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PERCEIVED EFFECT OF KNOWLEDGE MANAGEMENT CAPACITY ON PERFORMANCE OF COCOA HEALTH AND EXTENSION DIVISION IN GHANA

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ABSTRACT

The study assessed community extension agents' perceived effect of knowledge management capacity on the performance of the Cocoa Health and Extension Division (CHED) in Ghana. A descriptive correlation survey design was used. A hundred and sixty-six (166) randomly sampled Cocoa Extension Agents (CEA) from thirty (30) Districts in three (3) Cocoa regions of Ghana partook in the study. Data were analyzed using frequencies, percentages, means, standard deviation, correlation coefficients and ordinary least square regression. A statistically significant relationship (P<5%) was found between organizational performance and both knowledge management process and knowledge management infrastructure. The best predictors of organizational performance were knowledge management culture (36%), sex (6%), knowledge management acquisition (5%), level of education (3%) and knowledge management application (1%). The study concluded that, the overall rating of the knowledge management process, knowledge management infrastructure and leadership style were high in CHED. The study recommends 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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INTRODUCTION

Ghana's agricultural success has mainly been in cash crops, particularly cocoa. It is therefore crucial that farmers are provided with accurate knowledge and information promptly (Appiah, 2004; 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 agriculture. Yet, effective extension in Ghana 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 the condition of a 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 *et al.* (2004) hinted that as a new paradigm

of agricultural development emerges, old ways of delivering important services to clients should be transformed. 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.

Knowledge management has been described as a key driver of organizational performance (Bosua and Venkitachalam, 2013) and one of the most important resources for the survival and prosperity of organizations (García-Holgado and García-Peñalvo, 2016). According to Kasemsap (2017) knowledge is recognized as a major competitive advantage for businesses and an increasing number of organizations are incorporating the use of appropriate data mining tools and other knowledge management techniques and strategy. Therefore, the effective management of knowledge is a vital subject for organizations interested in fulfilling their objectives and achieving success (Ng *et al.*, 2012).

Knowledge management is the process of getting the right information to the right people at the right time. Thus, the issue of knowledge management is as important as possessing the knowledge (Tarlatt, 2013). Hence, managing knowledge from the organizational internal and external environment plays a critical role in enhancing the quality of knowledge available to the firm for generating timely strategies that are critical to organizational performance and effectiveness applied in services, processes, and products of an organization (Paquette & Desouza, 2011). Yang *et al.* (2014) estimated that firms are not likely to create all the needed knowledge and therefore firms that incorporate proper knowledge management into their operations faster than their competitors can gain competitive advantage over their rivals. Consequently, as firms exhibit a stronger capacity in acquiring, converting, applying, and protecting knowledge from interlopers, they are more inclined to achieving a better level of organizational performance (Gold *et al.*, 2001; Chen, 2004; Ng *et al.*, 2012).

Since tacit knowledge is embedded in different individuals and at different levels of the organization, firms need effective knowledge diffusion mechanisms to leverage individual brainpower to help employees get access to the needed knowledge for their work in explicit forms within the organization (Melymuka, 2000; Nonaka *et al.*, 2000; Pandey, 2008). Knowledge management researchers affirm that, whenever knowledge can be disseminated effectively within an organization, members are inclined to keep broadening their views and sharpening their insights to facilitate collective learning that would synergistically benefit all organizational members (Nonaka *et al.*, 2000; Garriga *et al.*, 2013). Accordingly, knowledge dissemination would stimulate the creation of sustainable competitive advantage as knowledge becomes embedded in organizational processes because the better the dissemination of the new knowledge, the greater the likelihood of organizational performance as more people within various levels and departments of the organization are exposed to the new knowledge (Teece, 2007; Kah-Hin and Nebus, 2012). Hence, firms that can effectively disseminate knowledge among members are likely to achieve a better level of organizational profitability, performance, firm innovation, and competitive advantage (Darroch, 2003; Ellis, 2020).

A significantly positive correlation exists between knowledge management capacity and organizational performance (Sujatha and Krishnaveni, 2018) and therefore by cultivating an effective knowledge management capacity, firms would be able to harness the value of knowledge and thus lead to better organizational performance (Wang and Noe, 2010). The community extension service delivery in Ghana support's agricultural development in Ghana by linking agricultural research and technology to farmers in rural communities (Baah, 2008). However, due to the inadequate extension to farmer ratio, information flow among extension agents and farmers is often inadequate (Jirli *et al.*, 2014). Asiedu-Darko (2013) advocated that, to facilitate the extension to farmer linkage, the timely availability of relevant information is vital for the effective performance of managerial functions such as planning, organizing, leading, and control of an agricultural enterprise. For this reason, CHED has since 2013 positioned itself to build the knowledge management capacity of community extension agents (CEAs) through the proper coordination of knowledge management processes and knowledge management infrastructure to ensure cocoa farmers cultivate healthy and productive cocoa trees through the Ghana government's initiative program; 'Youth in Cocoa'.

Despite the support from the Government in the form of the introduction of a mobile telephony platform,

increment in the number of extension staff, re-equipped district offices, free supply of hybrid cocoa seedlings, free supply of fertilizers, improved mass spraying exercise, massive improvement in cocoa roads and youth-in-cocoa; little empirical data is available about how these measures put in place by CHED is improving organizational performance through 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. Many scholars have paid attention to exploring the role of knowledge management in firm strategy, innovativeness and performance (Prahalad and Hamel, 1990; Hall, 1992; Amit and Schoemaker, 1993; Sveiby, 1997; Teece, 2007; Connor, 2002, 2007; Ambos and Schlegelmilch, 2009; Paquette and Desouza, 2011; Yang *et al.*, 2014) yet little empirical evidence of the effect of knowledge management capacity of CEAs on the organizational performance of CHED can be shown to exemplify the Ghanaian cocoa sector case. This paper therefore assessed "Community Extension Agents' Perceived Effect of Knowledge Management Capacity on the Performance of Cocoa Health and Extension Division in Ghana". The specific objectives of the study were to: Examine CEAs perceived level of knowledge management capacity in terms of: People Characteristics, Process capacity and Infrastructural capabilities in CHED, examine CEAs perceived level of organizational performance concerning: Effectiveness and Efficiency of performance in CHED, investigate the relationship between the level of efficacy of knowledge management capacity and organizational performance in CHED and identify the best predictors of organizational performance from the main components of the knowledge management capacity of CHED.

METHODOLOGY

CHED offices are found in all the seven (7) designated cocoa regions of Ghana found in the three main stratified forest ecological zones of Ghana. Namely, the forest transitional zone comprising of Brong Ahafo Region, the deciduous forest zone made up of the Eastern, Ashanti, Volta, and Central Regions and the rain forest zone encompassing the Western-North and Western-South Regions.

For this study, one cocoa region from each of the three ecological forest zones was randomly sampled. The Eastern cocoa region was randomly selected within the deciduous forest zone, the Brong-Ahafo cocoa region represented the transitional forest zone and Western-North cocoa region was randomly selected from the rain forest ecological zone of Ghana. All the cocoa districts summing up to thirty (30) in the three (3) randomly selected cocoa regions and therefore all the thirty (30) cocoa districts were included in the study. A simple random sampling technique was applied at the various cocoa districts to get individual CEAs who responded to the questionnaires.

Employing the Krejcie and Morgan (1970) 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. A questionnaire made up of five (5) parts was pretested on CEAs in 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. Table 1 shows reliability co-efficient of subscales of the research instrument.

Table 1. Reliability Co-efficient of Subscales of the Research Instrument.

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

Source: Pretest Data

The performance of CHED was expressed in terms of effectiveness and efficiency of CHED and measured at the scale level. Knowledge Management Capabilities was expressed in terms processes (acquisition, conversion, application and protection), infrastructure (technology, structure and culture) and measured at the level of scale and the people characteristics (sex, age, educational level, years of experience and leadership style) was measured at the nominal, ordinal and scale level. Data were analyzed using frequencies, percentages, means, standard deviation, correlation coefficients and ordinary least square regression.

RESULTS AND DISCUSSION

Demographic Characteristics of Respondents

Table 2 shows the age and sex distribution of CEAs in CHED. The majority (80.7%) of the respondents were

males but there were few females (19.3%) CEAs. This finding was supported by Agwu and Chah (2018) who studied extension workers in Nigeria and found that the majority (78%) of the extension agents were male. Table 2 reveals that, three-quarters (75.3%) of respondents were aged 21 to 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. Anumaka and SSemugenyi (2013) also found the age bracket of the majority of knowledge workers to fall within the youthful age brackets between 20 and 39.

Table 2. Age and Sex Distribution of CEAs in CHED.

Age (Years)	Sex of CEAs					
	Male		Female		Total	
	f	%	f	%	f	%
21-30	37	22.3	09	5.4	46	27.7
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

Mean=35 years, S.D=7.10 * p< 0.05 Source: Field Survey Data

Table 3. Educational Level and Years of Experience of CEAs in CHED.

Educational Level	Years of experience of CEA					
	3-7		8-12		Total	
	f	%	f	%	f	%
Certificate	19	11.6	17	10.4	36	22.0
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

Source: Field Survey Data Mean=7 years, S. D=2.50 * p< 0.05

Table 3 shows the educational level and years of experience of CEAs. A little under half (45%) of the CEAs had working experience ranging from 8 to 12 years and a little over half (54%) fell between 3 to 7 years. The mean years of working experience of 7 years with a standard deviation of 2.5 years show variations in the work experience of respondents along the spectrum of work experiences of CEAs. Adesope *et al.* (2007) found most extension agents' working experience ranges from 5 to 15 years in Kenya. Over half of the respondents (51%) had bachelor's degrees while the rest of the respondents (48%) had a certificate or diploma degrees in agriculture. Amir (2012) (2012) reported that, about 78% of extension workers in Iran were BSc and higher degree holders. However, the study by Olaolu *et al.* (2018) found that majority of extension workers in Abia and Enugu States of Nigeria had HND certificates while 32.5% had BSc.

Perceived Knowledge Management Capacity of CEAs

Table 4 shows overall the rating of leadership style contribution to knowledge management capacity was high with few variations among respondents as shown by the standard deviation ($\bar{x}$=4.05, SD= 0.365). Karamat (2013) reported that, leadership is the most important driving force to increase the performance of the organization. Table 4 shows 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. Effective leadership has a positive sway on the performance of organizations Annabelle *et al.* (2018), by motivating employees, providing equal opportunities and development as well as measuring and rewarding behaviors and attitudes that are required for effective knowledge management practices (Obiwuru *et al.*, 2012).

Table 4. CEAs Perceived Level of Efficacy of Leadership Style in CHED.

Leadership Style in CHED	Mean ($\bar{x}$)	Std. Dev.
Monitor subordinates	4.10	0.32
Reward for the expected performance	4.10	0.40
Clarify the different roles followers must play	4.00	0.38
Regularly fulfil the expectations of their followers	4.00	0.36
Overall rating	4.05	0.37

Source: Field Survey Data

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)

Table 5. CEAs Perceived Level of Efficacy of Knowledge Management Process of Acquisition in CHED.

Knowledge Management Process of Acquisition in CHED	Mean ($\bar{x}$)	Std. Dev.
Use of feedback to improve subsequent projects.	3.77	0.74
Teams devoted to identifying best practice	3.76	0.75
Processes for generating new knowledge from existing knowledge.	3.74	0.69
Processes for exchanging knowledge between individuals.	3.68	0.71
Processes for acquiring knowledge about new services within our industry.	3.65	0.70
Processes for stakeholder collaboration.	3.64	0.72
Processes for acquiring knowledge about our customers.	3.54	0.81
Overall rating	3.68	0.73

Source: Field Survey Data

Scale: 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)

Table 5 shows that overall rating of Acquisition was high ($\bar{x}$=3.68, SD=0.730) with minimal variations in responses as indicated by the SD. This implies that respondents perceived knowledge management capacity in terms of knowledge acquisition in CHED to be at a high level that can help to induce a positive organizational performance. The effective organization seeks new knowledge that will benefit innovation, development, and organizational success both within and outside of the organization by making better use of stakeholders' knowledge properties (Alavi and Leidner, 2001). 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.

From Table 6, CEAs rated 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 positive organizational performance. Mills and Smith (2011) 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. Therefore, organizations must carefully transform aspects of tacit knowledge into explicit knowledge otherwise, the tacit knowledge may be lost (Gold *et al.*, 2001).

Table 7 shows that the 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 positive organizational performance. Application-based processes are those oriented toward the actual use of knowledge (Gold et al. 2001). Lee and Lan (2011) found that, the effect of knowledge and its proper management on organizational performance, results from the proper application of knowledge in the organizational process.

Table 6. CEAs Perceived Level of Efficacy of Knowledge Management Process of Conversion in CHED.

Knowledge Management Process of Conversion in CHED	Mean ($\bar{x}$)	Std. Dev.
Processes for converting knowledge to benefit stakeholders	4.51	0.70
Processes for replacing outdated knowledge.	3.87	0.76
Processes for absorbing knowledge from staff into the organization.	3.71	0.73
Processes for distributing knowledge throughout the organization	3.69	0.71
Processes for transforming "outside" knowledge into the organization.	3.60	0.88
Processes for integrating different source of knowledge.	3.55	0.77
Processes for converting knowledge into the design of new services.	3.49	0.65
Overall rating	3.77	0.72

Source: Field Survey Data

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)

Table 7. CEAs Perceived Level of Efficacy of Knowledge Management Process of Application in CHED.

Knowledge Management Process of Application in CHED	Mean ($\bar{x}$)	Std. Dev.
Processes for sharing new knowledge.	3.83	0.70
Processes for using knowledge to solve new problems.	3.78	0.77
Processes for linking sources of knowledge in refining existing services.	3.78	0.88
Processes for using knowledge in development of new services.	3.76	0.92
Processes for applying knowledge learned from experiences.	3.74	0.80
Processes for applying knowledge learned from research.	3.49	0.70
Processes for using knowledge to adjust strategic direction.	3.41	0.73
Overall rating	3.68	0.78

Source: Field Survey Data

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)

Table 8. CEAs Perceived Level of Efficacy of Knowledge Management Process of Knowledge Protection in CHED.

Knowledge Management Process of Protection in CHED	Mean ($\bar{x}$)	Std. Dev.
Processes for protecting knowledge embedded in individuals.	4.00	2.42
Processes to protect knowledge from theft from outside the organization.	3.87	2.43
Communicates the importance of protection knowledge.	3.84	0.75
Processes to protect knowledge from inappropriate use outside the organization.	3.80	0.60
Processes that extensively protect trade secrets.	3.71	0.66
Processes to protect knowledge from theft from within the organization.	3.70	0.69
Processes to protect knowledge from inappropriate use inside the organization.	3.54	0.65
Overall rating	3.80	1.17

Source: Field Survey Data

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)

Table 8 shows that, 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. 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). López *et al.* (2004) indicated that, knowledge protection can help to preserve the rare and inimitable (trade secrete) quality of knowledge thus ensuring competitive advantage. Knowledge protection

helps to conserve knowledge for innovations that enhances overall performance (López *et al.*, 2004).

Table 9. CEAs Perceived Level of Efficacy of Total Knowledge Management Process in CHED.

Total Knowledge Management Process in CHED	Mean ($\bar{x}$)	Std. Dev.
Knowledge management Protection	3.80	1.172
Knowledge management Conversion	3.77	0.724
Knowledge management Acquisition	3.68	1.73
Knowledge management Application	3.68	0.78
Total KM Process	3.73	0.852

Source: Field Survey Data

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)

Table 9 shows respondents rated Knowledge management protection overall rating ($\bar{x}$=3.80, SD=1.172) as the highest followed by Knowledge management conversion overall rating ($\bar{x}$=3.77, SD=0.724) then Knowledge management acquisition overall rating ($\bar{x}$=3.68, SD= 0.730) and Knowledge management application overall rating ($\bar{x}$=3.68, SD= 0.784). Total KM Process ($\bar{x}$=3.73, SD= 0.852) contribution to knowledge management capacity was high with little variation among respondents. Gold *et al.* (2001) wrote that, the knowledge management process acts as one of the basic indicators of organizational performance. Zaied (2012) confirmed that, productivity will be enhanced if the KM tools are effectively applied and will ultimately lead to organization performance. Paquette and Desouza (2011) advised that, increasing attention should be paid to KM processes to prevent firms from losing out to other competitors since knowledge is considered as an important source of sustainable competitive advantage.

Knowledge Management Infrastructure in CHED

Table 10 shows the overall rating of technology was high ($\bar{x}$=3.77, SD=0.678) and respondents had few variations in their responses as shown by the SD. CEAs stated that, the technological outfit of CHED facilitates an increase in productivity by aiding in the giving of timely information, reducing response time, minimizing the cost of operations Rašula *et al.* (2012), acquiring new knowledge, retrieving knowledge about their products, acquiring information about the market and effective communication within the organization (Gold *et al.*, 2001). Yang (2011) stated that technology facilitates the achievement of organizations goals.

Table 10. CEAs Perceived Level of Knowledge Management Infrastructure of Technology in CHED.

Technology in CHED	Mean ($\bar{x}$)	Std. Dev.
Employees in multiple locations learn as a group from a multiple source	3.92	0.73
Employees retrieve knowledge about organizational processes.	3.90	0.69
Employees search for new knowledge.	3.80	0.61
Employees map the locations of specific types of knowledge	3.80	0.64
Employees collaborate with other persons outside the organization	3.74	0.60
People in multiple locations learn as a group from a single source	3.72	0.76
Employees collaborate with other persons inside the organization	3.50	0.71
Overall rating	3.76	0.68

Source: Field Survey Data 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)

Table 11. CEAs Perceived Level of Efficacy of Knowledge Management Infrastructure of Structure in CHED.

Structure in CHED	Mean ($\bar{x}$)	Std. Dev.
The structure makes information readily accessible	3.81	0.81
The structure has a standardized reward system for sharing knowledge	3.74	0.85
The structure facilitates the discovery of new knowledge.	3.74	0.71

The structure facilitates the creation of new knowledge.	3.58	0.79
The structure facilitates the transfer of new knowledge	3.54	0.86
The structure has many strategic alliances with other firms	3.50	0.67
The structure promotes collective rather than individualistic behavior	3.50	0.69
Overall rating	3.63	0.77

Source: Field Survey Data

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)

From Table 11, the overall rating of organizational structure was high ($\bar{x}$=3.62, SD=0.767) with least variation in the responses of CEAs. 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) defined structural infrastructure to refer to the physical layout of an organization that promotes the creation of new knowledge. Gold *et al.* (2001) added that a proper physical structure, such as office design, office size and office locations influence knowledge sharing. Zaied (2012) explained that an effective organizational structure should combine intangible organizational structures and tangible organizational structures to build properly functioning knowledge management infrastructural capacity.

Table 12. CEAs Perceived Level of Efficacy of Knowledge Management Infrastructure of Culture in CHED.

Culture in CHED	Mean ($\bar{x}$)
On-the-job training and learning are valued.	0.76
The overall organizational mission is clearly stated.	0.78
Employees are encouraged to interact with other groups.	0.80
The overall organizational vision is clearly stated.	0.77
The overall organizational strategic plan is clearly stated.	0.77
Employees are encouraged to ask others for assistance when needed.	0.68
Senior management supports the role of knowledge in the firm's success.	0.85
Employees are encouraged to ask others for assistance when needed.	0.77
Employees are encouraged to discuss their work with people in other workgroups.	0.68
Employees are valued for their expertise.	0.78
Overall rating	0.76

Scale: 1-1.44=very low (VL), 1.45-2.44= low (L) 2.45-3.44=moderate (M), 3.45-4.44=high (H), 4.45-5 =very high (VH)

Table 13. CEAs Perceived Level of Efficacy of Total Knowledge Management Infrastructure in CHED.

Total Knowledge Management Infrastructure in CHED	Mean ($\bar{x}$)	Std. Dev.
Knowledge management Technology	3.77	0.68
Knowledge management Culture	3.72	0.76
Knowledge management Structure	3.63	0.77
Overall rating	3.68	0.74

Scale: 1-1.44=very low (VL), 1.45-2.44= low (L) 2.45-3.44= moderate (M), 3.45-4.44=high (H), 4.45-5=very high (VH)

From Table 12, 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. A positive cultural context influences the organizational performance of a firm and expedites shared values, belief, and attitudes (Yesil and Kaya, 2013). Organizational culture such as, fairness in decision-making and open communication likely promote knowledge sharing mechanisms (Cabrera and Cabrera, 2002) however, the overall vision of an organization

states a clear goal of the organization and ignites laid down mandatory actions in the organization to achieve knowledge sharing goals (Nonaka *et al.*, 2000; Mohapatra *et al.*, 2016).

Table 13 shows respondents rated Knowledge management culture ($\bar{x}$=3.73, SD= 0.762) as the highest indicator for knowledge management capacity for infrastructure followed by Knowledge management structure ($\bar{x}$=3.72, SD=0.678) and Knowledge management technology ($\bar{x}$=3.63, SD=0.767). Total KM Infrastructure ($\bar{x}$=3.68, SD=0.74) contribution to knowledge management capacity was high with minimum variations among respondents. This implies that CEAs are aware of the important role knowledge management culture plays in organizational performance. Reisi *et al.* (2013) demonstrated that all three (3) dimensions of knowledge management infrastructure (technology, structure, and culture) have direct and a significant relationship with organizational effectiveness. Hence, managers should make a conscious effort to create processes that facilitates accessing and transferring information within and outside of the organization to improve firm performance.

Organizational Performance of CHED

As shown in Table 14, the overall performance of CHED in terms of effectiveness was rated at high performance and the standard deviations indicated that respondents were not widely varied in their views ($\bar{x}$=3.82, SD=0.762). According to Heilman and Kennedy-Philips (2011) organizational effectiveness helps to assess the progress towards mission fulfillment and goal achievement, Meyer and Herscovitch (2001) analyzed organizational effectiveness in the Philippines and concluded that organizational commitment in the workplace may take various forms such as the 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.

Table 14. CEAs Perceived Level of Efficacy of Organizational Performance in Terms of Effectiveness in CHED.

Organizational Performance in Terms of Effectiveness	Mean ($\bar{x}$)	Std. Dev.
Increase number of farmers served	3.92	0.77
Innovate new services	4.00	0.69
Coordinate the development effort of different units	3.86	0.77
Anticipate potential opportunities for changing stakeholders' quality of life	3.83	0.78
Achieve organizational goals	3.48	0.81
Overall rating	3.82	0.76

Source: Field Survey

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)

Table 15. CEAs Perceived Level of Efficacy of Organizational Performance in terms of Efficiency in CHED.

Organizational Performance in terms of Efficiency in CHED	Mean ($\bar{x}$)	Std. Dev.
Increase outputs per staff	3.91	0.72
Adapt quickly to unanticipated changes outside the organization	3.88	0.79
Quickly adapt its goals to changes inside the organization	3.69	0.94
Enhance program completion rates	3.63	0.86
Augment timeliness of delivery of services.	3.61	0.93
Achieve organizational goals at a reduced cost per service provided	3.57	0.81
Overall rating	3.71	0.84

Source: Field Survey

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)

Table 15 shows the overall performance of CHED in terms of efficiency was rated at high performance and the standard deviations indicated 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. 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. This observation is in line with Kumar and Gulati (2009) who contended that, efficiency is all about resource allocation across alternative uses.

Table 16 shows the overall organizational performance was rated as high ($\bar{x}$=3.77, SD= 0.802). 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 Siengtai (2012) said effectiveness and efficiency are exclusive, yet, at the same time, they influence each other; therefore, it is important for management to ensure success in both areas in other to have a culminating organizational success. Zaied (2012) added that productivity will be enhanced if KM tools are effectively applied and that will ultimately lead to 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.

Table 16. CEAs Perceived Level of Efficacy of Organizational Performance in terms of Effectiveness and Efficiency in CHED.

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

Source: Field Survey Data

Scale: 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)

Relationships between Knowledge Management Capacity and Organizational Performance.

The Pearson product-moment correlation matrix for the research variables is presented in Table 17. To establish the relationship between organizational performance and knowledge management capacity, the overall organization performance was estimated as composite mean (Y) and correlated with variables of knowledge management capacity as X_1 to X_{12} and Y = Organizational performance.

There was a 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 Bosompem *et al.* (2013). The finding mirrors that of Agwu and Chah (2018) pointed out that there are only a few genders related differences that affects the performance of a person in connection to their sex. Hassan and Olufemi (2014) specified that, when it comes to knowledge work, age cannot be used as a determinant factor to performance. Crawford (2005) observes that in modern times, individuals may be used productively in a flexible manner regardless of their original qualifications when they were being employed because the person will have to be oriented to be able to apply learnt skills within the new yet specific work context. According to Richard (2000), the skills gained through years of experience may not necessarily translate into higher performance. Leadership is assessed in terms of actions taken to create a relevant context to knowledge management behaviors in an organization (Young, 2010) nevertheless, in a knowledge-intensive organization, leaders are no longer the primary source of knowledge but rather it is the knowledge worker who is involved in active knowledge dissemination and distribution of knowledge among staff members (Malhotra and Majchrzak, 2004).

Table 17. Correlation Matrix of Knowledge Management Level of CEAs and Organization Performance.

Independent variables	Correlation Coefficient (r)	Significance (p)	Type of correlation	Strength of relationship
Sex (X_1)	-0.04	-	Point Biserial	-
Age (X_2)	0.09	-	Biserial	-
Years of experience (X_3)	-0.09	-	Biserial	-
Level of education (X_4)	-0.14	-	Spearman's rho.	-
Leadership style (X_5)	0.06	-	Pearson	-
KM acquisition (X_6)	0.57**	0.01	Pearson	Substantial
KM conversion (X_7)	0.46**	0.01	Pearson	Moderate
KM application (X_8)	0.28**	0.01	Pearson	Low
KM protection (X_9)	0.16*	0.05	Pearson	Low
KM technology (X_{10})	0.25**	0.01	Pearson	Low
KM structure (X_{11})	0.36**	0.01	Pearson	Moderate
KM culture (X_{12})	0.60**	0.01	Pearson	Substantial

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 and X_{12}= Culture

There was a positive and substantial significant relationship between the organizational performance of CHED and Knowledge management culture (r=0.60) and Knowledge management acquisition (r=0.57). But there was a positive and moderate significant relationship between the organizational performance of CHED and Knowledge management conversion (r=0.46) and Knowledge management structure (r=0.36). However, there was a positive and low significant relationship between the organizational performance of CHED and Knowledge management application (r=0.28) and Knowledge management technology (r=0.25) at 0.01 alpha level. Finally, there was a positive and low significant relationship between the organizational performance of CHED and Knowledge management protection (r=0.15) at an alpha level of 0.05 (Bosompem *et al.*, 2013). Abd 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. Liu and Deng (2015) found that the knowledge acquisition dimension of knowledge management capability has a positive effect on performance although knowledge acquisition is simply individual knowledge that has been incorporated into the firm's knowledge base (Malhotra, 2000). 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. Armbrecht *et al.* (2001) reported that, flexible hierarchical structures can also increase communication with individuals and shared behavior within the organization. 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.

Bhatt (2001) therefore concluded that knowledge application aids in the integration of acquired knowledge into the organization's products, processes, and services to sustain its competitive advantage. Gold *et al.* (2001) observed that, Knowledge protection processes preserve the operational uniqueness of a firm and ensure competitive advantage which may eventually lead to

high organizational performance.

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 18).

Table 18. Collinearity Diagnostic Test.

Independent Variable	Tolerance	VIF
Sex (X_1)	0.99	1.01
Age (X_2)	0.99	1.00
Years of experience(X_3)	0.97	1.02
Highest level of education(X_4)	0.99	1.00
Leadership Style(X_5)	0.92	1.09
Knowledge management acquisition (X_6)	0.88	1.14
Knowledge management conversion (X_7)	0.94	1.07
Knowledge management application (X_8)	0.93	1.07
Knowledge management protection (X_9)	0.94	1.07
Knowledge management technology (X_{10})	0.95	1.10
Knowledge management structure (X_{11})	0.70	1.43
Knowledge management culture (X_{12})	0.84	1.19

Source: Field Survey Data

Table 19. 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	0.39	0.36	0.35	0.36	0.35	90.97	0.00
X_6	2	0.31	0.41	0.40	0.05	0.34	14.30	0.00
X_1	3	-0.28	0.47	0.46	0.06	0.32	19.21	0.00
X_4	4	-0.19	0.51	0.50	0.03	0.31	11.82	0.00
X_8	5	-0.17	0.52	0.51	0.01	0.31	5.45	0.02

Source: Field Survey Data

Regression equation (from standardized Beta)

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

$Y= .643 + .387X_{12} + .310X_6 - .281X_1 - .194X_4 - 166X_8 + E$

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

Where, Dependent Variable (Y) = Organizational Performance

a= constant

E = error term

X_{12} = Knowledge management Culture

X_6= Knowledge management Acquisition

X_1 = Sex

X_4 = Highest level of education

X_8 = Knowledge management Application

According to Cohen *et al.* (2014), 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 yet tolerance of 1 indicates no collinearity while tolerance value of zero (0) indicate a severe multicollinearity problem (Bosompem *et al.*, 2013).

Ordinary least square regression of knowledge management capacity level of CEAs and its effect on organizational management was undertaken. 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.

Table 19 shows the ordinary least square regression of knowledge management capacity level of CEAs. Findings in Table 19 show that, 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. López *et al.* (2004) reported that good organizational culture positively collaborates with an organization's ability to perform better. Abd 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.

Again, the 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 create 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. 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.

Further, Sex (X_1) contributed (6.1%) to the organizational performance of CHED. This implies that the 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. However, because the majority (80.7%) of the respondents were males and few females (19.3%), sex had a negative influence to suggest that diversity in the sex ratio is needed in CHED for optimum performance. No organization in this world of globalization would survive without workforce diversity (McIver *et al.*, 2013). Employees with varied perspectives present a wider range of ideas for decision making through information exchange that is delivered by formal and informal communications (Lawson *et al.*, 2009). By the process of capturing, developing, and sharing organizational knowledge in a certain firm (Wang and Noe, 2010), diverse sets of employees generate an organizational resource that cannot be replicated by homogenous organizations because the knowledge is captured and distribute within employees as best practices, business plans, rules and regulation for competitive advantage exemplified in firm performance (McIver *et al.*, 2013). Also, the 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. Kuncel *et al.* (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 (KMC) practices because they are aware of the KM activities in the organization. Although a little over half of the respondents (51%) had bachelor's degrees, because they still were working at levels designated for certificate and diploma level workers, their low level of motivation towards work was revealed by the negative influence of education on performance in CHED. Griffin (2003) reported that, the level of motivation can be low especially to those who are obligated to work in departments that they are less enthusiastic to work in but have been required by circumstances to do so.

Finally, knowledge management application contributes (1.4%) to the overall prediction of the independent variable (KMC) on the dependent variable organizational performance (OP). According to Cho and Korte (2014), knowledge application is expected to have a significant influence on organizational performance. Droge *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.

However, knowledge application had negative influence on job performance due to the low level of workforce diversity in CHED as exhibited by sex, age, and educational levels of CEAs. This implies that CHED must diversify the work characteristics of CEAs through "quota employment scheme" and involve CEAs in decision making for better organizational performance. Thus, individuals with different demographic characteristics have different perspectives and therefore influence organizational performance through the phenomenon called "from information to decision-making perspective variance (Griffin, 2003). Hence, in modern times, many knowledge management applications make use of intelligent agents (persons) as both innovators and custodians of knowledge needed for positive organizational performance (Griffin, 2003).

CONCLUSION AND RECOMMENDATIONS

Indeed, several studies point out that an awareness of the advantages associated with the proper management of organizational knowledge helps firms to position themselves for higher organizational performance. Nonetheless, the people-related, process-related, and

infrastructural-related factors associated with the implementation of proper knowledge management strategies in public cocoa extension institutions and their resultant effect on organizational performance remain extensively undocumented. This paper presents the first evidence of such a link in the context of the implementation of knowledge management practices adopted by public cocoa extension agents in Cocoa Health and Extension Division of Ghana using constructs such as people-related, process-related, and infrastructure-related factors inimitably predominant in government organizations and their effect on organizational performance.

The findings revealed that, there was a significant relationship between organizational performance level 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 was rated as the most severe of all the challenges of knowledge management in CHED. Overall, CEAs rated all practices of knowledge management process, knowledge management infrastructure and leadership style as being high in CHED. The best predictors of organizational performance were knowledge management culture (35.7%), Sex (6.1%), knowledge management acquisition (4.8%), highest level of education (3.3%) and knowledge management application (1.4%).

The findings of this study have practical implications and contribute to knowledge management literature by drawing attention to the use, documentation and re-use of known (explicit) and discovered (implicit) knowledge management strategies useful for CHED to plan knowledge management training programs for community extension agents in the cocoa sector of Ghana and other stakeholders to subscribe to relevant knowledge management methodologies and extension information packages appropriate to meet information needs of the farmers. 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 job trainings, inspiring self-search, and discovery, encouraging knowledge sharing and minimizing bureaucratic structures.

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