

Revisiting Occupational Health and Safety Management and Employee Engagement in the Ghanaian Mining Sector

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ABSTRACT: *Occupational Health and Safety Practices (OHSP) literatures same as employees' engagement has been studied as disciplines for organizational performance and safety free environments. Creating awareness about OSHP is determining factor for maintaining consistent safety behavior which eventually lead to effective employee engagement. Creating more awareness of OSHP has become so necessary in academia and industry due to the inevitable danger associated with it. Poor Occupational Safety and health practices is a cost and life threatening issue yet most companies give reactive response to it. This paper seeks to address these anomalies by testing empirically, the influence of occupational health and safety practices on employee engagement. The study sampled 400 whose response were sought and sorted by the use of questionnaire and interview process. The WarpPLS was used to perform a structural equation modeling which revealed a positive effect of occupational health and safety on physical, emotional, and cognitive engagement. However, among the dimensions of engagement, emotional engagement was the criterion variable influenced most. The paper suggests that major stakeholders such as shareholders, CEOs and all employees to consider OSHP as a means to retain and maintain employees to achieve constant performance.*

KEYWORDS: *Occupational Health, Safety, Emotional Engagement, Physical Engagement, Cognitive Engagement*

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I. INTRODUCTION

The 2010 National Mining Policy was accredited as the springboard for the foundational reforms of the mining sector that shifted revenue and performance progress in Ghana (Ghana Mineral Commission, 2014). As of 2020, Ghana was the sixth largest producer of manganese in the world and is the leading mineral producer in Africa (Sasu, 2022). Gold, Aluminum, Bauxite, and minerals fuels are some of its notable resources (Duke, 2006). These generate a total mineral production of 14.9mt including 1.4mt of manganese and 1.50mt of gold. The value of trade in minerals is \$489m (total export of manganese), and \$7,185m (Gold) in revenue. It is factual that the mining sector contributes 35 percent of export revenues and 19 percent of all indirect tax payments in Ghana (BBC News, 2021). The sector is recorded to have 20 large-scale mining companies producing gold, bauxite, diamonds, and manganese with approximately 300 small scales and 90 mine support services (Ghana Chamber of Mines, 2017).

These statistics remarked the benefits derived from the sector otherwise with life-threatening accidents and incidences. Conversely, the benefits and investment derived and bestowed in the sector are not a factor to consider the numerous injuries and accidents recorded frequently (Kyeremateng-Amoah and Clark, 2015). Severe and non-severe accidents and incidence are on the rise. Since 2008, accidents rose from 58 to 1,201 in 2014 to 9,664 cases in 2017 to 18, 070 in 2018. (Ghana Mineral Commission 2019). This menace is not only seen in Ghana but the world at large with a recorded facts that over 2.3 million people die each year due to work-related accidents or illness, and 350,000 of these deaths are attributable to occupational accidents. (I.L.O 2014).

According to Stenn (2018), Ghana's mining statistics on accidents and injury far exceed major mining countries. This alarming statement needs much consideration by no act but enforcement of rules adherence mechanism for rectification. As opined by Annon (1995), mining accidents cannot be eliminated but can be controlled to minimize the frequency and severity in saving human life. Mining exploration, production and sorting activities are inevitable to physical and material damage to human and the environment. (Veiga and

Beinhoff, 1997). The use of chemicals and explosives in many areas creates heart-related diseases, and health and safety hazards such as dust, smoke, and fumes (Omalu and Zamora, 1999).

Major studies on OHS in Ghana especially in the mining sector have revealed different states of health and safety practices. Tsutsumi et al. (2000) researched participating interventions for workplace improvement, workforce strengthening on OSH, and reduced cost. Sorensen et al (2000) studied improvements in health programs Lamontagne & Younstrom (2004), again Amponsah-Tawiah and Dartey-Baah (2016) studied occupational health and safety and organizational commitment. Amponsah-Tawiah et al. (2015); Amponsah-Tawiah and Dartey-Baah (2016), also researched occupational health and safety with emphasis on the well-being of workers where they remarked on OHS positively influencing achievement of organizational goals. Stemn et al (2019) conducted studies on industrial accidents in the Ghanaian Mining sector by sampling 300 employees from four mining companies. He found that company's commitment and prioritization of occupational health and safety practices is factor in minimizing accident occurrence.

Despite great studies performed over the previous couple of years, there may be still an upsurge within the charge and brutality of mining accidents in Ghana (Stemn et al., 2019). Nevertheless, even as in advance studies focused on the frequency and intensity of those injuries, Umar-Faruk et al, (2015) have paid attention to how those injuries can be mitigated through the general mind-set and behaviors of employees within the mining industry in Ghana. Although there is proof to reveal that workplace accidents in the Ghana mining industry had been tackled from the behavioral and social perspective, none of those works investigated how OHS sports have an effect on employee engagement inside the mining sector as a result this paper seeks to have a look at OSH and employee engagement in the Mining region.

II. LITERATURE REVIEW

Employee engagement is described generally because the quantity of dedication and involvement personnel show inside the purpose of doing their paintings. According to Bridger (2004) worker engagement is the extent people are in my opinion concerned in the success of a business. It is a system used to nurture employees to stay dedicated to their enterprise. As referred to via Alfred (2010) worker engagement is a state of affairs of being gift throughout the overall performance of work by way of willingly contributing highbrow attempt, experiencing wonderful feelings, and significant connections to others. Anitha (2014) described it, as an individual's reason and centered energy, evident to others within the display of personal initiative, adaptability, attempt, and persistence direction in the direction of organizational desires. Hence, worker engagement is a mutual opportunity utilized by businesses to encourage personnel to devote their assets as predicted with the aid of all. Empirical proof indicates a few blessings of engagement as opined by way of (Crawford et al., 2010). Firstly, engagement is prime to a corporation's achievement and competitive benefit (Anitha, 2014). Besides, Crawford et al. (2010) opined that businesses with engaged personnel have higher shareholder returns, profitability, productivity, and consumer pleasure. Bridger (2004) remarked that employee engagement is a pressure and size of overall performance, which purpose organizations to improve productivity through a series of interventions.

Based on Gallup's conceptualization of worker engagement as a one-dimensional construct (Buckingham and Coffman, 1999; Anitha, 2014) selections out three types of human beings: engaged, not engaged, and actively disengaged. Engaged employees are builders who always attempt to offer excellence inside their roles. Not engaged employees' recognition of the duties spelled out to them as opposed to the dreams of the corporation and consequently they do what they'll be instructed to do. Actively disengaged personnel however are dangerous those who now not most efficiently perform properly however additionally demotivate performers within the organization. The concept of engagement therefore indicates that an engaged worker is intellectually and emotionally positive about the business business enterprise, feels enthusiastic about its goals, and is dedicated to residing thru its values and ideas. Furthermore, despite the fact that there are discrepancies in the conceptualization and measurement of employee engagement, (Soane et al. (2012) propose that engagement is a multidimensional construct encompassing highbrow engagement, affective engagement, and social engagement. Besides, the increasing acknowledgment of the requirement for personnel to work collectively outcomes inside the conceptualization and operationalization of the 0.33 element of engagement referred to as social engagement which is defined as 'the quantity to which one is socially connected with the walking surroundings and stocks commonplace values with colleagues Jackson et al., (2006). Consequently, Soane et al. (2012), ISA engagement scale was tailored to assess employee engagement because the final results variable in this exam.

Kang (2014) asserted that engaged personnel strengthen companies' competitive benefit and generate a good enterprise surroundings. It is one of the effective way to attract, nurture, hold, respect, and manipulate personnel to reap organizational desires (Neeti and Leekha, 2011). High levels of engagement in home and international corporations promote retention of talent, foster patron loyalty, and enhance organizational overall performance and stakeholders' value (Wilson, 2009). This depicts vividly that engaged employees are not most

effective happy of their paintings but also translate that delight into better productiveness and profitability of a corporation. Larkin (2009); Cole (2002); Lee (2012) opines that personnel who are healthful and experience relaxed at work are those who can completely make investments of their competencies and capacity for productiveness. Hence, to have engaged employees, promoters of Companies in Ghana ought to show challenge for the protection, health, and nicely-being of their employees. Besides, Sinclair et al. (2005), assert that once Companies fail to deal with terrible operating situations, their personnel are more likely to decide the fees of staying and being engaged with the employer as exceeding the charges of quitting.

In a have a look at on OHS manipulate, Kongtip et al. (2008) reported that the very satisfactory type of twist of fate cases were from the manufacturing enterprise with about 200 employers and the financial vicinity of engineering. The authors moreover stated that critical safety elements for Companies are accident opinions, coincidence investigation, and safety inspections. Similarly, using a pattern of 263 psychiatric nurses from Ghana, Gyensare et al. (2017) stated a pleasant correlation among OHS management and worker engagement. Among the dimensions of OHS, protection leadership have become decided to be the most powerful predictor of mental health nurses' engagement. The authors concluded that selling OHS coverage via right tracking and supervision strengthens and energizes intellectual health nurses to paintings difficult to acquire the company's desires. In Spain, Fernandez-Muniz et al. (2009) reported a first rate nexus among OHS management and corporation ordinary performance.

In addition, OHS manipulate has been noted as a key determinant of firm reputation and image amongst stakeholders European Agency for Safety and Health at Work. Using a sample of three hundred woodworkers from a Timber Company in Ghana, Mitchual et al. (2017), decided a wonderful nexus between woodworkers' willingness to use personal defensive gadget and their focus of safety and health implications on their procedure. Amponsah-Tawiah and Dartey-Baah (2016) additionally located a best court docket among OHS management and affective, normative, and continuance dedication.

III. MATERIALS AND METHODS

3.1 Research design and sample

The study has data collected from three mining companies in Ghana. Two international companies thus Newmont Company with headquarters in the USA, Shangxi Mining Company from China, and one local company, Goldfields Company. Letters of permission were sent to the companies to seek permission for their usage. Four hundred participants were sampled from a total population (target frame) of 6500 workers. According to Krejcie and Morgan's formula, sampling from a total population is an important means to get expertise and technicians capable of understanding the nature of the work. A questionnaire was administered to the department sampled with every departmental head and a recommended special operation staff. The convenient sampling technique was adopted because of the busy and rotational schedule of the technical staff. Data was gathered within a period of 1^{1/2} months.

3.2 Instrumentation, scales, and reliability analysis

The study adopted the Hayes et al (1998) scale to measure Occupational health and safety (OSH) using 55 items to measure the employee's perception of OHS. As adopted from Hayes et al, OSH was measured by five constructs with each of 10 items: 1. Work safety, 2. Coworkers safety, 3. Supervisors' safety 4. Management safety and 5. Satisfaction with safety programs.

Each construct of the Safety Scale (SS) has Cronbach reliabilities of 0.96, 0.80, 0.97, 0.94, and 0.86, respectively. The overall Cronbach reliability of the SS is 0.86 with a ranging a five-point Likert scale ranging from 1 ("Strongly Disagree") to 5 ("Strongly Agree").

Employees' engagement was measured using the employee engagement constructs developed by (Alfers, 2000). Employee engagement was measured by three-dimensional constructs: physical engagement, emotional engagement, and cognitive engagement.

The OCQ has 18 items, and it is answered on a 5-point Likert scale ranging from 1 ("Strongly disagree") to 5 ("Strongly agree").

Alfers (2000) reported a Cronbach a reliabilities of 0.74 for the physical engagement dimension, 0.74 for the emotional engagement dimension, and 0.84 for the cognitive engagement dimension.

Demographic Variable	Number	Percentage
Gender		
Male	330	84.87%
Female	60	15%
Educational Levels		
Tertiary	306	72%
SHS	24	8%
Other	70	20%

Table 1: Characteristics of the Respondents of the Study (N = 400)

IV. RESULTS AND DISCUSSION

4.1 Confirmatory factor analysis

A confirmatory analysis showed that the variables understudy were easily displaying the factor loadings, Construct Reliability Loading, and the Module Fit Measures. The study indicates a moderate positive relationship between occupational health and safety management and physical engagement (r ¼ 0.357, p < 0.01), emotional engagement (r ¼ 0.370, p < 0.1), and cognitive engagement (r ¼ 0.309, p < 0.01).

The module fits measures displayed an assessment of contributing factors of OHSM on physical engagement (Cronbach 0.927 b–0.710 p–2.247), emotional engagement (Cronbach 0.842 b–0.572 p–2.414), Cognitive engagement (Cronbach 0.920 b– 0.741, p–2.376) concerning OSHM (0.900 b–0.460 p–1.537). This point to the fact that each variable correlated positively with OSHM with appreciated p values and beta.

	Factors Loading			
	Physic	Emot	Cong	OHSM
Physica	0.715			
Physica	0.708			
Physica	0.696			
Physica	0.708			
Physica	0.723			
Emotion		0.681		
Emotion		0.700		
Emotion		0.672		
Emotion		0.658		
Emotion		-0.010		
Cogniti			0.660	
Cogniti			0.686	
Cogniti			0.693	
Cogniti			0.688	0.420
OHSM_Pr				0.914
OHSM_Pr				0.929
OHSM_Pr				0.380
OHSM_Pr				0.348
OHSM_Pr				0.437
OHSM_Pr				0.410
OHSM_Pr				0.914
OHSM_Pr				0.927
OHSM_Pr				0.893
OHSM_Pr				0.908
OHSM_Pr				0.949

Table 2: Displays confirmed factor loadings

Latest variables	Cronbach alpha	b-values	p-values	Findings
Physica	0.887	0.10	0.06	
Emotion	0.747	0.09	0.04	
Cogniti	0.741	0.50	0.01	
Ohsm				

Table 3: Construct Reliability Loading

Latest variables	Cronbach alpha	b-values	p-values	Findings
Physica	0.927	0.710	2.247	Supporting
Emotion	0.842	0.572	2.414	Supporting
Cogniti	0.920	0.741	2.376	Supporting
Ohsm	0.900	0.460	1.537	

Table 4: Module Fit Measures

The study critically looked at the influences existing between occupational health and safety management and employee engagement. Proof of confirmatory results with construct liability loadings significantly remarked a relationship between the variables under study. Emotional engagement is even modeled with OHSM in a relative direction to the other constructs of engagement. However, organizations whose prioritization of OSHM is high are likely to have employees' cognitive engagement higher, and whereas motivation towards OSHM is higher, there is the likelihood of developing the emotional baggage of the employees. As such, structures and equipment, which support OSHM, make employees physically present at work (Krauss et al., 2005).

The findings show that the three companies have structures, systems, and equipment, which help the company to promote OSHM. The structures and equipment coupled with good systems will help minimize minor and major accidents and near misses at the workplace. The mining sector is notable for frequent injuries and accidents hence provision and availability of safety-friendly structures and equipment is the surest means of

protecting employees, which will motivate the employee to be physically present at work, and their perception of safety will be boosted.

V. CONCLUSION

According to Meyer and Allen (1991) emotional engagement can be advanced whilst a business enterprise incurs huge prices in imparting employment. These include investing in health and supervision, training of employees towards safety, constant creation of awareness of OSH, enforcing of OSH policies and constant provision of resources to maintain OSH are some basic means of instituting OSHM framework into the employees. The studied companies are in the right direction of such practices and this has developed the employees to be proactive towards OSH activities in the companies. When all these practices are done, the employees tend to be devoted to the company with assurance and trust that they will be free from injuries and accidents. More so, training and constant reminders of the OSH policies and practices will register in employees' minds, and will always do the right thing when working.

VI. LIMITATIONS OF THE STUDY

The study was conducted in three mining companies that operate in the southern sector with much international mindset and orientation. Therefore, the situation may be different in other mining facilities, especially those indigenous companies with a rural focus in rural areas with fewer resources. It is therefore recommended that a similar study be conducted in other regions in the country to determine the factors that influence OSH management concerning cognitive retrospectives in other places of the country.

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