundred and sixty-eight (568) community extension agents in all the seven (7) CHED in Ghana.

Sampling Size

Sample size is a selected portion of the total population (Muijs, 2004). According to Barreiro and Albandoz (2010), the selection of sample size is influenced by the purpose of the study, population size, the risk of selecting a "bad" sample and allowable sampling error. Even though there are formulae and tables for determining sample size, Best and Khan (1998) claim that, if descriptive statistics are to be used, then nearly any sample size will suffice. Hence a good selection of units of interest ensures fair generalization on the population from the sample chosen (Trochim, 2006).

Sekaran (2003) recommended that for social science research about 15 subjects or cases per predictor are needed for a reliable equation in regression analysis. Although Chernick (2008, p. 174) argued that samples as small as n = 20 work with some problems, he stated that a good rule of thumb is to have at least n = 50. Tabachnick and Fidell (1996) also gave a formula for calculating sample size requirement in regression analysis taking into consideration the number of independent variables: n>50+8m (where n sample size or number of cases and m = number of independent variables) for a reliable and generalizable prediction. However, Pallant (2001) stated that when stepwise regression is used, there should be a ratio of forty (40) cases or respondents for every independent variable. Hence a census was applied at the district level of the study to help meet all sampling requirements. In addition to the census, a bootstrap of thousand (1000) was performed in order to rigorously check for bias and deviation from the sample mean.

In bootstrap sampling, the simple sampling method uses case resampling with replacement from the original data set but the Stratified method is a case resampling with replacement from the original data set, within the strata defined by the cross-classification of strata variables (Good, 2006). In a statistical analysis, standard deviation (SD) is a measure of how well the mean represents the observed data, whereas standard errors of the mean (SE) is an indication of how well a particular sample represents the population (Field, 2005). A large standard deviation indicates that the scores cluster more widely around the mean, thus the mean is not a good representation of the data (Rutter & Miglioretti, 2003). A small standard deviation, on the other hand, indicates less dispersed data points about the mean, thus adequately represents the data (Sadler, Ethier & Woody, 2011). SE values represent the variability of sample mean and hence a large SE means that there is a lot of variation between the means of the different samples, which suggests that the sample is a poor representative of the population (Simon, 1969). In contrast, a small SE represents a situation where most sample means are similar to the population mean; therefore, the sample is an accurate reflection of the population (Simon & Holmes, 1969). This implies that, if values of SD and SE of all variables in a study are relatively small when compared to the means, then it can be reasonably concluded that the mean value can be used as a representative score for each variable in the data set and that, the sample used was sufficiently representative of the population (Wilkinson & Task Force on Statistical Inference, 1999).

Sampling Procedure

Sampling procedure is the manner in which a researcher selects representative sample from a population (Muijs, 2004). This makes it possible to make observations, measurements of these units and conclusions drawn regarding the entire population. For this work, stratified-random sampling technique was used to select the study regions and a census was used at the district level. According to Sekaran (2003), stratified random sampling is a "probability sampling design that first divides the population into meaningful, non-overlapping subsets, and then randomly chooses the subjects from each subset".

CHED offices are found in all the seven designated cocoa regions of Ghana. These cocoa regions are Eastern, Ashanti, Brong Ahafo, Volta, Central, Western North and Western South. These regions have already been stratified into three main forest ecological zones of Ghana. Namely, Forest transitional zone (Brong Ahafo Region), Deciduous Forest zone (Eastern, Ashanti, Volta and Central Regions) and the Rain Forest zone (Western-North and Western-South regions). For the purpose of this study, one cocoa region from each of the three forest zones was randomly sampled. This was done to give a fair representation of the various cocoa regions based on the ecological zones of Ghana. Eastern, Brong Ahafo and Western-North cocoa regions were randomly selected within the deciduous, transitional and the rain forest ecological zones of Ghana respectively. All the cocoa districts summing up to thirty in the three randomly selected cocoa regions were included in the sturdy. Using a sample frame of CEAs, simple random sampling technique was applied at the various cocoa districts to get individual CEAs who

responded to the questionnaires. By means of the Krejcie and Morgan sampling table, for the given population of 198 CEAs in the three randomly sampled cocoa regions, 166 CEAs is the corresponding representative sample size to the answer the questionnaire (Krejcie & Morgan, 1970). Table 1 shows Population size and the number of respondents in each Cocoa Region.

Table 1: Population size and the number of respondents in each Cocoa Regions

Strata	Region	Number of districts	Population	Number of Respondents
Deciduous Forest	Eastern	10	56	48
Forest transitional	Brong Ahafo	08	57	48
Rain Forest	Western North	12	85	70
	Total	30	198	166

Source: COCOBOD (2016)

Instrumentation

Questionnaire (Appendix 2) was used as the instrument for data collection because the population was considered literate. The questionnaire was made up of five (5) parts. Part A focused on CEAs personal information such as sex, age, educational level, years of experience and leadership style. Part B sought to examine the perception of community extension agents on the level of efficacy of knowledge management process in CHED. Part C sought to examine the perception of community extension agents on the level of efficacy of knowledge management

infrastructure in CHED. Part D studied the perception of community extension agents on the level of organizational performance of CHED. Parts B, C and D were solicited using a Likert-type scale. Thus, the level of efficacy of leadership style, level of efficacy of knowledge management items and the level of CHED's performance were each measured along a 5- point Likert type scale ranging from 1 (very low) to 5 (very high). For part E, CEAs were asked to enumerate the main challenges that they face in managing knowledge at CHED. Part E also had suggested possible solutions to the enumerated challenges. Table 2 shows interpretations of Likert-type scales for CEAs perceived effect of knowledge management capacity on performance of CHED

Table 2: Interpretations of Likert-Type Scales- for Impact of Knowledge Management Practices of Community Extension Agents on Performance of CHED

Ratings	Intervals	Level of efficacy of Leadership style	Level of efficacy of Knowledge Management	Level of organizational performance
1	1.00-1.44	Very Low	Very Low	Very Low
2	1.45-2.44	Low	Low	Low
3	2.45-3.44	Moderate	Moderate	Moderate
4	3.45-4.44	High	High	High
5	4.45-5.00	Very High	Very High	Very High

Source: Author's construct. Jones, (2018)

Pretesting of Instruments

The questionnaire was tested for both content and face validity through consultation with supervisors, subject area specialist and colleagues. Reliability

was ensured through the application of Cronbach's Alpha technics. Construct validity is the extent to which a set of measured items actually reflects the theoretical latent construct those items are designed to measure (Hair, Black, Babin, Anderson, & Tatham, 2006). Thus, it deals with the accuracy of measurement. Assessing construct validity involves an examination of the convergent validity and the discriminant validity (Santos, 1999). Santos reiterated that; the convergent validity refers to the extent to which the measured variables of a specific construct share a high proportion of variance in common whiles discriminant validity depicts the spread of measured variables of a specific construct. Scale reliability comes to the forefront when variables developed from summated scales are used as predictor components in objective models (Santos, 1999). According to Peterson (1994), there is virtual consensus among researchers that, for a scale to be valid and possess practical utility, it must be reliable. Conceptually, reliability is defined as the degree to which measures are free from error and yield consistent results (Peterson, 1994). Bryman and Cramer (2005) defined reliability as the degree to which an instrument measures the same way each time it is used under the same conditions with the same subject.

A small sample can be used to pre-test the survey instrument of a larger sample to help identify problem questions and correct before the larger survey is implemented (Sudman, 1976). The questionnaire was pretested on CEAs in a randomly selected cocoa growing region specifically, within Western-South cocoa region of COCOBOD in the Western Region of Ghana. Thirty-five (35) CEAs with similar characteristics as those in the study area were the respondents to the

questionnaire. The items on the Likert-type scales was entered into the SPSS version 21 to estimate the internal consistency (reliability) of the items. Internal consistency refers to the degree to which responses are consistent across the items (variables) within a single measurement scale (Kline, 2005). According to Cortina (1993), Cronbach's Alpha remains the most widely used measure of scale reliability. A low Cronbach's Alpha coefficient indicates that variables may be too heterogeneous and thus perform poorly in representing the measured construct (Santos, 1999). All the subscales had Cronbach alpha co-efficient of 0.749, 0.807 and 0.755. Table 3 Shows that the instrument was very reliable based on George and Mallery (2003) interpretation scale. According to the scale, the closer the coefficient is to 1.0, the greater is the internal consistency of the items in the scale. However, > 0.9 = Excellent, > 0.8 = Good, > 0.7 = Acceptable, > 0.6 = Questionable, > 0.5 = Poor, and < 0.5 = Unacceptable (George & Mallery, 2003). Table 3 shows the reliability co-efficient of subscales of the research instrument.

Table 3: Reliability Co-efficient of Subscales of the Research Instrument

Variable	Cronbach's Alpha	No. of Items measured for the variable
Leadership	0.749	4
Knowledge	0.807	52
Performance	0.755	11

n=35

Source: Pretest Data. Jones, (2018).

Data Collection Procedure

The questionnaires were administered during training sessions and monthly meetings in each of CEAs respective district. The District and Municipal

coordinators of CHED were contacted for monthly meeting/training schedules dates which made it possible for the researcher to meet all CEAs. The data was collected from June to September 2018.

Data Analysis

Data collected from the field was organized, edited, coded and entered for analysis using the Software Package for IBM SPSS version 21.0 for analysis. With the help of the software, frequencies, percentages, means, standard deviation, correlation coefficients (Pearson, Spearman and Point Biserial) and ordinary least square regression were computed and analyzed. All hypotheses for significant differences and relationships were tested at the 0.05 alpha levels.

Frequencies, percentages, mean and standard deviations were used to examine CEAs perceived level of efficacy of knowledge management capacity in objective one (1).

Frequencies, percentages, means and standard deviations were used to study CEAs perceived level of organizational performance in objective two (2).

Independent t-test was used to compare perceived effect of knowledge management on the organizational performance of CHED between male and female CEAs in objective three (3). A bootstrap of thousand (1000) was performed in order to rigorously check for bias and deviation from the sample mean.

ANOVA was used to compare the level of perceived effect of knowledge management on the organizational performance of CHED among any three cocoa regions of Ghana for objective four (4).

Correlational coefficients (Pearson, Point Biserial, and Spearman rho) were run to examine the relationship between the level of efficacy of knowledge management capacity and level of organizational performance in objective Five (5). The point-biserial correlation coefficient (*rpbi*) is a statistic used to estimate the degree of relationship between a naturally occurring dichotomous nominal scale and an interval (or ratio) scale (Brown, 2001; Tabachnick & Fidell, 1996). Since sex is a naturally occurring dichotomous nominal scale and organizational performance was measured at the interval scale, the point-biserial correlation coefficient (rpbi) was used to estimate the degree of relationship between the variables.

Spearman's rho (ρ) is a correlation coefficient suitable for ordinal or ranked data against an interval (or ratio) scale (Pallant, 2011). Educational level was measured at the ordinal level hence, was correlated with organizational performance that was considered at the interval level, using Spearman's rho (ρ) correlation coefficient.

Pallant (2011) noted Pearson's product-moment correlation (r) is used when two variables both scaled at interval/ ratio level of measurements. Pearson's product-moment correlation (r) was used to correlate age, years of experience, KM process and KM infrastructure on organizational performance since all these variables were measured at the interval scale. Davis' Convention (Appendix 1) was used to describe the magnitude of all correlation coefficients. Table 4 shows the codes, sign, expected relationship and correlations used in the analysis.

Table 4: The Codes, Sign, Expected and Correlations used in the Analysis

Explanatory Variable	Codes	Sign	Expected	correlation
Sex	0= Male 1= Female	+	Males have higher probability to contribute to organizational performance	Point-biserial
Age	Years on Earth	+	Younger age has higher probability to contribute to organizational performance	Pearson correlation
Years of experience	Years in CHED	+	Higher experience has higher probability to contribute to organizational performance	Pearson correlation
Educational level	Level of education	+	Higher education has higher probability to contribute to organizational performance	Spearman's rho

Source: Author's construct. Jones, (2018)

Table 4 Continued

Explanatory Variable	Codes	Sign	Expected	correlation
Leadership Style	Level of Leadership skill	+	Good Leadership skill has higher probability to contribute to organizational performance	Pearson correlation
Acquisition	Level of Acquisition	+	High level of KM acquisition increases organizational performance	Pearson correlation
Conversion	Level of Conversion	+	High level of KM conversion increases organizational performance	Pearson correlation
Application	Level of Application	+	High level of KM application increases organizational performance	Pearson correlation
Protection	Level of Protection	+	High level of KM protection increases organizational performance	Pearson correlation
Technology	Level of Technology	+	High level of KM technology increases organizational performance	Pearson correlation
Structure	Level of Structure	+	High level of KM structure increases organizational performance	Pearson correlation
Culture	Level of Culture	+	High level of KM culture increases organizational performance	Pearson correlation

Source: Author's Construct. Jones, (2018).

To assess the best predictors of organizational performance from the main components of knowledge management, ordinary least square regression analysis using the stepwise entry method was used in objective five (5). OLS is considered as the most robust regression method (Shah & Goldstein, 2006). A bootstrap of thousand (1000) was performed in order to rigorously check for bias and deviation from the sample mean and to establish the practical significance of estimates for the population parameter. The regression equation used

$$Y = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 \ldots\ldots + \beta_{12} X_{12}.$$

Y = organizational performance

a = Constant

β1 _ β5 = beta coefficients of knowledge management

X_1= Sex

X_2= Age

X_3= Years of Experience

X_4= Level of Education

X_5= Leadership style

X_6= Acquisition

X_7= Conversion

X_8= Application

X_9= Protection

X_{10}= Technology

X_{11}= Structure

$X_{12=}$ Culture

For objective six (6), which investigates into barriers to effective knowledge management, frequencies and percentages were used for description and analyses. Table 5 summarizes the specific statistics based on specific objectives generated.

Table 5: Summary of Statistical Tools used to Analyze each Objective

Specific objective	**Statistical tools used for Analysis**
One	Frequencies, percentages, means, standard deviation
Two	Frequencies, percentages, means, standard deviation
Three	Independent t-test and Bootstrap
Four	ANOVA
Five	Pearson's product-moment correlation (r), Spearman's rho (ρ) and Point-biserial correlation coefficient (*rpbi*).
Six	Ordinary least square regressions and Bootstrap
Seven	Frequencies, percentages.

Source: Author's construct, 2018

CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

This chapter presents and discusses the results of the study. The first part presents and discusses the findings on the level of efficacy knowledge management capacity of CEAs. The second part also discusses the level of efficacy of organizational performance of CHED. Again, differences and relationships between knowledge management and organizational performance are examined. Furthermore, the factors that negatively affects, positively influence and improves organizational performance are probed. This chapter presents and discusses the results of the study in accordance to the arrangement of the specific objectives.

CEAs Perceived Level of Knowledge Management Capacity

Background characteristics of community extension agents in the study area

Sex and age of CEAs

The sex and age distributions of CEAs are presented in Table 6. The majority (80.7%) of the respondents were male. Although one may possibly associate the vast discrepancies in the ratio of males to female CEAs with the laborious nature of the extension work in CHED of Ghana, Ogunleye (1998) reported that women are still under represented in extension professions. This finding was supported by Agwu, *et al.* (2008) whose studies on extension workers in Nigeria and found that majority (78%) of the extension agents were males. This gender disparities may have implication for knowledge appropriation. This axiom holds true for Miller and Karakowsky (2005) who discovered that there are differences between men and women in their effort to seek and use knowledge. Lin

(2006) posited that women are more willing to share knowledge because they are more sensitive to instrumental ties and have need to overcome traditional occupational challenges. Again, Pangil and Nasrudin (2008) found that there is a difference between men and women in terms of tacit knowledge sharing behaviors because it is believed that, women are more articulate then men. However, Weiss (1999) claims that the ability to articulate knowledge cannot be equated with the availability of knowledge for use by others. In a gender study in Nigeria, Ojha (2005) concluded that, gender does not have a significant impact on knowledge sharing because knowledge sharing is a learnt behavior acquired through practice and not necessarily one's sexual orientation. Table 6 shows a cross-tabulation of Age and Sex distribution of CEAs in CHED.

Table 6: Cross-tabulation of Age and Sex Distribution of CEAs in CHED

	Sex of CEAs								
	Male		Female		Total				
Age (Years)	f	%	f	%	f	%	Chi square value	df	*p value
21-30	37	22.3	09	5.4	46	27.7	.377	2	.393
31-40	61	36.7	18	10.8	79	47.6			
41-50	36	21.7	05	3.1	41	24.7			
Total	134	80.7	32	19.3	166	100.0			

n=166 Mean=35 years, S.D=7.10 * p< 0.05
Source: Field Survey Data, Jones, (2018).

Table 6 further reveals that, three-quarters (75.3%) of respondents were aged 21-40 years. However, only (24.7%) of the respondents were between 41 and 50 years. The mean age of 35 years and a standard deviation of 7.0 indicates that,

although the ages of respondents were youthful, their ages varied along the age spectrum. This result is similar to Anumaka and Ssemugenyi (2013) who found the age bracket of majority of knowledge workers specifically computer engineers in USA fall within the youthful age brackets between 20 and 39. This trend may be of importance to concept of knowledge usage since it is expected that, the youth are interested in using high technology for knowledge acquisition, conversion, application and protection. This assumption is in conformity with the findings of Reige (2005) who suggested that difference of age can also be a potential factor for knowledge sharing behavior. This is supported by Gumus (2005) who indicated that, there were significant differences between age groups concerning knowledge acquisition but not knowledge application in a study conducted for teachers in the South Africa. A study by Keyes (2008) uncovered a more definite relationship between age and knowledge sharing where the aged are more incline to transmit knowledge to the young rather than learning from the young. However, this observation is contravened in a study by Watson and Hewett (2006) which showed that, age does not affect knowledge sharing behavior since knowledge sharing is both a science and an art that is taught and willingly learnt irrespective of age.

The result from Table 7, indicates that the youthful ages of CEAs are associated with both male and females. The Chi-square value of (.377) and degree of freedom of (2) with zero (0) cells having counts less than 5 implies there is no significant statistical difference in the age ranges of male and female CEAs. We fail to reject the null hypothesis one (1) which states, there is no significant difference in the age ranges of male and female CEAs in CHED.

The outcome shows that the proportion of the ages of male CEAs is not significantly different from the proportion of the ages of female CEAs in the study area. This implies that, male and female CEAs fall within identical peer groupings and therefore, knowledge sharing is supposedly encouraged. However, Ojha (2005) studied on extension workers in Nigeria and reported that the share numbers of the men and the under-representativeness of women in extension impedes efficient knowledge management irrespective of age factors. Elleus (1994) maintained that, disproportionate male to female ratios in extension make it difficult for several women to interact and communicate well with their male colleagues.

Years of experience and educational level of CEAs

Results from Table 7 shows a cross tabulation of the relationship between educational level and years of experience of CEAs. A little under half (45%) of the CEAs had working experience ranging from 8-12 years and a little over half (54%) fell between 3-7 years. The mean years of working experience of 7 years with standard deviation of 2.5 years show variations in work experience of respondents along the spectrum of work experiences of CEAs.

This research finding is similar to that of Adesope et al. (2007) who found that, the majority of extension agents' working experience ranges from 5 to 15 years in Kenya. This implies that respondents were experienced enough to be able to acquire, convert, apply, transfer and protect knowledge. Collin (2004) established that senior employees (more experienced) often act as mentors to junior employees in most organizations. Sackmann and Friesl (2007) confirmed that in most cases,

knowledge transfer often occurs in mentoring relationships between the more experienced and the less experienced.

Table 7: Cross-tabulation of Educational Level and Years of Experience of CEAs in CHED

	Years of experience of CEA								
	3-7		8-12		Total				
Edu. Level	f	%	f	%	f	%	Chi square value	df	*p value
Certificate	19	11.6	17	10.4	36	22.0	.066	2	.068
Diploma	30	18.3	13	7.9	43	26.2			
Bachelor	41	25.0	46	26.8	87	51.8			
Total	90	54.9	76	45.1	166	100.0			

n=166 Mean=7 years, S. D=2.50 * p< 0.05
Source: Field Survey Data, Jones, (2018).

According to Yeatts and Hyten (1998), the number of years that one has spent within an organization can have an impact on their performance. They explained that, the more experienced workers usually work efficiently (less energy but good results) whiles less experienced workers usually works meritoriously (more energy).

Table 7 further shows that, a little over half of respondents (51%) had bachelor's degrees while the rest of the respondents (48%) had certificate or diploma degrees in agriculture. This finding is similar to Ahmadpour and Soltani (2012), who reported that, about 78% of extension workers in Iran were BSc and higher degree holders with greater appreciation of the importance of Knowledge

management. In contrast, the study by Agwu, *et al.* (2008) found that majority of extension workers in Abia and Enugu States of Nigeria had HND certificates while 32.5% had BSc.

This implies that all respondents were literates and hence had the ability to appreciate the processes and infrastructures being used by CHED in the management of knowledge in extension duties in this era of 2018. Riege (2005) found that there is a likelihood of a relationship between the level of education and knowledge sharing behavior. This point is supported by a study by Keyes (2008) who confirmed that education somewhat affects knowledge sharing. He reported that, the lower the educational level, the less likely a person would be willing to share knowledge but the higher the educational level, the more readily knowledge is shared. By this, it can be assumed that, CEAs in CHED of Ghana are able to acquire, convert, apply, transfer and protect knowledge within the jurisdiction of their organizational structure, technology and culture to positively impact their organization. Schmidt and Hunter (2008) found that academic qualification was strongly related to task completion and was an important contributor to completion of every job at the right time. Benson (2004) specified that educated employees give quality output of the work and hence improve the performance of the organizations. Thus, they produce quality output with due care and skills and therefore, improve the performance standards of their organizations.

The result in Table 7 shows that years of experience has no statistically significant differences with educational level of CEAs in Ghana. The finding is revealed in the Chi-square value of (.066) and degree of freedom of (2) with zero

(0) cells having counts less than 5. Hence, there is no significant statistical difference in the educational levels and experience of CEAs in CHED. We therefore fail to reject the null hypothesis that states that, there is no significant difference in the educational levels of CEAs and experience levels in CHED.

The outcome implies that irrespective of the years of experience of CEAs, their educational levels did not significantly differ in the study area. This may be due to structural requirements that necessitates knowledge workers to continually educate and build up more experience for promotion up the ranks of organizational ladder. Drucker (2003) explained that, knowledge workers have two main needs: formal education enabling them to enter knowledge work in the first place, and continuing education throughout their working lives to keep their knowledge up-to-date. The fact that all respondents had formal education and enough experience implies that respondents were well-vested in their duties and had acquire enough background knowledge of their profession. This phenomenon reflects the definition of Hacket (2014) that, education is a process of acquiring background knowledge of a subject that relates to one's mandate. This implies CEAs in the study area have the capability to acquire, convert, apply and protect knowledge needed for their work in this era because they have the requisite skill, knowledge, attitude and its accompanying enabling environment as provided by CHED.

CEAs perceived level of leadership style in CHED

The important role leadership plays in achieving organizationally desired goals is enormous (Tosi et al., 1994). Table 8 shows CEAs rated monitoring of subordinates as the highest indicator of leadership contribution to boost knowledge

management capacity ($\bar{x}$= 4.10, SD=0.322). This was followed by reward for expected performance, which was rated as a high leadership indicator ($\bar{x}$= 4.10, SD= 0.400). Clarification of the different roles followers must play was also rated high ($\bar{x}$=4.00, SD= 0.381). The ability of leaders regularly fulfilling the expectations of their followers was reported to serve as a high leadership indicator ($\bar{x}$= 4.00, SD= 0.356). Overall rating of leadership style contribution to knowledge management capacity was high with less variations among respondents as shown by the standard deviation ($\bar{x}$=4.05, SD= 0.365)

Table 8: CEAs Perceived Level of Efficacy of Leadership Style in CHED

Leadership Style in CHED	n	Mean ($\bar{x}$)	Std. Dev.
Monitor subordinates	166	4.10	.322
Reward for the expected performance	166	4.10	.401
Clarify the different roles followers must play	166	4.00	.381
Regularly fulfil the expectations of their followers	166	4.00	.356
Overall rating	166	4.05	.365

n=166 Scale: 1.00-1.44=very low (VL), 1.45-2.44= low (L) 2.45-3.44=moderate (M), 3.45-4.44=high (H), 4.45-5.00=very high (VH)
Source: Field Survey Data, Jones, (2018).

It can be deduced from the results displayed in Table 8 that, CEAs have high regards for the roles played by organizational leadership in building their knowledge management capacity and its resultant effect on the organizational performance of CHED. This result is in line with the observation of Charlton (2000) who argued that effective leadership has a positive sway on the performance of organizations. Behling and McFillen (1996) confirmed in a study that, the links

between performance and leadership in the United States was assessed to be high. DeTienne et al. (2004) believe that "without effective leaders who set appropriate examples, employees will not be motivated to participate in the KM programs".

Beckman (1999) explained that, management's responsibilities needed to facilitate KM processes include motivating employees, providing equal opportunities and development as well as measuring and rewarding behaviors and attitudes that are required for effective knowledge management. Thus, confirming CEAs assertion of leadership being a potent contributor to the knowledge management aptitude in CHED.

Respondents rated monitoring of subordinates as the highest indicator of leadership contribution to boost knowledge management capacity. This assertion is held to be true by Cummings and Schwab (1973) who indicated that, the act of monitoring by leaders is perhaps the most investigated organizational variable that has a potential impact on employee performance. This claim is supported by Yukl (1989) that, leaders have been found to influence followers in many ways, including coordinating, communicating, training, motivating, monitoring and rewarding. Yu et al. (2004) confirmed that, when employees are rewarded for knowledge management practices, it positively impacts the knowledge management performance. CEAs therefore confirmed the importance of proper reward systems. The fact of reward for the expected performance being a high leadership indicator is supported by Davenport, et al. (1998) who affirmed that, effective knowledge management practices require a culture that fosters and rewards the creation and use of knowledge, as well as its sharing among individual members and groups.

Also, clarification of the different role followers must play and regular fulfilment of followers' expectation were reported to serve as a high leadership contributor to effective organizational performance. This observation is affirmed by Hellriegel, et al. (2004) that, effective leadership is helpful in ensuring organizational performance. Fiedler and House (1988) asserted that, it has been widely accepted that, effective organizations require effective leadership because, without effective leadership, organizational performance will suffer in direct proportion to the level of neglect of effective leaders who can define definite roles for subordinates. Ristow et al. (1999) concluded in a study on leadership that, the effectiveness of any set of people is largely dependent on the quality of its leadership. Thus, effective leadership behavior facilitates the attainment of the follower's desires, which then results in effective performance (Maritz, 1995). According to Mehra et al. (2006), when organizations seek efficient ways to enable them to outperform competitors, a longstanding approach is to focus on the effects of leadership and its positive effect on subordinates.

CEAs specified that, leadership role of CHED is effective because leaders in CHED effectively monitor, reward, clarify the different roles followers must play and regularly fulfil staff expectations to help improve organizational performance. These leadership characteristics out lined by CEAs are in line with the transactional leader-follower relationships which are based on a series of rational exchanges or bargains that enable each follower to reach his or her own goals (Bass, 1985). In these exchanges, transactional leaders clarify the different roles that a follower must play, and the task requirements they must complete to reach their personal goals

and fulfil the organization's mission (Kuhnert & Lewis, 1987). This leadership style suggests that, if a leader wishes for his/her followers to accomplish a task, they clearly have to tell them what their job consists of and what is expected of them (Schermerhorn, 2001).

Process capacity in CHED as measured by acquisition, conversion, application and protection.

CEAs perceived level of acquisition process in CHED

Gold et al. (2001) defined KM acquisition process as the act of seeking, obtaining, generating, creating, capturing, and collaborating with others to accumulate knowledge in the organization. Thus, acquisition refers to the ability (of CEAs) to identify, access and collect the internal and external knowledge that is necessary for organizational activities (Zahra & George 2002) as enabled by CHED. From the results of Table 9, the contribution of knowledge management process to knowledge management capacity was examined in terms of acquisition. CEAs rated CHED's ability to use feedback to improve subsequent projects as the highest contributor ($\bar{x}$=3.77, SD=0.736) and processes for acquiring knowledge about customers was rated as the lowest contributor ($\bar{x}$= 3.54, SD= 0.806) to processes of acquiring knowledge relevant to the mandate of CHED. The Overall rating of Acquisition was high ($\bar{x}$= 3.68, SD=0.730) with minimal variations in responses as indicated by the SD.

Table 9: CEAs Perceived Level of Efficacy of Knowledge Management Process of Acquisition in CHED

Knowledge Management Process of Acquisition in CHED	n	Mean ($\bar{x}$)	Std.Dev.
Use of feedback to improve subsequent projects.	166	3.77	.736
Teams devoted to identifying best practice	166	3.76	.748
Processes for generating new knowledge from existing knowledge.	166	3.74	.687
Processes for exchanging knowledge between individuals.	166	3.68	.714
Processes for acquiring knowledge about new services within our industry.	166	3.65	.695
Processes for stakeholder collaboration.	166	3.64	.723
Processes for acquiring knowledge about our customers.	166	3.54	.806
Overall rating	***166***	***3.68***	***.730***

n=166Scale: 0.45-1.44=very low (VL), 1.45-2.44= low (L) 2.50-3.49= moderate (M), 3.45-4.44=high (H), 4.45-5.00=very high (VH)
Source: Field Survey Data, Jones, (2018).

This implies that respondents perceived knowledge management capacity in terms of knowledge acquisition in CHED to be high level that can help to induce a positive organizational performance. Cho and Korte (2014) also found knowledge acquisition to have a significant influence on knowledge management processes. Appropriate acquisition of knowledge increases the stocks of knowledge available to the organization, thereby providing organizations with better capability to make timely decisions that are essential to superior organizational performance (Chen, 2004).

Respondents' acknowledgement of CHED's ability to use feedback to improve subsequent projects and the availability of processes for generating new knowledge from existing knowledge is backed by Svenson (1979) who asserts that, effective organization seeks new knowledge that will benefit innovation, development and organizational success both within and outside of the organization. This point is buttressed by Zahra and George (2002) that, acquisition refers to the ability of an organization to identify, access and collect the internal and external knowledge that is necessary for its activities. Hence it can be inferred CEAs in Ghana are well equipped with the capacity to collect relevant knowledge from their environment. Gold et al. (2001) stated that, acquisition is concerned with seeking knowledge outside the organization and creating new knowledge from the interaction between new knowledge and previous knowledge in the organization. CEAs revealed that, they have been enabled to acquire knowledge to complete tasks and this helps augment the performance of CHED.

High Knowledge acquisition implies CEAs have the ability to meticulously select relevant knowledge which are then distilled into useful forms for the benefit of CHED. Reisi, et al. (2013) characterized acquired knowledge to have been organized, integrated and presented in a more effective way in order to be useful. And this does not exclude the process of acquiring knowledge from either inside or outside of the organizations (Cho & Korte, 2014). Thus, CEAs are confident of their ability to get knowledge from either inside or outside of the organizations as their duty demands because CHED has process that facilitates KM acquisition process.

Further, respondents' assertion of the existence of processes for exchanging knowledge between individuals such as the use of Cocolink and whatsapp platforms is evidence of effective knowledge management process being exhibited by CHED. Anha et al. (2006) posited that, knowledge acquisition results from individual participation and interactions between tasks, technologies, resources and people within a particular context. Cohen and Levinthal (1990) mentioned that, within a firm, individuals share perceptions and jointly interpret information, events, and experiences. CEAs confirmed knowledge exchange is high in CHED.

The process of acquisition is believed to have positive influence on organizational performance. Mtega et al. (2013) claim that, knowledge which is externalized and captured by people who need it can increase productivity, profitability and subsequently organizational performance. However, Nonaka and Takeuchi (1995) admonished that, at some point, knowledge acquisition extends beyond the individuals and is to be coded into corporate memory of the organization. This coding process is often referred to as documenting best practices. Respondents purported that CHED has teams devoted to identifying and documenting best practices and therefore CEAs ranked the practice of knowledge acquisition as being high. CEAs explained that, CHED facilitates this organizational aspect of knowledge acquisition by CEAs through processes such as reporting writing, briefs, newsletters, giving of feedbacks and sharing acquired knowledge within the organization. McGraw and Seale (1987) confirmed that, the feedbacks from information used, questions asked, actions taken, alternatives considered, and decisions taken are the types of knowledge sought for in relation

to the acquisition process level in a firm. Smith (2000) added that, knowledge acquisition also includes the identifying and documenting best practices or creating expert directories to foster knowledge sharing through human to human collaboration. CEAs attested to the fact that, although the knowledge acquisition process is being adhered to, the exact extent to which these acquired knowledge has been embedded into the organization's memory is unknown. Smith, cautioned that, unless knowledge is embedded into corporate memory, the firm cannot leverage the knowledge held by individual members of the organization. Thus, because organizational knowledge acquisition enables "amplification and articulation of individual knowledge at the firm level, attention should be given to the acquisition process to augment the firm's knowledge base" (Malhotra, 2000). CEAs confirmed to have access to their documented best practices in the form of manuals, fliers, folders and research findings from Cocoa Research Institute of Ghana (CRIG) and Seed Production Unit (SPU) of COCOBOARD. CEAs revealed that, CHED creates the enabling environment for personal learning via internet searches, field observation and interaction with farmers which aids in building knowledge management capacity that culminates into a better organizational performance.

CEAs perceived level of conversion process in CHED

According to Gold et al. (2001) conversion-oriented knowledge management processes are those focused on making existing knowledge useful. He outlined some of the processes that enable knowledge conversion in a firm as, an organization's ability to organize, integrate, combine, structure, coordinate, or

distribute knowledge. All these processes are necessary for a firm's survival and impact because they help to maintain an organization's competitive advantage.

Table 10: CEAs Perceived Level of Efficacy of Knowledge Management Process of Conversion in CHED

Knowledge Management Process of Conversion in CHED	n	Mean ($\bar{x}$)	Std. Dev.
Processes for converting knowledge to benefit stakeholders	166	4.51	.703
Processes for replacing outdated knowledge.	166	3.87	.756
Processes for absorbing knowledge from staff into the organization.	166	3.71	.731
Processes for distributing knowledge throughout the organization	166	3.69	.711
Processes for transforming "outside" knowledge into the organization.	166	3.60	.881
Processes for integrating different source of knowledge.	166	3.55	.767
Processes for converting knowledge into the design of new services.	166	3.49	.649
Overall rating	***166***	***3.77***	***.724***

n=166 Scale: 1.00-1.44=very low (VL), 1.45-2.44= low (L) 2.45-3.44=moderate (M), 3.45-4.44=high (H), 4.45-5.00=very high (VH)
Source: Field Survey Data, Jones, (2018).

From Table 10, CEAs affirmed and rated CHED's ability to convert knowledge to benefit stakeholders ($\bar{x}$=4.51, SD= 0.703) and also processes for converting knowledge into the design of new services ($\bar{x}$=3.49, SD=0.646) as the highest and lowest methodologies by which acquired knowledge is converted into usable forms for the use of farmers respectively. The overall contribution of

knowledge management conversion process to knowledge management capacity was rated by CEAs as high ($\bar{x}$=3.77, SD= 0.724) with marginal variations in CEAs responses. This implies that, CEAs perceive knowledge management capacity in terms of knowledge conversion in CHED to be high enough to help achieve a positive organizational performance. Cho and Korte (2014) also found knowledge conversion to have a significant influence on knowledge management processes.

The importance of knowledge conversion process was advocated by Mills & Smith (2011) who reported that, knowledge conversion enables organizations to improve expertise and efficiency by converting acquired knowledge into applicable organizational knowledge, and distributing the knowledge to where it is needed. This assertion is further strengthened by Pirkkalainen and Pawlowski (2013) that, knowledge conversion is an important process of KM in organizational settings because it deals with the transformation of knowledge into needed and useable forms. CEAs explained that, information acquired within and without the confines of CHED are relayed to its stakeholders in ways best understood, utilizable and valuable to the end user.

Again, CEAs affirmed CHED has in place, processes for absorbing knowledge from staff into the organization and also, processes for transforming "outside" knowledge into organizationally contextualized knowledge useful to its clienteles. This implies that CHED is efficient in converting tacit knowledge into explicit knowledge that is made available to the public domain. Gold et al. (2001) encouraged that, organizations must carefully transform aspects of tacit knowledge into explicit knowledge; otherwise, the tacit knowledge may be lost.

Egbu (2004) indicated that, if an enterprise can transform tacit knowledge into explicit and codified knowledge, then the enterprise would be able to utilize the more explicit knowledge efficiently and effectively to innovate or performs better. CHED's ability to convert knowledge is an indispensable for characteristics for a better organizational performance.

Respondents confirmed that CHED has processes for converting knowledge into the designing of new products. This very attribute is in line with the assertion of Mills and Smith (2011) who affirmed that, knowledge conversion necessitates the packaging of knowledge to create value in the organization to reflect innovation and creation of new products. Bhatt (2001) recommended that, transformations which occur along with the supply of data, information and knowledge cycle are momentary and therefore, processes must transform data into information and transform information into organizational knowledge to maximize benefits. CEAs disclosed that, after receiving researched knowledge from Cocoa Research Institute of Ghana (CRIG) and Seed Production Unit (SPU) of COCOBOARD, CHED converts the information into more understandable and usable forms for their stakeholders of which majority are cocoa farmers. Since the core mandate of CEAs as defined by CHED is to educate and transfer knowledge to cocoa farmers on best agricultural practices researched by CRIG and SPU, it can be logically reasoned that, the knowledge management capacity in terms of conversion rated as being high, is in place. It can be inferred that, as CEAs perform their routine duties as directed by CHED, knowledge is converted from tacit use to explicit use. Nonaka, (1995) confirmed that, knowledge conversion and its subsequent integration may

occur in organizations through organizational routines, directions, or processes involving the sharing of explicit or tacit knowledge. Holtshouse (1998) added that, the organization, therefore, serves as a knowledge-integrating institution that acquires, converts and incorporates the knowledge of many different individuals and groups in the process of producing goods and services for the benefit of stakeholders.

CEAs perceived level of application process in CHED

Application-based processes are those oriented toward the actual use of knowledge (Gold et al. 2001). Table 11 shows that in terms of knowledge management process of application, processes for sharing new knowledge ($\bar{x}$=3.83, SD= 0.696) was rated as highest contributor and processes for using knowledge to adjust strategic direction as its lowest contributor ($\bar{x}$=3.41, SD=0.731) to the process CEAs use knowledge in their work. More so, overall Knowledge management application was rated as being high ($\bar{x}$=3.68, SD=0.784) with less variation in the responses of CEAs as typified by the SD. This implies that, CEAs perceived knowledge management capacity in terms of knowledge application in CHED to be high enough in helping with the achievement of a positive organizational performance. Cho and Korte (2014) found knowledge application to have a significant influence on knowledge management processes and subsequently, organisational performance. This implies that, CEAs knowledge management capacity in terms of knowledge application is high enough to help contribute to a positive organizational performance.

Table 11: CEAs Perceived Level of Efficacy of Knowledge Management Process of Application in CHED

Knowledge Management Process of Application in CHED	n	Mean ($\bar{x}$)	Std. Dev.
Processes for sharing new knowledge.	166	3.83	.696
Processes for using knowledge to solve new problems.	166	3.78	.766
Processes for linking sources of knowledge in refining existing services.	166	3.78	.878
Processes for using knowledge in development of new services.	166	3.76	.916
Processes for applying knowledge learned from experiences.	166	3.74	.801
Processes for applying knowledge learned from research.	166	3.49	.703
Processes for using knowledge to adjust strategic direction.	166	3.41	.731
Overall rating	***166***	***3.68***	***.784***

n=166 Scale: 1.00-1.44=very low (VL), 1.45-2.44= low (L) 2.45-3.44=moderate (M), 3.45-4.44=high (H), 4.45-5.00=very high (VH)
Source: Field Survey Data, Jones, (2018).

Previous studies conducted by Lee et al. (2011) found that, to perceive the effect of knowledge on the organizational performance, the knowledge has to be applied effectively in the organizational process. They therefore defined Knowledge application as routines that utilize and exploit transformed knowledge to modify, create and operate procedures that improve performance outcomes. Chen and Fong (2015) empirical findings of previous studies also showed that knowledge application has strong effect on business performance. CEAs confirmed CHED has process that aids KM application.

Again, the respondents revealed that CHED has processes for applying knowledge learned from research and experiences to solve new problems. This assertion agrees with Bhatt (2001) who observed that, knowledge application refers to the integration of acquired knowledge into the organization's products, processes, and services in order to sustain its competitive advantage. He further clarified that, knowledge application involves activities that show that the organization is applying its knowledge learnt from experience, experimentation and research. CEAs explained that lessons learnt from a previous cocoa season for example, in the area of pruning and fertilization in 2017, were used in 2018 for enhancing subsequent activities and services through a catch program CHED titled as "cocoa-care", in order to uphold its competitive advantage over other private cocoa extension agencies.

Respondents further disclosed that CHED has processes for using knowledge to adjust strategic direction, share new knowledge and link sources of knowledge to aid in refining existing products. This implies that CEAs are aware of the methodologies by which CHED maintain its competitive advantage and improves its problem-solving skills over their competitors. Dröge et al. (2003) said that companies will be successful in creating a competitive advantage in the long run if they produce knowledge with lower cost and higher speed compared to their competitors and further apply the knowledge effectively and efficiently in refining existing products. Cope, (2000) reinforced that, the application process defines the way knowledge is used to solve problems within the organization. Seleim and Khalil (2007) alerted that, knowledge management applications must endeavor to

include the use of intelligent agents such as people to aid in the overseeing of contextual usage of knowledge. They however added that, when organizations wish to incorporate an intelligent agent, it should note that, this process depends on the intelligent agents' absorptive capacity; that is, the ability not only to acquire and assimilate but also the ability to recognize the value of new knowledge and use it. It is only when the inclusion of an intelligent agent is properly done that effective application of knowledge will result in competitive advantage, improve efficiency and reduce costs. CEAs revealed their awareness of their role as the intelligent agent component in CHED's KM capacity out-fit.

Perceived level of protection process in CHED

The protection process is the security-oriented knowledge management processes designed to defend the knowledge within an organization from illegal and inappropriate use or theft (Gold et al. 2001). Table 12 shows that, CEAs respectively rated processes for protecting knowledge embedded in individuals. ($\bar{x}$=4.00, SD=2.423) as the highest and processes to protect knowledge from inappropriate use inside the organization ($\bar{x}$=3.54, SD=0.648) as lowest approach CHED is using to better knowledge management protection process. The overall contribution of knowledge management protection to knowledge management capacity was rated high ($\bar{x}$=3.80, SD= 1.172) with slight variation in CEAs estimation of the level of KM protection process in CHED.

Table 12: CEAs Perceived Level of Efficacy of Knowledge Management Process of Protection in CHED

Knowledge Management Process of Protection in CHED	n	Mean ($\bar{x}$)	Std. Dev.
Processes for protecting knowledge embedded in individuals.	166	4.00	2.423
Processes to protect knowledge from theft from outside the organization.	166	3.87	2.428
Clearly communicates the importance of protection knowledge.	166	3.84	.754
Processes to protect knowledge from inappropriate use outside the organization.	166	3.80	.598
Processes that extensively protect trade secrets.	166	3.71	.661
Processes to protect knowledge from theft from within the organization.	165	3.70	.692
Processes to protect knowledge from inappropriate use inside the organization.	166	3.54	.648
Overall rating	***I66***	***3.80***	***1.172***

n=166 Scale: 1.00-1.44=very low (VL), 1.45-2.44= low (L) 2.45-3.44=moderate (M), 3.45-4.44=high (H), 4.45-5.00=very high (VH)
Source: Field Survey Data, (Jones, 2018).

This implies that, CEAs perceive knowledge management capacity in terms of knowledge protection in CHED to be high enough to encourage a positive organizational performance. Cho and Korte, (2014) established that, knowledge protection has a significant influence on knowledge management processes and subsequently, organisational performance. This statement reckons with Matin et al., (2013) who indicated that, knowledge protection can help to conserve knowledge for innovations or inventions which can enhance overall performance of

organizations. Knowledge protection helps to maintains competitive advantage through sustained branding as exhibited through uniqueness of product.

Respondents confirmed that CHED has processes to protect knowledge from inappropriate use by people inside the organization, people outside the organization, from theft within the organization and from theft outside the organization. This implies CEAs are aware of the measures put in place by CHED to protect the organization's intellectual property. Firestone, (2003) specified that, protecting the knowledge within an organization from illegal or inappropriate use or theft both inside and outside is an important security measure for every organization in emboldening knowledge sharing and use. Thus, knowledge protected within the organization gives employees the opportunities to test, experiment and investigate the appropriate diversifications the protected knowledge can operationalized to yield exponential results.

Again, respondents indicated that CHED has extensive procedures for protecting trade secrets and clearly communicates the importance of protecting organizationally sensitive knowledge. This suggests that CEAs are aware of the trade secretes CHED possesses and methodologies taken to protect these secrete knowledge for the sake of competitive advantages. Gold et al. (2001) reported that knowledge protection processes preserves the rare and inimitable (trade secrete) quality of knowledge thus ensuring competitive advantage. Desouza and Vanapalli, (2005) reiterated that, since knowledge is considered as an important source of sustainable competitive advantage for modern business, increasing attention should be paid on protection of knowledge in order to prevent imitation by competitors. In

line Jean et al. (2014) respondents confirmed that, CHED uses certain knowledge protection processes such as copyrights, trademarks and nondisclosure contracts to ensure knowledge is secured. CEAs confirmed that CHED practices "service-branding" and logo customization as branding means to protect knowledge acquired from years of practice so as to maintain competitive advantages chocked by CHED over the years.

CEAs perceived level of total km process in CHED

Table 13 shows CEAs perceived level of efficacy of total knowledge management process. Respondents rated Knowledge management protection overall rating ($\bar{x}$=3.80, SD=1.172) as the highest knowledge management capacity practice undertaken by CHED to facilitate a better organization performance in terms of knowledge management processes. This was followed by Knowledge management conversion overall rating ($\bar{x}$=3.77, SD=0.724) as being a high indicator to knowledge management capacity for a better organizational performance in terms of knowledge management processes undertaken by CHED. Knowledge management acquisition overall rating ($\bar{x}$=3.68, SD= 0.730) was also rated as a high indicator of knowledge management capacity in terms of knowledge management process undertaken by CHED to aid organizational performance. Knowledge management application overall rating ($\bar{x}$=3.68, SD= 0.784) was also rated as a high pointer of knowledge management capacity being practiced by CHED to help boost organizational performance. Total KM Process ($\bar{x}$=3.73, SD= 0.852) contribution to knowledge management capacity was high with little variation among respondents. Thus, all components of Knowledge management

capacity with respect to knowledge management processes were rated high. This has positive implication for productivity and organizational performance. This assumption agrees with Gold et al. (2001) who asserted that increase in productivity as a result of KM function is also a measure of organizational performance and shows that if the KM tools are working effectively and efficiently, then productivity will move up. Gold et al. (2001) concluded that, knowledge management process acts as one of the basic indicators of organizational performance.

Table 13: CEAs Perceived Level of Efficacy of Total Knowledge Management Process in CHED

Total Knowledge Management Process in CHED	n	Mean ($\bar{x}$)	Std. Dev.
Knowledge management Protection	**166**	***3.80***	***1.172***
Knowledge management Conversion	***166***	***3.77***	***0.724***
Knowledge management Acquisition	***166***	***3.68***	***0.730***
Knowledge management Application	***166***	***3.68***	***0.784***
Total KM Process	**166**	***3.73***	***0.852***

n=166 Scale: 1.00-1.44=very low (VL), 1.45-2.44= low (L) 2.45-3.44=moderate (M), 3.45-4.44=high (H), 4.45-5.00=very high (VH)
Source: Field Survey Data, Jones, (2018).

Zaied et al. (2012) confirmed that, productivity will be enhanced if the KM tools are effectively applied and will ultimately lead to organization performance. Madhoushi et al. (2011) admonished that, proper knowledge acquisition, conversion, application and protection can help to transform knowledge from being a potential power tool into actual innovations or inventions which can enhance overall performance of organizations.

The high ratings of KM processes may have implication on CHED's potential for knowledge grafting. This assumption agrees with Huber (1991) who defined knowledge grafting as the migration of knowledge between firms. He claims knowledge grafting is typically achieved through mergers, acquisitions, or alliances in such a way that, there is a direct passing of knowledge between firms (Huber, 1991). CEAs confirmed partnership with institution such as World Bank, World Cocoa Foundation (WCF) and other International Non-governmental Organizations (INGOs) to share knowledge that will best benefit their stakeholders and organizational performance at large.

Again, respondents' high overall evaluation of KM process levels in CHED is suggestive of the fact of CHED's processes that facilitate CEAs identifying what they need to know and share with their peers and stake holders. Field (2003) explained that employees need to understand just what it is that they know, that others need to know, and why this content needs to be shared with their peers. Therefore, the perceived benefits of knowledge will only be realized once the acquired and shared knowledge are transmuted to capabilities to truly affect the organizational performance (Zahra & George, 2002). Chen and Fong (2015) showed that KM processes has strong effect on business performance. Desouza and Vanapalli (2005) advised that, since knowledge is considered as an important source of sustainable competitive advantage for modern business, increasing attention should be paid on KM processes of acquisition, conversion, application and protection in order to prevent firms losing out to other competitors.

The results of this study are similar to a study that was conducted by Reisi et al. (2013) to investigate the relationship between individual dimensions of knowledge management process capability and organizational effectiveness among selected sport organizations in Iran. The results demonstrated that all four (4) dimensions of knowledge management capabilities in terms of knowledge management process (knowledge acquisition, knowledge conversion, knowledge application, and knowledge protection) have direct and a significant relationship with organizational effectiveness. They further suggested that knowledge and learning activities are necessary for organizations to improve organizational effectiveness. Hence, managers should make a conscious effort to create processes that facilitates accessing and transferring information within and outside of the organization with the aim of improving firm performance.

Infrastructural Capabilities in CHED as measured by technology, structure and culture

CEAs perceived level of organizational technology in CHED

Gold et al. (2001) described technology as comprising of the crucial elements of the infrastructural dimension needed to mobilize social capital for the creation of new knowledge. Table 14 shows the influence of knowledge management infrastructure on Knowledge management capacity as measured in terms of Technology. CEAs asserted that CHED's ability to make it possible for people in multiple locations to learn as a group from a multiple source is the highest contributor ($\bar{x}$=3.92, SD=0.734) however, CHED's capacity to facilitate employees ability to collaborate with other persons inside the organization was rated as its lowest contributor ($\bar{x}$=3.50, SD= 0.710). The Overall rating of technology was high

($\bar{x}$=3.77, SD=0.678) and respondents had less variations in their responses as shown by the SD.

Table 14: CEAs Perceived Level of Knowledge Management Infrastructure of Technology in CHED

Knowledge Management Infrastructure of Technology in CHED	n	Mean ($\bar{x}$)	Std. Dev.
Employees in multiple locations learn as a group from a multiple source	166	3.92	.734
Employees retrieve knowledge about organizational processes.	166	3.90	.690
Employees search for new knowledge.	166	3.80	.608
Employees map the locations of specific types of knowledge	165	3.80	.640
Employees collaborate with other persons outside the organization	166	3.74	.602
People in multiple locations learn as a group from a single source	166	3.72	.760
Employees collaborate with other persons inside the organization	166	3.50	.710
Overall rating	**166**	***3.76***	***0.678***

n=166 Scale: 1.00-1.44=very low (VL), 1.45-2.44= low (L) 2.45-3.44=moderate (M), 3.45-4.44=high (H), 4.45-5.00=very high (VH)
Source: Field Survey Data, Jones, (2018).

CEAs perceive CHED's knowledge management capacity with respect to technology as high enough to translate into a positive organizational performance. Cho and Korte (2014) established that, technology has a significant influence on knowledge management infrastructure and subsequently, organisational performance. Lee and Lan (2011) also hypothesized that technology has positive effect on the organizational performance. They suggested that in this

current technological era, organizations that have best technologies have greater competitive edge over others.

Again, CEAs stated that, the technological outfit of CHED facilitates increase productivity by aiding in the giving of timely information (Sandhawalia & Dalcher, 2011), reducing response time by efficient utilization of IT tools (Zaied, 2012) minimizing the cost of operations and processes (Rašula et al., 2012) acquiring new knowledge, retrieve knowledge about their products and stakeholders, acquiring knowledge and information about market and effective communication within the organization (Gold et al., 2001). Thus, CEAs confirmed the important role technology plays in their line of duty as a link between farmers and research findings conducted on behalf of COCOBOD. Technologies are needed to assist in rapid dissemination of agricultural information and innovations at a faster pace since most agricultural practices are time sensitive. A CEA cited an example that, when it is time for pollination, farmers are to be made aware as fast as possible, since harvest time depends on how efficient pollination time is utilized. Hence, affirming the importance of information dissemination role of technology.

Also, CEAs attested to the fact that CHED has technologies such as smart phones, laptops, palm tops and GPS trackers that enables employees to collaborate with other persons inside the organization and technologies that enable employees to collaborate with other persons outside the organization. This agrees with Gold et al. (2001) who noted that, technology consists of the mechanism within organizations that facilitates the creation, collaboration and dissemination of knowledge in the best possible way. Rašula et al. (2012) also recounted that,

technology is all about the technical mechanism that an organization holds for effective knowledge transmission within and outside the organization. Information technology also helps organizations in timely transmission of organizational goals to employees of the organizations (Gold et al., 2001) and also serves as the best facilitator to achieve the desired goals of the organizations (Yang, 2011). ICT technologies enhance knowledge management and usually involve more people in knowledge creation process as they allow multiple people to collaborate when creating knowledge (Majchrzak et al., 2013).

Yet another benefit CEAs claim to gain from technology is the ability to search for new knowledge, map the locations of specific types of knowledge and to retrieve knowledge about organizational processes via the use of ICT device and internet enabling devices such as personal computers. Gold et al. (2001) acknowledged that, technology has the core position in the integrated KM framework to travel the new knowledge and repository of existing knowledge for easy retrieval and protection from misuse. Thus, CEAs acknowledged the fact of technology assisting them to help bridge knowledge gap between farmers and relevant research findings.

Respondents indicated that CHED uses technological mediums such as conference calls, video calls and text message enabling devices that assistance people in multiple locations to learn as a group from a single source and also, people in multiple locations to learn as a group from a multiple source. Mehregan et al. (2012) reported that, capturing knowledge is very fast using the latest technology and this helps in setting the strategic direction that will lead to KM performance

and ultimately enhancing the organizational performance. Chuang (2004) added that, from the KM perspective, the technological knowledge management capability of an organization can assists in enabling the rapid acquisition, storage, and exchange of knowledge, mapping internal or external knowledge sources, integrating organizational knowledge flows, and applying existing knowledge to create new knowledge. Rašula et al. (2012) concluded that, Technology is helpful to make the right decision by helping to capture knowledge. Amayah (2013) re-counted that, technology is a critical enabler and foundational element of a KM plan.

Kogut and Zander (1997) alert that, it is worth noting that technology does not make organizations share knowledge, but if people want to share, technology can increase the reach and scope of such exchanges using the formalized processes in the organization. Technology is the factor that cements the importance of the proper coordination of all the KM components to help maximize organizational performance. CEAs talked about how social media platforms such as whatsapp, imo and zomzom enable staff members of CHED compare and contracts results and phenomenal occurrences in operational areas in record time. This they said aids the sharing and cross fertilization of knowledge.

CEAs perceived level of organizational structure in CHED

Gold et al. (2001) labelled organizational structure as encompassing of the essential rudiments of the infrastructural dimension that determines the channels from which knowledge is accessed and how it flows. From Table 15, structures that make information readily accessible ($\bar{x}$=3.81, SD= 0.806) was rated as highest

contributor and structures that promotes collective rather than individualistic behaviour was rated as its lowest contributor ($\bar{x}$=3.50, SD=0.700) to knowledge management infrastructure in terms of structure. The overall rating of organizational structure was high ($\bar{x}$=3.62, SD=0.767) with least variation in the responses of CEAs.

Table 15: CEAs Perceived Level of Efficacy of Knowledge Management Infrastructure of Structure in CHED

Knowledge Management Infrastructure of Structure in CHED	n	Mean ($\bar{x}$)	Std. Dev.
Structure makes information readily accessible	166	3.81	.806
Structure has a standardized reward system for sharing knowledge	166	3.74	.845
Structure facilitates the discovery of new knowledge.	166	3.74	.713
Structure facilitates the creation of new knowledge.	166	3.58	.787
Structure facilitates the transfer of new knowledge	166	3.54	.857
Structure has a large number of strategic alliances with other firms	166	3.50	.667
Structure promotes collective rather than individualistic behavior	166	3.50	.692
Overall rating	**166**	***3.63***	***0.767***

n=166 Scale: 1.00-1.44=very low (VL), 1.45-2.44= low (L) 2.45-3.44=moderate (M), 3.45-4.44=high (H), 4.45-5.00=very high (VH)
Source: Field Survey Data, Jones, (2018)

CEAs confirmed that CHED's knowledge management capacity with respect to structure is high enough to help increase organizational performance. Cho and Korte (2014) established that, organizational structure has a significant influence on knowledge management infrastructure and subsequently,

organisational performance. Respondents indicated that CHED encourages an organizational structure that promotes collective rather than individualistic behaviour. This implies that CEAs recognize that both intangible organizational structures such befitting work condition and tangible organizational structures such as adequate office space all add up to a proper implementation of knowledge management infrastructural capacity. Armbrecht et al. (2001) limited structural infrastructure to refer to the physical layout of an organization that promotes the creation of new knowledge. This is in agreement with Gold et al. (2001) who contested that a proper physical structure, such as office design, office size and office locations are factors that influence knowledge sharing. However, Zaied (2012) was of the view that an effective organizational structure is one that efficiently combines both intangible organizational structures and tangible organizational structures in order to build a properly functioning knowledge management infrastructural capacity. CEAs reported that CHED fulfills both their tangible and intangible structural needs to help aid proper knowledge management.

Again, CEAs specified that CHED has structures that facilitate the discovery of new knowledge, the creation of new knowledge, making information readily accessible and structures that facilitate the transfer of new knowledge. It can be inferred that respondents are not only able to create and access knowledge relevant in their line of duty but also enabling environments such as better communication structures and unambiguous chain of command that facilitate proper reporting helps to share knowledge throughout the organization. Martinez (1998) considers structural knowledge management as encouraging

individuals to communicate their knowledge by creating environments and systems for capturing, organizing, and sharing knowledge throughout the company.

Armbrecht et al. (2001) gave flexible hierarchical structures, such as matrix teams or flattened organizations, as examples of organizational structures that can also increase communication with individuals and sharing behavior within the organization and make information readily accessible. Without proper organizational structures, there will be no proper order of things in an organization. However, CEAs opined that, if organizational structures are kept too bureaucratic, it may hamper the constructive sharing and management of knowledge. Thus, judging from the time sensitiveness of agricultural information, if systems are not put in place to aid a fast but diligently analyzed channel of information flow in and out of the organization, information will be rendered obsolete by the time it gets to farmers. By this assertion, CEAs stated that CHED should be able to put up structures that mandate extension Agents to act in cases of emergency. A case in point CEAs sited was, in the event of an outbreak of a viral disease within an operational area, CEAs opined that CHED must mandate extension agents to enact interim measures to help curb the spread of the disease without having to go through a rigid bureaucratic structure but rather be given free in-rolls to anticipate and make provision of all resources needed to initiate needed actions.

CEAs perceived level of organizational culture in CHED

Organizational culture is an umbrella term for the behaviors of the human "resource" of any organization (Gold et al., 2001). From Table 16, CEAs rated on-the-job training and learning ($\bar{x}$=3.89, SD=0.758) and employees valued for their

individual expertise ($\bar{x}$=3.52, SD=0.766) as the respective highest and lowest indicators for a better Knowledge management infrastructure in terms of culture. The Overall rating of organizational culture was high ($\bar{x}$=3.65, SD=0.762) with little variation in the responses of CEAs as shown by the SD.

Table 16: CEAs Perceived Level of Efficacy of Knowledge Management Infrastructure of Culture in CHED

Knowledge Management Infrastructure of Culture in CHED	n	Mean ($\bar{x}$)	Std. Dev.
On-the-job training and learning are valued.	166	3.89	.758
Overall organizational mission is clearly stated.	166	3.78	.779
Employees are encouraged to interact with other groups.	166	3.78	.795
Overall organizational vision is clearly stated.	166	3.75	.766
Overall organizational strategic plan is clearly stated.	166	3.75	.774
Employees are encouraged to ask others for assistance when needed.	166	3.72	.677
Senior management clearly supports the role of knowledge in the firm's success.	166	3.71	.846
Employees are encouraged to ask others for assistance when needed.	166	3.66	.766
Employees are encouraged to discuss their work with people in other workgroups.	166	3.64	.679
Employees are valued for their individual expertise.	166	3.52	.776
Overall rating	***166***	***3.72***	***0.762***

n=166 Scale: 1.00-1.44=very low (VL), 1.45-2.44= low (L) 2.45-3.44=moderate (M), 3.45-4.44=high (H), 4.45-5.00=very high (VH)
Source: Field Survey Data, Jones, (2018).

CEAs rated CHED's knowledge management capacity with respect to culture is high enough to impact positively on organizational performance. Cho and Korte, (2014) established that, culture has a significant influence on knowledge management infrastructure and subsequently, organisational performance. This

phenomenon has implication on transfer of experiential knowledge. Cavusgil et al. (2003) in a study in Thailand worked on tacit knowledge transfer among the individuals within an organization and have suggested that to effectively transfer tacit knowledge, one requires a collaborative cultural context because of the significant positive relationship between tacit knowledge transfer and cultural context of organization in attaining superior knowledge management performance. Cavusgil and his friends suggested that organizations can only achieve efficient knowledge and business processes if their organizational culture is supportive. Zaied (2012) added that, a positive cultural context influences Organizational Performance of a firm positively.

Respondents consented that CHED has a culture that encourages employees to ask others for assistance when needed, to interact with other groups, to discuss their work with people in other workgroups and to ask others for assistance when needed. This implies that CHED encourages a way of life that inspires positive attitudes and work habits. Yesil and Kaya (2013) wrote that, organizational culture should expedite shared values, belief and attitude that employees of the organization possess. This is because, the style of decision making, knowledge sharing habits and behaviors of human resource of any organizations has direct influence on the organizational performance (Zaied, 2012).

CEAs said the overall organizational strategic plan, vision and mission of CHED have been clearly stated. This has implications on CEAs preparedness to see to the achievement of CHED's organizational goals. Nonaka and Takeuchi, (1995) suggested that, the overall vision of an organization states a clear goal of the

organization and ignites the mandatory actions in the organization to achieve those goals. A well-articulated and well communicated vision can be utilized to develop involvement and contribution among the employees (O'Deli et al., 1998). Vision, mission and the corporate values determine the knowledge that is required by the organization and the knowledge related activates accepted by the organization (Leonard, 1995). Hence the clearly stated vision (of CHED) fosters the knowledge management behaviors that are need to augment performance in the organization (von Krogh, 1998).

Again, the respondents recounted that CHED has senior management who clearly supports the role of knowledge in the firm's success, encourage on-the-job training and value employee's individual expertise. This implies CEAs have the opportunity to be involved in decision making to help build a better organizational performance. Denison and Mishra (1995) classified involvement as the level of participation that organization members have in decision making. Denison, (1990) added that, it is out of this ownership mentality that grows a greater commitment to an organization and a lesser need for an overt control system. CEAs revealed that, the uniformity in their operational duties are as a result of a friendly culture CHED encourages. Kayworth and Leidner (2004) opined that high involvement culture provides a friendly place to work where people can share a lot of themselves. De Long and Fahey (2000) point to the example of one of their case sites where senior management placed very high value on individual workers. Ruppel and Harrington (2001) found from their study on intranet adoption that, in organizations

whose culture displays a high concern for other people and an atmosphere of mutual confidence and trust, early adoption of intranet use is most likely to occur.

CEAs perceived level of total km infrastructure in CHED

Table 17 shows respondents rated Knowledge management culture overall rating ($\bar{x}$=3.73, SD= 0.762) as the highest indicator for knowledge management capacity for infrastructure. This was closely followed by Knowledge management structure overall rating ($\bar{x}$=3.72, SD= 0.678) as high indicator to knowledge management capacity for infrastructure. Knowledge management technology overall rating ($\bar{x}$=3.63, SD=0.767) was also rated as a high indicator of knowledge management capacity for infrastructure. Total KM Infrastructure ($\bar{x}$=3.68, SD= 0.740) contribution to knowledge management capacity was high with minimum variations among respondents. All components of Knowledge management capacity with respect to knowledge management infrastructure were rated high.

This has positive implication for productivity and organizational performance because knowledge infrastructure capabilities (KIC) are required to build and maintain generic KM capabilities that are shared within organizational activities and functions (Liao & *Wu 2010*). This axiom conforms to Pandey and Dutta (2013) who examined the role of knowledge infrastructure capability in knowledge management practices within an organization and suggested that organizational structure, culture and technology plays a facilitating and steering role in developing organizational performance.

Table 17: CEAs Perceived Level of Efficacy of Total Knowledge Management Infrastructure in CHED

Total Knowledge Management Infrastructure in CHED	n	Mean ($\bar{x}$)	Std. Dev.
Knowledge management Technology	166	3.77	0.678
Knowledge management Culture	166	3.72	0.762
Knowledge management Structure	166	3.63	0.767
Overall rating	166	3.68	0.740

n=166Scale: 1.00-1.44=very low (VL), 1.45-2.44= low (L) 2.45-3.44= moderate (M), 3.45-4.44=high (H), 4.45-5.00=very high (VH)
Source: Field Survey Data, Jones, (2018).

Respondents ranked Knowledge management culture as the highest contributor of infrastructure. This implies that CEAs are aware of the important ole knowledge management culture plays in organizational performance. Gold et al. (2001) maintained that culture is the supportive capability for the valuation of organizational knowledge and builds an interactive, collaborative atmosphere among the organization's members.

The results of this study are similar to a study that was conducted by Reisi et al. (2013) to investigate the relationship between individual dimensions of knowledge management process capability and organizational effectiveness among selected sport organizations in Iran. The results demonstrated that all three (3) dimensions of knowledge management infrastructure (technology, structure and culture) have direct and a significant relationship with organizational effectiveness. They further suggested that knowledge and learning activities are necessary for organizations to improve organizational effectiveness. Hence, managers should

make a conscious effort to create processes that facilitates accessing and transferring information within and outside of the organization with the aim of improving firm performance.

CEAs Perceived Level of Organizational Performance

CEAs* perceived level of organizational effectiveness in *CHED

As shown in Table 18, upsurge in the number of farmers served was rated as the highest indicator of CHED's performance in terms of effectiveness ($\bar{x}$=3.92, SD=0.771). CHED's ability to achieve organizational goals was rated lowest performance indicator for by CEAs ($\bar{x}$=3.48, SD= 0.814). The overall performance of CHED in terms of effectiveness was rated at high performance and the standard deviations gave an indication that respondents were not widely varied in their views ($\bar{x}$=3.82, SD=0.762).

CEAs perceived the ability of CHED to achieve its organizational goals to be moderately high. Mouzas (2006), observed that level of effectiveness indicates the degree to which a business achieves its goals. Zheng et al. (2010) added that, effectiveness determines the policy objectives of the organization or the measure to which an organization realizes its own goals. According to Heilman and Kennedy-Philips (2011) organizational effectiveness helps to assess the progress towards mission fulfillment and goal achievement. This implies that although CHED does well to achieve its organizational goals, CEAs perceive much could be done to augment the organizational performance of CHED through the intensification of knowledge management practices.

Table 18: CEAs Perceived Level of Efficacy of Organizational Performance in Terms of Effectiveness in CHED

	n	Mean ($\bar{x}$)	Std. Dev.
Increase number of farmers served.	166	3.92	.771
Innovate new services	166	4.00	.688
Coordinate the development effort of different units	166	3.86	.773
Anticipate potential opportunities for changing stakeholders' quality of life.	166	3.83	.776
Achieve organizational goals	166	3.48	.814
Overall rating	***166.0***	***3.82***	***0.762***

n=166 Scale: 1.00-1.44=very low (VL), 1.45-2.44= low (L) 2.45-3.44=moderate (M), 3.45-4.44=high (H), 4.45-5.00=very high (VH)
Source: Field Survey Data, Jones, (2018).

CEAs agreed that CHED displays a high ability to innovate new services. This assertion is in line with Fu-Kwun Wang (2006) who said that, effectiveness-oriented companies are concerned with output, sales, quality, creation of value addition, innovation and cost reduction. CEAs disclosed that services such as free supply of hybrid cocoa seedlings, free supply of fertilizers, improved mass spraying exercise, and youth-in-cocoa are new services CHED is engaged in to draw the youth into cocoa production to help boost productivity.

Additionally, respondents consented that CHED has a high ability to anticipate potential opportunities for changing stakeholders' quality of life and thus has increased its number of clients served. This implies that, CHED is committed to the welfare of its stakeholders. Meyer and Herscovitch (2001) analyzed organizational effectiveness in the Philippines and concluded that organizational commitment in the workplace may take various forms such as relationship between

leaders and staff, employee's identification with the organization, involvement in the decision-making process and a good sense of psychological attachment felt by an individual. Shiva and Suar (2010) advised that, human capital management should be intermingled with the concepts of effectiveness to help enhance organizational performance.

Furthermore, CEAs agreed that CHED has a holistic approach to ccoordinating the development effort of its different units. Porter (1996) calls this act of holistic approach; Total Productive Maintenance System (TPMS). He remarked that TPMS could be applied as a tool but not the strategy for managers in order to ensure operational effectiveness by means of benchmarking, time-based competition, outsourcing and partnering. Muthiah and Huang (2006) added that, to improve organizational effectiveness, by means of TMPS, management should strive for better communication, interaction, leadership adaptability and positive environment including planning, manufacturing, and proper maintenance.

CEAs* perceived level of organizational efficiency in *CHED

Table 19 shows respondents rated increase outputs per staff as the highest indicator of CHED's performance in terms of efficiency ($\bar{x}$=3.91, SD=0.720). Achieve organizational goals at a reduced Cost per service provided was rated lowest performance indicator for by CEAs ($\bar{x}$=3.57, SD= 0.812). The overall performance of CHED in terms of efficiency was rated at high performance and the standard deviations gave an indication that respondents were not very varied in their views ($\bar{x}$=3.71, SD=0.841). This implies that CEAs perceived CHED to be a very efficient organization.

Table 19: CEAs Perceived Level of Efficacy of Organizational Performance in terms of Efficiency in CHED

Organizational Performance in terms of Efficiency in CHED	n	Mean ($\bar{x}$)	Std. Dev.
Increase outputs per staff	166	3.91	.720
Adapt quick to unanticipated changes outside the organization	166	3.88	.785
Quickly adapt its goals to changes inside the organization	166	3.69	.940
Enhance program completion rates	166	3.63	.863
Augment timeliness of delivery of services.	166	3.61	.925
Achieve organizational goals at a reduced Cost per service provided	166	3.57	.812
Overall rating	***166***	***3.71***	***0.841***

n=166 Scale: 1.00-1.44=very low (VL), 1.45-2.44= low (L) 2.45-3.44=moderate (M), 3.45-4.44=high (H), 4.45-5.00=very high (VH)
Source: Field Survey Data, Jones, (2018).

Demarest (1997) postulated that organizations that are interested in improving organizational performance should through knowledge management, boost the efficiency of their organization, increase productivity and quality of their services, and achieve innovative solutions and products for their customers.

CEAs admitted that CHED has a high ability to allocate resources efficiently. This observation is in line with Kumar and Gulati (2010) who contended that, efficiency is all about resource allocation across alternative uses. Karlaftis (2004) declared that, Organizations can be managed effectively, yet, due to the poor operational management, the entity will be performing inefficiently. Thus, efficiency measures relationship between inputs and outputs or how successfully

the inputs have been transformed into outputs at a reduced cost (Low, 2000). Delaney and Huselid, (1996) added that, in cases where there is no proper resources allocation policy, organizational perspective of the future will be lost.

CEAs* Perceived Level of organizational Performance in *CHED

Table 20 shows respondents rated efficiency as having a higher overall rating ($\bar{x}$=3.82, SD= 0.762) as compared to efficiency ($\bar{x}$=3.71, SD= 0.841). Overall organizational performance was rated as high ($\bar{x}$=3.77, SD= 0.802).

Table 20: CEAs Perceived Level of Efficacy of Organizational Performance in terms of Effectiveness and Efficiency in CHED

	n	Mean ($\bar{x}$)	Std. Dev.
Effectiveness	166	3.82	0.762
Efficiency	166	3.71	0.841
Total organisational performance	***166***	***3.77***	***0.802***

n=166Scale: 0.45-1.44=very low (VL), 1.45-2.44= low (L) 2.45-3.44=moderate (M), 3.45-4.44=high (H), 4.45-5.00=very high (VH) Source: Field Survey Data, Jones, (2018).

This implies that CEAs acknowledge that, both the effectiveness and efficiency components of the organizational performance in CHED are high enough to guarantee organizational success. Pinprayong and Siengthai, (2012) said effectiveness and efficiency are exclusive, yet, at the same time, they influence each other; therefore, it is important for management to ensure the success in both areas in other to have a culminating organizational success. Gold et al. (2001) showed that if KM tools are working effectively and efficiently then productivity will move up and hence KM is the basic indicator for organizational performance. Zaied et al., (2012) added that productivity will be enhanced if KM tools are effectively

applied and that will ultimately lead to a high organizational performance. Griffin (2003) explained that, organizational performance reflects the ability of an organization to fulfil its stakeholders' requirements and survive in the market. CEAs therefore confirmed that, CHED's propensity to achieve its organizational goal is high because, CHED is very effective and efficient at achieving its organizational set gargets at a high level due to proper coordination between the knowledge management capacity components.

Perceived Organizational performance between Males and Females CEAs

Table 21 presents an independent t-test showing differences in perceived organizational performance of CHED between males and females CEAs. The means and SDs shows that both male ($\bar{x}$=3.74, SD=0.453) and female ($\bar{x}$=3.70, SD=0.380). CEAs in the study area perceived CHED to be operating at a high performance with less variations in their responses. Additionally, the assumption of homogeneity of variances was tested and satisfied via Levene's F test, F (.63) that was not significant (.430) and hence equally variance was assumed. The independent t-test (Table 22), shows that there was no significant (sig. 0.571) difference between the perceptions of male and female CEAs on the perceived organizational performance of CHED at 0.05 alpha levels. This implies that both male and female CEAs deem the organizational performance of CHED in terms of the organization's ability to manage knowledge, to be at a high performance in their era.

Table 21: Independent t-test Showing Differences in Perceived Organizational performance of CHED between Males and Females CEAs.

							95%Conf. interval	
Sex	**N**	**Mean ($\bar{x}$)**	**Std. Dev. (σ)**	**Mean difference**	**t**	**Sig**	**Lower**	**Upper**
Male	134	3.74	.453	.04	.568	.571	-.122	.220
Female	32	3.70	.380					

n=166
Source: Field Survey Data, Jones, (2018).

							BCa 95% Conf. int.	
Sex	**N**	**Mean ($\bar{x}$)**	**Std. Dev. (σ)**	**Mean difference**	**Bias**	**Sig**	**Lower**	**Upper**
Male	134	3.74	.453	.04	-.001	.530	-.102	.220
Female	32	3.70	.380					

Scale: 1000 Bootstrap sample
Source: Field Survey Data, Jones, (2018).

Arvey and Murphy (1998) alluded to the fact that, task performance and contextual performance are not entirely separate because both contribute substantially to overall measures of performance, hence male and female CEAs can equally measure an organization's performance because they perform the same task as extension agent. Cohen and Levinthal (1990) added that within the firm, individuals share perceptions and jointly interpret information, events, and experiences as they execute daily routines.

To further check for the authenticity of the insignificant (sig. 0.571) difference between the perceptions of male and female CEAs on the perceived

organizational performance of CHED at 0.05 alpha levels, a bootstrap of 1000 sample was used. The independent t-test (Table 21), shows that there was no significant (sig. 0.530) difference between the perceptions of male and female CEAs on the perceived organizational performance of CHED at 0.05 alpha levels.

This implies that both male and female CEAs will still deem the organizational performance of CHED in terms of the organization's ability to manage knowledge, to be at a high performance in their era even if the total sample was thousand (1000) instead of the hundred and sixty-six (166) sample used for the study. We therefore fail to reject the null hypothesis three (3) which states that there is no significant difference between the level of perceived effect of knowledge management on the organizational performance of CHED among male and female CEAs.

Perceived Effect of Knowledge Management Capacity on Organizational Performance in Three (3) Cocoa Region of Ghana.

One-way analysis of variance (ANOVA) was computed to determine whether statistically significant differences existed among the mean levels of community extension agents' perceived effect of knowledge management capacity on the performance of Cocoa Health and Extension Division (CHED) in Ghana in the three (3) randomly selected cocoa regions of the study. The results as shown in Table 22 revealed that there was no statistically, significant (sig.0.727) differences existing among the mean perceived effect of knowledge management in the three (3) cocoa regions of Ghana at 0.05 alpha.

Table 22: One Way Analyses of Variance (ANOVA) of Differences in CEAs Perceived Effect of Knowledge Management Capacity on Organizational Performance in Three (3) Cocoa Region of Ghana

Regions	**n**	Mean ($\bar{x}$)	Std. Dev. (σ)	**F**	**Sig**
Eastern	48	3.72	.443		
Brong Ahafo	48	3.77	.474	.319	0.727
Western North	70	3.73	.414		

n=166

Source: Field Survey Data, Jones, (2018).

This implies that, there is no difference in levels of community extension agents' perceived effect of knowledge management capacity on the performance of Cocoa Health and Extension Division (CHED) in the study area. Therefore, we fail to reject the fourth (4) null hypothesis which states, there is no significant difference between CEAs perceived level of the effect of knowledge management capacity on organizational performance among any three (3) cocoa regions of Ghana. This may probably be due to the fact that CHED organizes on the job trainings, workshops and seminars aimed at updating CEAs on country-wide developments. Again, social media platforms such as chats rooms helps to keep CEAs abreast with CHED's performance in the regions. Cha (2010) focusing specifically on internet chat rooms, found that education, social inclusion, maintaining relationships, meeting new people and social compensation are some of the gratifications for using these chat rooms.

Ko, et al. (2005) discovered that the social–interaction motivation for using KM technology such as the internet has a positive effect on the use of human to human interaction features that encourages connectedness and reciprocal communication. CEAs affirmed that CHED has KM communication technologies

that aids interconnectedness, information sharing and socialization of CEAs to aid in the exchange information on job related happenings across the country.

The result of the study is similar to Hefny (2013) who observed that, the type of information sought by extension officers in Egypt on the internet focused more on the extension duty and productivity. The similarities lied in this case where according to him, extension officer's searched for information pertaining to agricultural products and farm news as it was in the case of CEAs in CHED of Ghana. Additionally, Ruzgar (2005) also revealed in a sturdy that sending and receiving emails topped the list, followed by reading news and chat. CEAs were of the view that although the use of ICT in CHED does not match-up to modern standards and capacities, it is high enough to give CEAs across the nation a fair idea of CHED's organizational performance and hence the unanimous rating.

Relationships between Knowledge Management Capacity and Organizational Performance.

Pearson product-moment correlation matrix was used to test for the relationship that exist between knowledge management capacity and organizational performance. The Pearson product-moment correlation matrix for the research variables are presented in Table 23. There was significant relationship between organizational performance level and six (6) of the independent variables at 0.01 alpha level and one (1) at an alpha level of 0.05 except for sex, age, level of education, leadership style and years of experience. Correlation coefficient (r) was interpreted according to the guidelines recommend by Davis, (1971) which is

scaled as 1.0=Perfect, 0.70 - 0.9=Very High, 0.50 - 0.69=Substantial, 0.30 - 0.49=Moderate, 0.10-0.29=Low and 0.01 - 0.09=Negligible (Refer to Appendix A).

There were positive and substantial significant relationship between organizational performance of CHED and Knowledge management culture (r=.597) and Knowledge management acquisition (r=.572). But there was a positive and moderate significant relationship between organizational performance of CHED and Knowledge management conversion (r=.463) and also Knowledge management structure (r=.360). However, there was a positive and low significant relationship between organizational performance of CHED and Knowledge management application (r=.281) and Knowledge management technology (r=.250) at 0.01 alpha level. Finally, there was a positive and low significant relationship between organizational performance of CHED and Knowledge management protection (r=.155) at an alpha level of 0.05 (Davis, 1971).

Table 23: Correlation Matrix of Knowledge Management Level of CEAs and Organization Performance

Characteristics	Y	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12
Organisational performance (Y)	1												
(+) Sex (X_1) (1=female, 0=male)	-.044	1											
Age (X_2)	.092	-.047	1										
Years of experience (X_3)	-.092	.040	.159*	1									
(++) Level of education (X_4)	-.139	.143	.000	.080	1								
Leadership style (X_5)	.061	-.090	.035	.011	-.016	1							
Knowledge management acquisition (X_6)	.572**	.409**	.015	.002	.164*	-.079	1						
Knowledge management conversion (X_7)	.463**	.083	-.111	-.134	.066	-.083	.568**	1					
Knowledge management application (X_8)	.281**	.228**	-.046	.024	.167*	-.114	.596**	.553**	1				
Knowledge management protection (X_9)	.155*	.149	-.045	.026	-.089	-.046	.214**	.174*	.200**	1			
Knowledge management technology (X_{10})	.250**	.164*	.049	-.108	-.077	.053	.285**	.132	.166*	.255**	1		
Knowledge management structure (X_{11})	.360**	.221**	-.129	-.105	.154*	-.096	.591**	.609**	.556**	.253**	.183*	1	
Knowledge management culture (X_{12})	.597**	.135	.010	-.102	.031	-.052	.678**	.689**	.567**	.230**	.259**	.728**	1

+ Point- Biserial. ++ Spearman's rho. ** P< 0.01 (2-tailed) * P< 0.05 (2-tailed).

Source: Field Survey Data, Jones, (2018).

Y = Organizational performance

X_1= Sex

X_2= Age

X_3= Years of Experience

X_4= Level of Education

X_5= Leadership style

X_6= Acquisition

X_7= Conversion

X_8= Application

X_9= Protection

X_{10}= Technology

X_{11}= Structure

$X_{12=}$ Culture

The positive and substantial relationship found between the organizational performance of CHED and Knowledge management culture, implies that CEAs perceived that, knowledge management culture improves the organizational performance of CHED. Therefore, we fail to accept the sixteenth (16^{th}) null hypothesis that states there is no significant relationship between the level of efficacy of KM cultural infrastructure and organizational performance of CHED and the alternative accepted. This finding agrees with both theoretical and empirical data. The study result is similar to Liu and Deng (2015) who found that, the cultural dimension of knowledge management capability has a positive effect on performance. Meihami & Meihami (2014) affirmed that, KM culture is an efficient predictor of positive organizational performance. Rahman et al. (2013) affirmed that, KM cultural environment is helpful to remove the

barriers between the human resource and available information in the organization so that individuals use the available information for innovation and productivity. CEAs acknowledged that, CHED has an effective and efficient organizational culture which has a positive impact on organizational performance.

The positive and substantial relationship found between the organizational performance of CHED and Knowledge management acquisition, implies that, CEAs acknowledge that, knowledge management acquisition helps to improve the organizational performance of CHED. Therefore, we fail to accept the tenth (10^{th}) null hypothesis stating that, there is no significant relationship between the level of efficacy of KM acquisition process and organizational performance of CHED and the alternative was accepted. The results are in line with both theoretical and empirical data. Liu and Deng (2015) found that the knowledge acquisition dimension of knowledge management capability has a positive effect on performance. Malhotra (2000) asserted that knowledge acquisition is simply individual knowledge that has been incorporated into the firm's knowledge base to help boost productivity, profitability and subsequently organizational performance. CEAs stated that, if acquisition processes are augmented, organizational performance of CHED will also increase.

The positive and moderate relationship found between the organizational performance of CHED and Knowledge management conversion, implies that, knowledge management conversion has a positive influence on the organizational performance of CHED. Therefore, we fail to accept the eleventh (11^{th}) null hypothesis stating, there is no significant relationship between the

level of efficacy of KM conversion processes and organizational performance of CHED and the alternative accepted. This result is in line with both theoretical and empirical data. Similarly, Liu and Deng (2015) established that the conversion domain of knowledge management capability has a positive effect on performance. Mills and Smith (2011) stated that, knowledge conversion means packaging knowledge to create value in the organization, which can be reflected in innovations, creations and new products. CEAs remarked that, if CHED is able to build its ability to simplify and package knowledge in a way that will benefit its stakeholders, then organizational performance will improve.

The moderate and positive significant relationship identified between level of organizational performance of CHED and Knowledge management structure, implies that, knowledge management structure positively influences organizational performance of CHED. Therefore, we fail to accept the fifteenth (15^{th}) null hypothesis that states, there is no significant relationship between the level of efficacy of KM structural infrastructure and organizational performance of CHED and the alternative hypothesis accepted. This finding agrees with both theoretical and empirical data. Liu and Deng (2015) observed that the structural dimension of knowledge management capability has a positive effect on performance. Armbrecht et al. (2001) reported that, flexible hierarchical structures can also increase communication with individuals and sharing behavior within the organization. CEAs explained that, information is readily accessible due to fluid structures ensured in CHED. This they predicted will further translate into higher organizational performance.

The positive and low significant relationship found between the organizational performance of CHED and Knowledge management technology,

implies that, technology is an important component of organizational knowledge management. However, CEAs agreed that although knowledge management technology helps to augment the organizational performance of CHED its effect is little since the effective use of technology is highly determined by the human interface of that technology. Therefore, we fail to accept the fourteenth (14th) null hypothesis that states that, there is no significant relationship between the level of efficacy of KM technological infrastructure and organizational performance of CHED was rejected and the alternate was accepted. The result follows both theoretical and empirical data. The study result was confirmed by Liu and Deng, (2015) who found knowledge management technologies has a positive effect on performance. Gold et al., (2001) reported that technology helps organizations in timely transmission of information to employees of the organizations and has proven to be the best facilitator to achieve the desired goals of the organizations in terms of electronic communication. CEAs opined that, if CHED introduces modernized, effective and efficient technologies into its mandate, then knowledge and information sharing will increase and performance will shoot up.

The positive and moderate relationship found between the organizational performance of CHED and Knowledge management application, implies that, CEAs perceived knowledge management application helps to boost the organizational performance of CHED. Therefore, we fail to accept the twelfth (12th) null hypothesis stating that, there is no significant relationship between the level of efficacy KM application process and organizational performance of CHED and the alternate was accepted. This finding is in line with both theoretical and empirical data. The study result is similar to Liu and

Deng (2015) who found that KM application has a positive effect on organizational performance. Processes of application such as sharing or distributing knowledge is important for knowledge management (Carrillo, Robinson, AlgGhassani & Anumba, 2004). Carrillo et al., (2004) remarked that, through knowledge application, enterprises can exploit the knowledge within the organizations to adjust strategic direction. Bhatt, (2001) therefore concluded that knowledge application aids in the integration of acquired knowledge into the organization's products, processes, and services in order to sustain its competitive advantage.

The positive and low relationship found between the organizational performance of CHED and Knowledge management protection, implies that, knowledge management protection helps to enhance the organizational performance of CHED. Therefore, we fail to accept the thirteenth (13^{th}) null hypothesis stating that, there is no significant relationship between the level of efficacy KM protection process and organizational performance of CHED and the alternate hypothesis was accepted. This finding is in line with both theoretical and empirical data. The study result is similar to Liu and Deng (2015) who found that the protection dimension of knowledge management capability has a positive effect on performance. Gold et. al. (2001) observed that, Knowledge protection processes preserves the operational uniqueness of a firm and ensures competitive advantage which may eventually lead to high organizational performance. CEAs specified that, CHED should endeavor to protect its trade secrets in order to maintain competitive advantage and to increase its organizational performance.

There was no statistically significant relationship found between the organizational performance of CHED and sex of CEAs. This implies that, sex of CEAs does not significantly influence the improvement of the organizational performance of CHED. Therefore, we fail to reject the null hypothesis five (5) which states that, there is no significant relationship between sex of CEAs and organizational performance of CHED. This finding agrees with empirical data but not the theoretical hypothesis of the study. Andoh, Biako and Afranie (2011) pointed out the importance of recognizing the fact that there are only a few, gender related differences that will affect the performance of men and women. He explained that, in most cases, there are no significant difference between sexes when it comes to their contribution to organizational performance due to precautionary measures such as on the job training organized by firms for their staff.

Again, there was no statistically significant relationship found between the organizational performance of CHED and age. This implies that, age of CEAs does not significantly affect the organizational performance of CHED. Therefore, we fail to reject the null hypothesis six (6) stating, there is no significant relationship between age of CEAs and organizational performance of CHED. This finding agrees with empirical data but not the theoretical hypothesis of the study. Hedge and Borman (2012) emphatically specified that, when it comes to knowledge work, age cannot be used as a determinant factor to performance. O'Reilly et al. (1993) found that, age diversity was not related to organizational innovation and performance because knowledge workers depend on experience and technical know-how to work not age.

Further, there was no statistically significant relationship found between the organizational performance of CHED and level of education. This implies that, the level of education of CEAs does not significantly influence the organizational performance of CHED. Therefore, we fail to reject the null hypothesis seven (7) that states, there is no significant relationship between the level of education of CEAs and organizational performance of CHED and the alternate hypothesis rejected. This finding agrees with empirical data but not the theoretical hypothesis of the study. Cushway, (2003) observes that in modern times, individuals may be used productively in a flexible manner regardless their original qualifications when they were being employed. He explained that, when it comes to knowledge workers, no matter a person's educational qualification, the person will have to be oriented to be able to apply learnt skills within the new yet specific work context. Hence, the essence of on the job training.

Also, there was no statistically significant relationship found between the organizational performance of CHED and years of experience. This implies that, years of experience of CEAs does not significantly improve the organizational performance of CHED. Therefore, we fail to reject the null hypothesis eight (8) stating that, there is no significant relationship between years of experience of CEAs and organizational performance of CHED. This finding agrees with empirical data but not the theoretical hypothesis of the study. According to Easterlin (2007), the skills gained through years of experience are a mark of performance level that an employee can exhibit but does not necessarily translate into higher performance. Thus, the fact that a

person is experienced in a particular work outfit does not necessarily imply the person will willingly work to help improve the firm's output and performance.

There was no statistically significant relationship found between the organizational performance of CHED and leadership style. This implies that, leadership style of CEAs has no statistically significant effect on the organizational performance of CHED. Therefore, we fail to reject the null hypothesis nine (9) stating, there is no significant relationship between leadership style of CEAs and organizational performance of CHED and the alternate hypothesis rejected. This finding agrees with empirical data but not the theoretical hypothesis of the study. Contrary to this study's results, a survey conducted in Kenya by Bono and Judge (2003) found that, leadership behaviors, as evaluated by followers, was positively related to followers' job performance.

However, Drucker (2001) envisions that the management of knowledge workers should be based on the assumption that the corporation needs the knowledge workers more than they need the corporation. Bukowitz and Williams (1999) stress that, in a knowledge-intensive organization, leaders are no longer the primary source of knowledge but the knowledge worker. Consequently, knowledge management processes cannot be managed in the traditional sense of "management", which centers on controlling the flow of information from top to bottom (Nonaka et al., 2000). Instead, leaders need to proactively and rapidly evaluate and adapt management concepts and approaches to motivate and retain knowledge workers. Hence, Drucker (2002) suggests that the only way to achieve leadership in a knowledge-based business is to spend time with the potential knowledge professionals: to get to know them and to be known by them; to mentor them and to listen to them; to challenge

them and to encourage them. This is because, every organization is in competition for its most essential resource: qualified and knowledgeable people (Nonaka et al., 2000). Hence in and of itself, a particular leadership style is not significant until it suits the situational needs of the organization.

Predictors of Organizational Performance from the Knowledge Management Capacity of CEAs.

Collinearity diagnostic test

All the independent variables were used to determine the best predictor(s) of the organizational performance level of CHED. The collinearity diagnostic test conducted showed that there was no significant collinearity among the independent variables. Thus, the study result was not affected by multicollinearity that may bias the prediction (Table 24).

Table 24: Collinearity Diagnostic Test

Independent Variable	Tolerance	VIF
Sex (X_1)	0.995	1.005
Age (X_2)	0.997	1.003
Years of experience(X_3)	0.977	1.024
highest level of education(X_4)	0.996	1.004
Leadership Style(X_5)	0.917	1.090
Knowledge management acquisition (X_6)	0.878	1.138
Knowledge management conversion (X_7)	0.939	1.065
Knowledge management application (X_8)	0.933	1.072
Knowledge management protection (X_9)	0.935	1.069
Knowledge management technology (X_{10})	0.947	1.098
Knowledge management structure (X_{11})	0.698	1.433
Knowledge management culture (X_{12})	0.842	1.187

n=166

Source: Field Survey Data, (Jones, 2018)

According to Cohen, West and Aiken, (2003) the Variance Inflation Factor (VIF) shows how much the variance of the coefficient estimate is being inflated by multicollinearity. VIF close to 10 is a cause for worry. Tolerance of 1 indicates no collinearity while tolerance value of zero (0) indicate a severe multicollinearity problem. Therefore, the twelfth (12) independent variables being Sex (X_1), Age (X_2), Years of experience(X_3), highest level of education(X_4), Leadership Style(X_5), Knowledge management acquisition (X_6), Knowledge management conversion (X_7), Knowledge management application (X_8), Knowledge management protection (X_9), Knowledge management technology (X_{10}), Knowledge management structure ((X_{11}) and Knowledge management culture (X_{12}), were used for the prediction. Table 24 shows the collinearity diagnostic test for the sturdy.

Ordinary least square regression of knowledge management capacity level of CEAs

A twelve (12) factor linear regression model was projected to clarify the variation of Knowledge management capacity. The Ordinary Least Square (OLS) regression was used in a stepwise entry to analyze the data. These factors were Sex (X_1), Age (X_2), Years of experience(X_3), highest level of education(X_4), Leadership Style(X_5), Knowledge management acquisition (X_6), Knowledge management conversion (X_7), Knowledge management application (X_8), Knowledge management protection (X_9), Knowledge management technology (X_{10}), Knowledge management structure ((X_{11}) and Knowledge management culture (X_{12}), were used for the prediction. Table 25 show ordinary least square regression of knowledge management capacity level of CEAs.

Table 25: Ordinary Least Square Regression of Knowledge Management Capacity Level of CEAs

Predictors	Step of Entry	Beta(β) (standardized)	R^2	Adj R^2	AdjR^2 Change	S.E.E	F. Change	F. Sig*
X_{12}	1	.387	.357	.353	.357	.353	90.965	.000
X_6	2	.310	.409	.401	.048	.340	14.298	.000
X_1	3	-.281	.471	.462	.061	.322	19.211	.000
X_4	4	-.194	. 507	.495	.033	.311	11.816	.001
X_8	5	-.166	. 524	.509	.014	.307	5.451	.021

n=166

							BCa 95% CI	
Predictors	Beta(β)	R	R^2	AdjR^2	S.E.E	F. Sig*	Lower	Upper
X_{12}	.490	.739	.545	.510	.189	.013	.137	.784
X_6	.723				.129	.001	.144	.335
X_1	-.269				.083	.004	-.463	-.093
X_4	-.086				.035	.018	-.155	-.019
X_8	-.145				.094	.014	-.347	-.002

n=1000
Scale: Bootstrap for 1000 sample

Regression equation (from unstandardized Beta)

$Y = a + \beta_{12} X_{12} + \beta_6 X_6 - \beta_1 X_1 - \beta_4 X_4 - \beta_8 X_8$

$Y = .643 + .829X_{12} + .402X_6 - .311 X_1 - .105X_4 - 161X_8$

$Y = .643$ if $\beta_1 = \beta_4 = \beta_6 = \beta_8 = \beta_{12} = 0$

Where; Dependent Variable (Y) = Organizational Performance

a= constant

X_{12} = Knowledge management Culture

X_6= Knowledge management Acquisition

X_1 = Sex

X_4 = Highest level of education

X_8 = Knowledge management Application

Findings in Table 25 show that, Sex (X_1), highest level of education(X_4), Knowledge management acquisition (X_6), Knowledge management application (X_8), and Knowledge management culture (X_{12}) were the best predictors of the Organizational performance of CHED. The adjusted R-squared (0.509) suggests that these five (5) predictor variables together explained about (50.9%) of the variance in organizational performance. Individually, Knowledge management culture (X_{12}) contributed (35.7%), followed by Knowledge management acquisition (X_6) which contributed (4.8%), Sex (X_1) also contributed (6.1%), highest level of education(X_4) contributed (3.3%) and Knowledge management application (X_9) also contributed (1.4%) to the variation as depicted from the adjusted R change Column in their respective step of entry.

The individual values of the Standard Error of Estimate (S.E.E) also showed relatively high accuracy of prediction in the regression model. Thus, Standard errors of estimate (S.E.E) of the mean is an indication of how well a particular sample represents the population (Field, 2005). According to Field, (2005), a large S.E.E implies that, there is a lot of variation between the means of the different samples and therefore suggests that, the sample is a poor representative of the population. Regression coefficients also known as standardized beta (β) represent the mean change in the response (dependent) variable for one unit of change in the predictor (independent) variable while holding other predictors in the model constant.

The first overall best predictor being knowledge management culture (X_{12}) gave (35.7%) explanation of the effect of knowledge management capacity on the organizational performance of CHED implies that, a properly managed cultural infrastructure of an organization directly influences the capacity of the organization to manage its knowledge base and consequently improves their performance. Lopez and Merono (2011) reported that good organizational culture positively collaborates with an organization's ability to perform better. Rahman, et al. (2013) maintained that, the attaining of competitive advantage and superior performance is only attainable through KM if the cultural environment in an organization is helpful to remove the barriers between the human resource and available information in the organization so that individuals can use this information for innovation and productivity. Thus, a friendly knowledge culture is regarded as the main factor that influences knowledge management and subsequent performance outcomes (Mills and Smith 2011). Sin and Tse (2000) concluded that organizational cultural values such as consumer orientation, service quality, informality, and innovation are significantly related to organizational performance. Pirkkalainen and Pawlowski (2013) maintained that, the failure of many knowledge transfer systems is often a result of cultural factors rather than technological oversights. Thus, the interaction between individual employees in an organization is key to innovation (Sensiper, 1998). This implies that, formal, as well as informal interaction among the employees should be encouraged to allow for the sharing of ideas and opinions (O'Dell et al., 1998) to better augment organizational performance.

Again, knowledge management process of acquisition which accounted for (4.8%) of the effect of knowledge management capacity on the organizational performance of CHED implies that, the ability to seek knowledge outside the organization and creating new knowledge from the interaction between new knowledge and previous knowledge in the organization directly affects the capacity of the organization to manage its knowledge base and consequently improve performance. Mills and Smith (2011) conducted a study in Jamaica to examine the relationship between knowledge management capability and organizational performance. They found that knowledge acquisition, knowledge application, and knowledge protection are positively related to organizational performance, but not knowledge conversion. Smith, (2000) explained knowledge acquisition facilitates documentation of on the job observations that can be used to create expert directories to foster knowledge sharing through human to human collaborations. Chen (2004) projected that appropriate acquisition of knowledge increases the stocks of knowledge available to the organization, thereby providing organizations with better capability to make timely decisions that are essential to superior organizational performance. This implies that the when, where, how and what of knowledge acquisition by CEAs is paramount to the performance of CHED.

Further, Sex (X_1) contributed (6.1%) to the organizational performance of CHED. This implies that sex of CEAs influences the organizational performance of CHED. This result is congruous to the assertion of Gamble and Gamble (2002) that, men and women perceive different realities, have different expectations set for them and that while women are categorized as emotional, men are classified as rational. Cox et al. (1991) added that, employees with

varied perspectives present a wider range of ideas for decision making. Barney (1991) concluded that, in doing so, diverse sets of employees generate an organizational resource that cannot be replicated by homogenous organizations. He explained that, to the extent that they generate unique ideas as a group, the firm can create a competitive advantage exemplified in firm performance. Ancona & Caldwell (1992) who asserted that sex has an influence on work group processes through the phenomenon called "from information to decision-making perspective variance". This logic is predicated on the idea that, individuals with different demographic characteristics also have different perspectives. Thus, this decision-making hypothesis suggest a relationship between gender diversity and firm performance.

Also, highest level of education contributed (10.8%). This implies that, the level of education of CEAs has a predictive effect on the organizational performance of CHED. It is generally believed that education plays an important role in employee job performance, but the relationship between the measures of education and job performance is not largely known (Wise, cited by Hassan and Ogunkoya, 2014). In a widely cited work based on meta-analysis of the relationship between education level and core task performance, Ng and Feldman (2009) found that education was related to task performance. Kuneel et al. (2004) also found out that education facilitates performance in most jobs. Gold et al. (2001) argued that educated respondents are suitable for KMC practices because they are aware of the KM activities in the organization.

Finally, knowledge management application contributes (1.4%) to the overall prediction of the independent variable (KMC) on the dependent variable (OP). According to Cho & Korte, (2014), knowledge application is expected to

have a significant influence on organizational performance. Dröge et al. (2003) posited that companies will be successful in creating a competitive advantage in the long run if produced knowledge at lower cost, higher speed and apply it effectively and efficiently for refining existing products.

To further authenticate the result of the regress, the twelve (12) factor linear regression model was projected to clarify the variation of Knowledge management capacity by the use of a bootstrap of thousand (1000) samples. Findings in Table 26 shows that Sex (X_1), highest level of education(X_4), Knowledge management acquisition (X_6), Knowledge management application (X_8), and Knowledge management culture (X_{12}) were the best predictors of the Organizational performance of CHED out of all the independent variables that were used for the prediction in the study. The adjusted R-squared (0.510) suggests that the five (5) predictor variables together explained about (51.0%) of the variance in organizational performance. This implies that, if the sample for the study was 1000, they will assess the total contribution of knowledge management to be at a 51% instead of a 50.9% as predicted by the 166-sample used for the study.

Correlation-Regression Relation

The intricate relationship that is often displayed between Pearson's correlation (r) and the beta value (standardised regression coefficients) is presented in Table 26 which shows that, KM Culture significantly correlated positively with and positively predicted organizational performance (.597**, +, .357, + .000). KM Acquisition also significantly correlated positively with and positively predicted organizational performance (.572**, +, .310, +, .000). However, KM Application significantly correlated positively with but

negatively predicted organizational performance (.281**, +, .166, -, .021). Again, sex of CEAs did not significantly correlate with but negatively predicted organizational performance (.044, -, - .281, .000). Also, educational level of CEAs also did not significantly correlate with but negatively predicted organizational performance (.139, -, .194, -, .001).

Table 26: Correlation-Regression Relation

	Correlation(r)		Regression		
Item	(r) Sig.	sign	Beta *(β)* standardized	sign	Sig.
KM Culture	.597**	+	.357	+	.000
KM Acquisition	.572**	+	.310	+	.000
KM Application	.281**	+	.166	_	.021
Sex of CEAs	.044	_	.281	_	.000
Educational Level of CEAs	.139	_	.194	_	.001

n=166** p< 0.01 (2-tailed) * p< 0.05 (2-tailed).

Pearson's correlation (r) is used to determine the extent to which the dependent variable and the independent variable linearly relates (Hair, Robbins, DeCenzo, & Gao, 2006) while the beta value (standardised regression coefficients) is a measure of how strongly each predictor (independent) variable influences the criterion (dependent) variable (Weinberg & Goldberg, 1990).

In summary, KM culture and KM acquisition both positively associate and predict organizational performance. However, KM application positively associates but negatively predicts organizational performance. Sex and educational level of CEAs both do not correlate with but negatively predict organizational performance.

The phenomenal sway of figures, signs and numbers displayed between Pearson's correlation (r) and the beta value (standardised regression coefficients) in this case depicts the Simpson's paradox concept. Simpson's paradox refers to a phenomenon whereby the association between a pair of variables (X; Y) reverses sign upon conditioning of a third variable (Z), regardless of the value taken by Z (Pearl, 2009). Edward H. Simpson first addressed this phenomenon in a technical paper in 1951, but Pearson, Lee, and Bramley-Moore in 1899 and Yule in 1903, had mentioned a similar incident earlier. However, all three reported associations that disappear, rather than reversing signs upon aggregation. Sign reversal was first noted by Cohen and Nagel (1934) and then by Blyth (1972) who labelled the reversal as a "paradox".

By the principle of Simson's paradox, it can be inferred that the sign reversal (a change from r = +.281** to β= -166) exhibited in KM application implies that, a change of one standard deviation in the KM application methodology (predictor variable) will result in a change of .116 standard deviations in the organizational performance (criterion variable). Again, the negative sign attached to the beta value indicates a negative relationship between the predicator and the criterion variable. This implies that, if CHED continuous with the present module for KM application, organizational performance will fall. The present module is that, CHED collates farmer challenges and submits them to CRIG who then research into possible solutions and later train CHED on how to implement the suggested solution as per recommendations and methods laid down by CRIG. This convention has the potential of hindering innovation, improvisation and contextualization. Hence the more CEAs are giving the freedom to creatively apply Knowledge given at

their training sessions at their individual levels in spite of their varying demographics and educational levels, the better the organizational performance will be. Gold et al. (2001) confirmed that, KM capabilities may not always be a direct measure of organizational performance although it should, but may not always, follow successful KM capabilities. In this case, the results predict that, contrary to the fear that, if CEAs are not given strict KM application protocols to follow, then the variations in the sublevels of CEAs demographic characteristics will cause slight deviations which will reduce organizational performance of CHED, it is revealed that CEAs are rather to be encourage to apply knowledge handed down to them creatively and innovatively at their individual levels.

Carem, Fabris and Alex (2000) specified that, presence of a Simpson's paradox in data can indicate in social data, important behavioral differences within a population. Pearl (2009) explained that, the beta (β) regression coefficient is computed to allow one make such comparisons and to assess the strength of the relationship between each predictor variable to the criterion variable. The beta values of (.281) and (.194) associated with sex and educational level respectively implies that, a change of one standard deviation in the sex ratio will result in a change of .281 standard deviations in the organizational performance whiles a change of one standard deviation in the ratio of the educational level of CEAs will result in a change of .194 standard deviations in the organizational performance. Congruently, the negative sign attached to the beta values indicates a negative relationship between the predicator and the criterion variable. Hence, the lower the disparity in sex of CEAs the better (higher) the organizational performance of CHED. Again, the

lower the educational (certificate and diploma) level of CEAs, the better (higher) the organizational performance of CHED in Ghana. Therefore, in an organization like CHED where there are more males than females with regards to sex and more degree holders than either certificate or diploma holders, the results implies that for every reduction in the number of males for females and a reduction in number of degree holders in favor of diploma or certificate, organizational performance will increase.

Along similar lines, Ely (1995) provided evidence of this phenomenon empirically, by demonstrating that power differences are reflected in gender composition of organizations, and such differences influence social constructions of gender differences. Ely found in the study that, organizations with relatively low proportions of senior women had climates in which sex roles were more stereotypical and problematic. Several theoretical frameworks suggest a positive relationship between gender diversity and firm performance (Cox et al., 1991; Thomas & Ely, 1996). Thus, the extent to which managers recognize diversity and its potential effects defines an organization's approach to managing the diversity (Adler, 1997). No organization in this world of globalization would survive without workforce diversity. It is the duty of management to critically evaluate the effects of workforce diversity in their organization. Management should put in place conditions which would enhance workforce diversity in their organizations because, with the diversity of the workforce, the organization would be internally and externally competitive Porras, (1991). It is the approach to diversity, not the diversity itself which determines the actual positive and negative outcomes (Adler, 1997). Managing diversity in organizations is absolutely dependent upon the acceptance of some

primary objectives to which employees are willing to commit, such as the survival of the firm, the goals and vision of the firm and strongly the firm impacts its beneficiaries (Hansel, 1999). In today's fast-paced work environment a successful organization is one where diversity is the norm because it is extremely important for KM practitioners to understand that workforce diversity if properly enhanced will help create a work environment in which male and female employees and customers feel integrated (Porras, 1991).

The demographics of Ghana and the world at large are rapidly changing, and workforce diversity is vital for firms that desire to thrive in the future. Discrimination is costly not only on the individual level, but also on the corporate level and even on a national level. The current times are seeing education take the central stage in employment. Most employers insist on certain minimum educational qualifications before considering one for a particular job. The recent high rates of unemployment in many countries are seeing graduates into accepting jobs that they are either under-qualified or overqualified for (Silva, 2009). According to Easterlin (2007) the skills gained through education are a mark of performance level that an employee can exhibit. However, Cushway (2003) observed that in modern times, individuals may be used productively in a flexible manner disregarding their original qualifications when they were being employed. In line with this is the fact that organizations are majorly interested in talents, or what can be positively established as possible contributions to organizations if hired, more than the academic qualifications that the workforce has. Griffin and Moore (2011) argued there is a twofold implication to this especially when performance is concerned. Firstly,

non-specialized workers might make more errors that can reflect in their work as poor performance standards due to the lack of the basic conceptual background of what they are doing and therefore their productivity level can also be low by virtue of this. Secondly, the level of motivation can be low especially to those who are forced to work in departments that they are less willing to work in but have been forced by circumstances to do so (Griffin, 2011).

Hence, the case of sex and educational level of CEAs both not correlating with yet predicting organizational performance comes to confirm the subjective perspective of knowledge which contends that knowledge does not exist independent of human experience; instead, it develops through the social creation of meanings and concepts; therefore, losing a universal objective character (Von Krogh & Roos, 1995). Consequently, organization should serve as a knowledge-integrating institution, incorporating the knowledge of many different individuals and groups in the process of producing goods and services (Soo, Devinney, Midgley, & Deering, 2002). It is worth noting that processes and technology alone are not enough to drive an organization but its human force (staff) are integral pivot in organization's success (Kogut & Zander, 1997). Hence, in order to manage knowledge effectively, attention must be paid on all the four key components: Knowledge, People, Processes and Technology (KP^2T) (Desouza 2011). Baloh, Desouza, and Paquette (2011) revealed that without having knowledge to manage, there would be no knowledge management. Thus, in essence, the focus of KM is to connect people, processes, and technology for the purpose of leveraging knowledge (Holtshouse, 1998). The results confirm the study's conceptual framework because, this study views

knowledge as being subjective rather than objective because, people are the creators and consumers of knowledge (Nonaka, 2005). Hence, many knowledge management applications make use of intelligent agents such as people as both innovators and custodians of knowledge needed for positive organizational performance (Seleim, & Khalil 2007).

Barriers to Effective Knowledge Management Faced by CEAs

Majority of CEAs listed Inadequate infusion of ICT into business practices (27.2%), Prevalent bureaucratic structures (22.3%), Inadequate financial support for knowledge capacity building (20.5%), Preventable political interference (12.0%), People's reluctance to share knowledge (7.2%), Lack of time to undertake all necessary knowledge management protocols (5.4%) and Ambiguous reward systems (5.4%) as the major challenges to implementing proper knowledge management system that will enhance the organizational performance of CHED. Table 27 shows barriers to effective knowledge management faced by CEAs in CHED

Table 27: Barriers to Effective Knowledge Management Faced by CEAs

Barrier	Frequency	Valid Percent
Inadequate infusion of ICT into business practices	42	27.2
Prevalent bureaucratic structures	37	22.3
Inadequate financial support for knowledge capacity building	33	20.5
Preventable political interference	18	12.0
People's reluctance to share knowledge	15	7.2
Lack of time to undertake all necessary knowledge management protocols	11	5.4
Ambiguous reward systems	10	5.4
Total	166	100

n=166
Source: Field Survey Data, (Jones, 2018).

This finding is similar to the report of Madeleine (2014) who identified the major barriers to KM in small law firms in Botswana to be technological infrastructure (67.2%), limited financial resources (55.0%) and the size of the firm (46.5%). Similarly, Hackman, Agyekum and Smith, (2017) conducted a study on the challenges to the adoption of knowledge management in civil engineering construction firms in Ghana. They listed the lack of available KM systems, lack of leadership support, lack of awareness of KM practices, lack of understanding of KM processes, employee resistance to KM approaches, poor organization of internal business, lack of adequate technology, lack of structured procedures, time constraint, lack of standard work processes, diverse individual cultures, lack of project documentation, nature of projects, lack of

organizational culture and lack of training as major barriers to the construction industries of developing countries.

Although proper administration is need to promote organizational performance, Kofoed, (2002) cautioned that, too much rigidity in bureaucratic and hierarchical structures prevalent in most organizations with formal and administrative procedures prevent cross-functional communication, cooperation and sharing of knowledge and new ideas. Mason and Pauleen, (2003) stated that, major social barriers identified in literature includes insufficient communication, lack of employee learning and interaction, performance management, lack of appropriate incentive schemes, ambiguous reward systems, lack of leadership commitment and resource constraints. It is therefore not surprising that political undertakings such as knowledge hoarding rather than sharing, ambiguous reward systems, lobbying, intrigue and back-room deals are associated with knowledge management (Davenport, 2000; Daghfous, 2003; Diakoulakis et al., 2004). Eman, (2003) observed the unavailability of information communication technology in an organization is itself an impediment to knowledge sharing since they are major enabler to knowledge management. It is not uncommon to find small businesses in developing countries with little or no information communication technology tools or with tools that have not been infused into business practices (Okunoye, 2001).

CEAs Suggested solution to Challenges faced in the implementation of Knowledge Management

The research sought CEAs' view on what should be done by CHED and for that matter, government to improve and facilitate the smooth operation of

knowledge management for a better organizational performance. Suggestions by CEAs that in their view when addressed will improve the knowledge management capacity of CHED included Infusion of ICT into business practices (27.1%), Minimize bureaucratic structures (22.3%), Provide financial support for knowledge capacity building (20.5%), Prevent political interference (12.1%), People should share knowledge (7.2%), Institute unambiguous reward systems (5.4), Avail time to undertake all necessary knowledge management protocols (5.4%). Table 28 shows CEAs suggested solutions to effective knowledge management

Table 28: CEAs Suggested Solutions to Effective Knowledge Management in CHED.

Solutions	Frequency	Valid Percentage
Infusion of ICT into business practices	45	27.1
Minimize bureaucratic structures	37	22.3
Provide financial support for knowledge capacity building	34	20.5
Prevent political interference	20	12.1
People should share knowledge	12	7.2
Institute unambiguous reward systems	9	5.4
Avail time to undertake all necessary knowledge management protocols	9	5.4
	166	100

n=166
Source: Field Survey Data, (Jones, 2018)

An exploratory study by Bock & Kim (2002) on what actually motivates people to share knowledge suggests that a positive organizational attitude towards sharing and expectations of benefits from the organization provide better results than external reward. Similarly, drawing from the expectancy

theory, Davenport et al. (1998) reported that the strengths and the willingness to contribute to the knowledge management system depends on the strengths and the expectations that contributing to the system will be followed by a given outcome and the attractiveness of that outcome to the contributor. This can be explained not only by a need for organizations to better manage knowledge by establishing core competencies for individuals, judging success and instituting performance indicators via recognition of invisible assets, but also for organizations to strive to become an innovative organization and a learning organization with a knowledge sharing culture (Martensson 2000). Wu (2004) admonished that, when organizations motivate employees for knowledge sharing and link rewards directly with knowledge sharing, then better knowledge management performance is a consequence.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter presents the summary, conclusions, recommendations of the study and areas for further studies.

Summary

Ghana's agricultural success has mainly been in the cocoa sector. However, the cocoa industry in Ghana has been faced with challenges such as diseases and pest infestations which has the potential to destroy the industry, with its adverse consequences for the country's economy. The major roles of extension include dissemination of agricultural information and building capacities of farmers. To bring Extension Services closer to the cocoa farmers, the government of Ghana through Ghana COCOBOD introduced the Cocoa Health and Extension Division (CHED) in 2013 and additionally increased its operational district from 41 to 60 in 2014 to help bridge the information gap between research and cocoa farmers through effective knowledge management strategies. This study assessed community extension agents' perceived effect of knowledge management capacity on the performance of Cocoa Health and Extension Division (CHED) in Ghana.

Specifically, the study sought to:

1. Examine CEAs perceived level of knowledge management capacity in terms of: People Characteristics, Process capacity and Infrastructural capabilities in CHED.
2. Examine CEAs perceived level of organizational performance with respect to: Effectiveness and Efficiency of performance in CHED.
3. Compare the level of perceived effect of knowledge management on the

organizational performance of CHED among male and female CEAs.

4. Compare CEAs perceived effect of knowledge management on the organizational performance of CHED among any three (3) cocoa regions of Ghana.
5. Examine the relationship between the level of efficacy of knowledge management capacity and organizational performance in CHED.
6. Explore the best predictors of organizational performance from the main components of knowledge management capacity of CHED.
7. Investigate barriers to effective knowledge management among CEAs.

The study used a descriptive correlation survey design to collect data from 166 CEAs in all thirty (30) operational districts of CHED in three (3) Cocoa Region of Ghana. Frequencies, percentages, means, standard deviations, t-test, ANOVA, correlation and ordinary least square (OLS) using a stepwise multiple regression were the statistical tools used to analyze the data. A bootstrap of 1000 samples was used to authenticate the representativeness of the means and standard deviations of both the t-test and the ordinary least square (OLS). The summaries of major findings as they relate to the specific objectives of the study are presented in the following subsections.

Community Extension Agents' (CEAs) Perceived Level of Knowledge Management Capacity in CHED

The study revealed that, the majority (80.7%) of the respondents were male and (19.3%) were female in the study regions. About three-quarters (75.3%) of respondents were youthful in the age brackets of 21-40 years. A little over half of respondents (51%) had bachelor's degrees. Again, a little over half

(54%) of CEAs had working experience ranging from 3-7 years. CEAs perceived overall leadership style to be a high contributor to Knowledge Management Capacity ($\overline{X}$ = 4.05, SD= 0.365).

CEAs perceived total KM Process contribution to knowledge management capacity in CHED as high ($\overline{X}$ = 3.73, SD= 0.852).Respondents ranked Knowledge management protection as the highest indicator of knowledge management process capacity ($\overline{X}$ = 3.80, SD=1.172), followed by Knowledge management conversion overall rating also being high ($\overline{X}$ = 3.77, SD= 0.724), Knowledge management acquisition overall rating was also rated as a high indicator ($\overline{X}$ = 3.68, SD= 0.730) and Knowledge management application overall rating was also high as an indicator of knowledge management process capacity ($\overline{X}$ = 3.68, SD= 0.784).

Total KM infrastructure contribution to knowledge management capacity was high ($\overline{X}$ = 3.68, SD= 0.740). Respondents ranked Knowledge management technology overall rating as the highest indicator for knowledge management capacity for infrastructure ($\overline{X}$ = 3.77, SD=0.678). This was followed by overall rating of knowledge management culture as being a high indicator ($\overline{X}$ = 3.72, SD= 0.762) and Knowledge management structure overall rating was also rated as a high indicator of knowledge management infrastructural capacity ($\overline{X}$ = 3.63, SD= 0.767).

CEAs Perceived Level of Organizational Performance of CHED

Total organisational performance of CHED was perceived by CEAs as being high ($\overline{X}$ = 3.77, SD= 0.802). Respondents rated CHED's overall

organizational effectiveness as being at a high level ($\overline{X}$ = 3.79, SD= 0.762) and the overall organizational efficiency also as high ($\overline{X}$ = 3.71, SD= 0.841).

Perceived Level of Organizational Performance of CHED between Male and Female CEAs.

The independent t-test showed no statistical difference in perceived organizational performance of CHED between males and females CEAs. The means and SDs showed that both male ($\bar{x}$=3.74, SD=0.453) and female ($\bar{x}$=3.70, SD=0.380) CEAs in the study area perceived CHED to be operating at a high performance. The independent t-test showed that there was no significant (sig. 0.571) difference between the perceptions of male and female CEAs on the perceived organizational performance of CHED at 0.05 alpha levels. The bootstrap of the independent t-test showed an upper and lower confident interval (-.102 .220) that indicates, there was no significant (sig. 0.530) difference between the perceptions of male and female CEAs on the perceived organizational performance of CHED at 0.05 alpha levels.

This implies that both male and female CEAs deem the organizational performance of CHED in terms of the organization's ability to manage knowledge, to be at a high performance in their era. We therefore fail to reject the null hypothesis three (3) which states that there is no significant difference between the level of perceived effect of knowledge management on the organizational performance of CHED among male and female CEAs.

Perceived Effect of Knowledge Management Capacity on Organizational Performance in Three (3) Cocoa Region of Ghana.

A one-way analysis of variance (ANOVA) revealed that there was no statistically Significant (sig.0.727) differences existing among the mean

perceived effect of knowledge management in the three (3) selected cocoa Regions of Ghana at 0.05 alpha. This implies that, there was no difference in levels of community extension agents' perceived effect of knowledge management capacity on the performance of Cocoa Health and Extension Division (CHED) in the study area. Therefore, we fail to reject the fourth (4) null hypothesis which states, there is no significant difference between CEAs perceived level of the effect of knowledge management capacity on organizational performance among any three (3) cocoa regions of Ghana.

Relationships between Knowledge Management Capacity and Organizational Performance.

Pearson product-moment correlation matrix was used to test for the relationship that exist between the knowledge management capacity and organizational performance. There were positive and substantial significant relationship between organizational performance of CHED and Knowledge management culture (r=.597) and Knowledge management acquisition (r=.572). But there was a positive and moderate significant relationship between organizational performance of CHED and Knowledge management conversion (r=.463) and also Knowledge management structure (r=.360). However, there was a positive and low significant relationship between organizational performance of CHED and Knowledge management application (r=.281) and Knowledge management technology (r=.250) at 0.01 alpha level. Finally, there was a positive and low significant relationship between organizational performance of CHED and Knowledge management protection (r=.155) at an alpha level of 0.05. This finding agrees with both theoretical and empirical data and thus confirming the conceptual frame work of the study that forecasted a

statistically significant relationship between the knowledge management process and infrastructural capacities and organizational performance.

Nonetheless, there were no significant relationship between organizational performance level and Sex, Age, Level of education, Leadership style and Years of experience at an alpha level of 0.05. This finding agrees with empirical data but not the theoretical hypothesis of the study and thus contradicts the conceptual frame work of the study that forecasted a statistically significant relationship between the knowledge management people (CEAs demographic) characteristics and organizational performance.

Best predictors of organizational performance from the main components of knowledge management capacity of CEAs

A twelve (12) factor linear regression model was projected to clarify the variation of Knowledge management capacity. The Ordinary Least Square (OLS) regression was used in a stepwise entry to analyze the data and the result showed that Sex (X_1), highest level of education(X_4), Knowledge management acquisition (X_6), Knowledge management application (X_8), and Knowledge management culture (X_{12}) were the best predictors of the Organizational performance of CHED out of all the independent variables that were used for the prediction in the study.

The adjusted R-squared (0.509) suggests that the five (5) predictor variables together explained about (50.9%) of the variance in organizational performance. Individually, Knowledge management culture (X_{12}) contributed (35.7%), followed by Knowledge management acquisition (X_6) which contributed (4.8%), Sex (X_1) also contributed (6.1%), highest level of

education(X_4) contributed (3.3%) and Knowledge management application (X_9) also contributed (1.4%) to the variation.

KM culture and KM acquisition both positively associate and predicts organizational performance. However, KM application positively associates but negatively predicts organizational performance. Sex and educational level of CEAs both do not linearly associate with but negatively predict organizational performance.

The adjusted R-squared (0.510) of the bootstrap of a 1000 sample suggested that the five (5) predictor variables together explained about (51.0%) of the variance in organizational performance to imply that, if the sample for the study was 1000, they will assess the total contribution of knowledge management to be at a 51% instead of a 50.9% as predicted by the 166 sample used for the study.

Barriers to Effective Knowledge Management Faced by CEAs

Majority of CEAs listed inadequate infusion of ICT into business practices (27.2%), prevalent bureaucratic structures (22.3%), inadequate financial support for knowledge capacity building (20.5%), preventable political interference (12.0%), people's reluctance to share knowledge (7.2%), lack of time to undertake all necessary knowledge management protocols (5.4%) and ambiguous reward systems (5.4%) as the major challenges to implementing proper knowledge management system that will enhance the organizational performance of CHED.

CEAs Suggested solution to Challenges faced in the implementation of Knowledge Management

The research sought CEAs' view on what should be done by CHED and for that matter, government to improve and facilitate the smooth operation of knowledge management for a better organizational performance. Suggestions by CEAs that in their view when addressed will improve the knowledge management capacity of CHED included Infusion of ICT into business practices (27.1%), Minimize bureaucratic structures (22.3%), Provide financial support for knowledge capacity building (20.5%), Prevent political interference (12.0%), People sharing knowledge (7.2%), Instituting unambiguous reward systems (5.4), Availing time to undertake all necessary knowledge management protocols (5.4%).

Conclusions

Based on the summary of the findings of the study, the following conclusions were drawn:

CHED is composed of a literate, youthful work force with rich work experiences and a representation of both sexes at a ratio of 4:1 male to female. It can be inferred that, CHED recruits CEAs who have the requisite knowledge, skills and physical agility needed by extension agents in their day to day duties of knowledge transfer and proper knowledge management yet CHED is gender bias towards recruitment of female CEAs.

The transactional leader-follower relationship is the leadership style CHED practices for a good organizational performance since it facilitates the building of knowledge management capacity through monitoring, reward for expected performance, clarification of the different role followers must play and the

ability of leaders regularly fulfilling the expectations of their followers. This suggests that leaders in CHED should be both tactical enough to set the overall organization goals and strategic enough to be able to direct the step by step methodologies in achieving the set organizational goals on daily bases.

The overall knowledge management process is high in CHED. The reason being that, CHED does well to incorporate feedback into subsequent projects, convert knowledge to benefit stakeholders, encourages the sharing of knowledge and even protecting knowledge embedded in individuals CEAs. However, CHED's ability to convert knowledge into the designing of revolutionary services useful to farmers, utilize shared knowledge for making informed policies for strategic directions that will improve organizational performance, protecting knowledge from inappropriate use inside their very organization and also collecting update information about its clienteles is comparatively low.

The overall Knowledge management infrastructure is high in CHED for the reason that, CHED makes it possible for people in multiple locations to learn as a group from a multiple source, CHED has structures that make information readily accessible, CHED does organizes on-the-job training and learning. Howbeit, CHED has to also facilitate employee's ability to collaborate with other persons inside the organization, need for structures that promotes collective rather than individualistic behaviour within the organization and yet value individual's expertise and contributions.

The overall performance of CHED is high in lieu of the fact that, CHED has increased the number of farmers served and increase in outputs per staff.

However, CHED's ability to achieve organizational goals and do that at a reduced cost per service is relatively low.

There was no statistically significant difference existing among the mean perceived knowledge management capacity in the three (3) selected cocoa Regions of Ghana (Eastern, Brong-Ahafo and Western-North) at 0.05 alpha to indicating that, there is no difference in levels of community extension agents' perceived effect of knowledge management capacity on the performance of Cocoa Health and Extension Division (CHED) in the various cocoa regions of the study. This is a suggestion that CHED has a uniformed approach to managing knowledge and this approach which has been embedded in its outfit is widely accepted across CHED's operational regions by CEAs.

KM culture, KM acquisition, KM conversion, KM structure, KM application and KM technology positively influence organizational performance in CHED. Nevertheless, sex, age, level of education, leadership style and years of experience does not have influence organizational performance in CHED. This points to the fact of knowledge management being both an art and a science that is acquire through pragmatic steps regardless of one's demographic characteristics.

Knowledge management culture (X_{12}) is the highest best predictor of Organizational performance, contributing 35.7%.

The five most important challenges to implementing proper knowledge management system that impede organizational performance of CHED are inadequate infusion of ICT into business practices, prevalent bureaucratic structures, inadequate financial support for knowledge capacity building,

preventable political interference, and people's reluctance to share knowledge.

Recommendations

Based on the conclusions of the study, the following recommendations were made:

1. CHED should make policy provision for more female extension workers through the quota system of employment from the various tertiary agricultural institutions based on gender equity and equality measures to help address the vast difference of the male to female ratio in CHED.
2. CHED should enhance client relations through better client interaction by gathering bio data of cocoa farmers to help the organization better tailor serves.
3. CHED should work on converting knowledge into the designing of innovative services that are useful to farmers by instituting Semi structured interviews and skillful dialogues which provide effective ways of gathering the core felt needs and knowledge needs of clients.
4. CHED should strengthen the utilization of knowledge for making informed policies for strategic directions that will improve organizational performance by involving all stakeholders at the various levels in decision making and encouraging them to contribute to an organisational newsletter with upcoming community events, recent successes, failures, newly published best practices and lessons learned.
5. CHED should work on their processes for protecting knowledge from inappropriate use inside the organization by conducting knowledge audit and then mapping out how information flows through the firm's various

business processes, how knowledge is transferred throughout the firm, identifying who knows what in the firm and detailing what information and knowledge exists for organizational competitive advantage so as to help in proper monitoring of knowledge movement in the organization.

6. CHED should facilitate employee's ability to collaborate with other persons inside the organization by enacting formalized forms of conversations such as "corporate picnics," "open forums," and "talk rooms" that encourage unpredictable creative blending and exchange of ideas amongst members of the organization.
7. CHED should institute structures that promote collective rather than individualistic behavior by adopting the hypertext organizational knowledge management style where knowledge is created by middle managers who are often leaders of teams to enable the different stages of knowledge creation to occur smoothly within the organization at different levels of the organization.
8. CHED should exhibit value for individual expertise by specially recognizing employees' contribution and rewarding them for contributing as an extrinsic motivational tactic at end of year functions.
9. CHED should concentrate on achieving organizational goals by adopting an approach that aligns the firm's business objectives, strategic views, mission, values, goals, and objectives to the organizationally agreed upon knowledge management approach.
10. CHED should augment its ability to achieve organizational goals at a reduced cost per service through leadership commitment to fund, supporting knowledge management activities, recognising and

appreciating members' efforts and achievements through positive communication of organizational needs that nurture, enhance and care for knowledge initiatives.

11. CHED should concentrate on the overall best predictor (Knowledge management culture) of the study by encouraging knowledge sharing methodologies through on the job training to help augment the organizational performance.
12. CHED should infuse information communication technology (ICT) for knowledge management that are up to date, secure and fully accurate so as to avoid any chances of distrust in its business practices.

Suggested Areas for Further Study

The following are suggested for further research:

1. Other factors that will help to augment the organizational performance of CHED should be investigated because, knowledge management capacity level only explained 50.9% of CHED's organizational performance.
2. Other departments such as SPU and CRIG of COCOBOD should be included in the study to help conduct a holistic appraisal of the Knowledge management capacity of COCOBOD in its entirety.
3. Cocoa farmers are the major stake holders of CHED and hence their opinion on the knowledge management capacity of CEAs and organizational performance of CHED should be sought in future research. This will help CHED to better position itself to healthily innovate "farmer friendly" interventions.
4. All the seven cocoa regions should be included in the assessment of knowledge management in the cocoa industry of Ghana. This will help in

getting to know the exact level of knowledge management at the regional specific stage.

5. A counterfactual study of CEAs perspective as compared to the perspective of directors should be under studied to compare the perceived level of effectiveness of knowledge management in CHED.
6. A comparative analyses study of technical staff (CEAs) and non-technical staff in CHED should be under studied to juxtapose the perceived level of effectiveness of knowledge management in CHED.

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APPENDICES

Appendix A

Davis Convention for Describing Magnitude of Correlation Coefficients

	Magnitude of Correlation Coefficients (r)	Description
1	1.0	Perfect
2	0.70 - 0.99	Very High
3	0.50 - 0.69	Substantial
4	0.30 - 0.49	Moderate
5	0.10-0.29	Low
6	0.01 - 0.09	Negligible

Source: Davis. J.A (1971). Elementary Survey Analysis. Englewood. NJ: Prentice-Hall. 175

APPENDIX B

STRUCTURED QUESTIONNAIRE FOR COMMUNITY EXTENSION AGENTS
UNIVERSITY OF CAPE COAST
DEPARTMENT OF AGRICULTURAL ECONOMICS AND EXTENSION

PERCEIVED EFFECTIVE OF COMMUNITY EXTENSION AGENTS' KNOWLEDGE MANAGEMENT CAPACITY ON THE PERFORMANCE OF COCOA HEALTH AND EXTENSION DIVISION (CHED) IN THE EASTERN REGION, GHANA.

The main purpose of this study is to assess the perceived effect of community extension agents' knowledge management practices on the performance of cocoa health and extension division (CHED) in the Eastern Region, Ghana.

It is anticipated that the results would be used by COCOA HEALTH AND EXTENSION DIVISION (CHED) and other stakeholders to plan training programs for Community Extension Agents and formulate policies to address the issue of knowledge management in Ghana. The study is being conducted as part of requirement for award of Doctor of Philosophy (PhD) Agricultural Extension at the University of Cape Coast.

The information you provide would be used for the purpose it is provided only. Therefore, be sincere in expressing your opinions and suggestions as much as possible. Your confidentiality is assured. If you have any questions or reservations, please feel free to contact the researcher on 0542137371. Please Tick (√) to show your consent to answer the questions below: YES ( ) NO ( ).

Thank **you.**

Jones Osei Ebenezer
(Researcher)

1. Sex: [ ] Male [ ] Female
2. Age as at last birthday: ……
3. How many years have you been working with CHED? .....
4. What is your highest level of education?

[ ] Certificate level

[ ] Diploma level

[ ] Bachelor degree level

[ ] Others (specify)……

5. Kindly indicate your opinion on level of agreement with respect to the leadership style you believe is being practiced in your organization. Rate your opinions with the scales below: *1=very low (VL), 2=low (L), 3=moderate (M), 4=high (H), 5=very high (VH)*

LEADERSHIP STYLE	**NO**	**RATE**				
I believe my organizational leaders;	**0**	**1**	**2**	**3**	**4**	**5**
Clarify the different roles followers must play						
Monitor subordinates						
Regularly fulfil the expectations of their followers						
Reward for the expected performance						

B. Kindly indicate your opinion on level of Efficacy of knowledge management processes practiced in your organization. Rate your opinions with the scales below: *1=very low (VL), 2=low (L), 3=moderate (M), 4=high (H), 5=very high (VH)*

B1	***KM Acquisition Process Item: My organization…***	**0**	**1**	**2**	**3**	**4**	**5**
	Has processes for acquiring knowledge about our clients.						
	Has processes for generating new knowledge from existing knowledge.						
	Has processes for generating new knowledge from Survey						
	Has processes for stakeholder collaboration.						
	Has processes for acquiring knowledge about new approaches within our industry.						
	Has teams devoted to identifying best practice						
	Has processes for exchanging knowledge between individuals.						
B2	**KM Conversion process Item: My organization**…	**0**	**1**	**2**	**3**	**4**	**5**
	Has processes for adapting knowledge that benefit stakeholder.						
	Has processes for absorbing knowledge from staff into the organization.						
	Has processes for transforming “outside” knowledge into the organization.						
	Has processes for distributing knowledge throughout the organization						
	Has processes for integrating different source of knowledge.						
	Has processes for replacing outdated knowledge.						

	Has processes converting knowledge to benefit stakeholders						
B3	**KM Application process Item: My organization…**	**0**	**1**	**2**	**3**	**4**	**5**
	Has processes for applying knowledge learned from research.						
	Has processes for applying knowledge learned from experiences.						
	Has processes for using knowledge in development of new products.						
	Has processes for using knowledge to solve new problems.						
	Has processes for Using knowledge to adjust strategic direction.						
	Has processes for sharing new knowledge.						
	Has processes for linking sources of knowledge in refining existing products.						
B4	**KM Protection process Item: My organization…**	**0**	**1**	**2**	**3**	**4**	**5**
	Has processes to protect knowledge from inappropriate use inside the organization.						
	Has processes to protect knowledge from inappropriate use outside the organization.						
	Has processes to protect knowledge from theft from within the organization.						
	Has processes to protect knowledge from theft from outside the organization.						
	Has extensive procedures for protecting trade secrets.						
	Protects knowledge embedded in individuals.						
	Clearly communicates the importance of protection knowledge.						

C. Kindly indicate your opinion on level of Effectiveness of knowledge management infrastructure in your organization. Rate your opinions with the scales below: 1=very low (VL), 2=low (L), 3=moderate (M), 4=high (H), 5=very high (VH)

C1	***KM Technological Infrastructure Item: My organization uses technology that allows…***	**0**	**1**	**2**	**3**	**4**	**5**
	Employees to collaborate with other persons inside the organization						
	Employees to collaborate with other persons outside the organization						
	People in multiple locations to learn as a group from a single source						
	People in multiple locations to learn as a group from a multiple source						
	Employees search for new knowledge.						
	Employees map the locations of specific types of knowledge						
	Employees retrieve knowledge about organizational processes.						
C1	**KM Structural Infrastructure Item: My organization's…**	**0**	**1**	**2**	**3**	**4**	**5**
	Structure promotes collective rather than individualistic behavior						
	Structure facilitates the discovery of new knowledge.						
	Structure facilitates the creation of new knowledge.						
	Structure has a standardized reward system for sharing knowledge.						
	Structure makes information readily accessible.						

	Structure facilitates the transfer of new knowledge						
	Structure has a large number of strategic alliances with other firms						
C3	**KM Culture Infrastructure Item: In my organization…**	**0**	**1**	**2**	**3**	**4**	**5**
	Employees are valued for their individual expertise.						
	Employees are encouraged to ask others for assistance when needed.						
	Employees are encouraged to interact with other groups.						
	Employees are encouraged to discuss their work with people in other workgroups.						
	Overall organizational strategic plan is clearly stated.						
	Employees are encouraged to ask others for assistance when needed.						
	Overall organizational vision is clearly stated.						
	Overall organizational mission is clearly stated.						
	Senior management clearly supports the role of knowledge in the firm's success.						
	On-the-job training and learning are valued.						

D. Kindly indicate your opinion on level of your organization's performance in the following areas. Rate your opinions with the scales below: 1=very low (VL), 2=low (L), 3=moderate (M), 4=high (H), 5=very high (VH)

D1	***Over the past five years, my organization has effectively improved its ability to…***	**0**	**1**	**2**	**3**	**4**	**5**
	Achieve organizational goals						
	Innovate new services						
	Increase number of clients served.						
	Anticipate potential opportunities for changing stakeholders' quality of life.						
	Coordinate the development effort of different units						
D2	***Over the past five years, my organization has efficiently improved its ability to…***	**0**	**1**	**2**	**3**	**4**	**5**
	Achieve organizational goals at a reduced Cost per service provided						
	Increase outputs per staff						
	Adapt quick to unanticipated changes outside the organization						
	Enhance program completion rates						
	Augment timeliness of delivery of services.						
	Quickly adapt its goals to changes inside the organization						

[redacted]

E1. What are some challenges to the proper implementation of Knowledge Management in your organization? (tick all that apply)

[ ] People's reluctance to share knowledge

[ ] Inadequate infusion of ICT into business practices

[ ] Prevalent bureaucratic structures

[ ] Preventable political interference

[ ] Inadequate financial support for knowledge capacity building

[ ] Ambiguous reward systems

[ ] Lack of time to undertake all necessary knowledge management protocols

0thers……

E2. What in your opinion are your suggestions to solving the problems mentioned above?

……

……

……

……

……