International Journal of Innovative Research and Advanced Studies (IJIRAS)
Volume 11 Issue 9, September 2024

ISSN: 2394-4404

Evaluation Of Accident Risk Assessment On Project Time Performance In Ghana's Upstream Oil And Gas Industry: The Employee Factor

Zachariah Bissah

Ph.D. Candidate, Accra Institute of Technology/Open University, Malaysia

Professor Solomon Abekah Keelson

Department of Marketing, Takoradi Technical University, Takoradi, Ghana

Abstract: ***The roles played by employees in Ghana's upstream oil and gas industry in accident risk assessment will determine the rate of wealth acceleration and national development needed to achieve the world's sustainable development goals aimed at reducing poverty. The purpose of this article is to investigate the impact of accident risk assessment on project time performance with employee role as a moderator in Ghana's upstream oil and gas industry as an emerging economy. Only upstream oil and gas workers in Takoradi, Western Region, were included in the research. Quantitative information was gathered from 589 employees of the Ghanaian upstream oil and gas industry in the Western Region of Ghana using a purposive sampling technique to identify employees preoccupied with project management and risk assessment roles as respondents. These willing witnesses have been employed in the sector for more than a year. Amitai Etzioni's theories of compliance, situational awareness, and attitude formation serve as the foundation for the study's theories and hypotheses. The study's findings revealed a positive relationship between accident risk assessment and project time performance. It was also found out that the association was moderated by employee roles (i.e., attitude, awareness, and compliance) in Ghana's upstream oil and gas business.***

Keywords: Ghana, Accident risk assessment, Emerging economy, Employee roles

I. INTRODUCTION

Workplace accidents can happen for a variety of reasons, such as poor leadership, a bad safety culture, a lack of safety monitoring, insufficient management supervision, defective equipment, reluctance to change, competing objectives, and incorrect safety behavior, for instance (McBride & Collinson 2011). According to Olusegun et al. (2011), accidents that happen as a result of not exhibiting the right attitude and behavior toward accident risk assessment may have a major influence on everyday operations in a company and, as a result, the economic activity of a nation. For instance, the Ghanaian Labor Department reported that GH6.7 million in workman's compensation payments were given to employees in the official government sector (Ampofo, 2017). This is the case because of Africa's poor levels of occupational safety and health in comparison to the rest of the globe (Eyayo, 2014). These factors are amplified in the oil and gas sector because of the harsh environments, combustible fossil fuels, cramped quarters, heights, and heavy machinery that workers are exposed to or routinely utilize (Pinheiro et al. 2011; Robb & Miller 2012). Emerging economies will experience sluggish growth due to industrial accidents if insufficient time and resources are devoted to occupational health and safety (Meswani, 2008). Ghana is a newbie to the oil sector, yet it ranks ninth in Africa for oil production, behind only Angola and Nigeria, which each produce over 1.754 million barrels per day and 1.867 million, respectively (Adjapong, 2018). Due to the dangerous working conditions, volatile fuels, production pressures, heavy equipment, tight spaces, and heights that personnel frequently confront, the oil and gas business has an excessive number of accidents (Ojuola, Mostafa, & Mohamed, 2020b). As a result, safety is a top priority in the oil and gas sector and must be emphasized and monitored with the right attitude to ensure compliance with accident risk assessment by employees because of the potentially disastrous effects of accidents (Ojuola, Mostafa, & Mohamed, 2020b). Employees confront distinct challenges in businesses where safety is very essential (i.e., safety-critical firms with a high risk of accident) (Ojuola, Mostafa, & Mohamed, 2020b). The importance of the majority of implicit organizational employee culture characteristics as a way of coordinating the work and ensuring the safety and effectiveness of the activities also grows as the complexity of the job increases (Weick 1995; Reiman & Oedewald 2007). As a result, these organizations need certain employee behaviors and attitudes that will ensure compliance, which may be different from those that are most productive in organizations with lower safety requirements (Ojuola et al., 2019). The intellectual capital of a corporation is represented by its personnel, who are thus key assets in the upstream oil and gas industry. For any organization involved in accident risk assessment, using this intellectual capital has emerged as a crucial source of competitive advantage (Arthur, 1994). Organizations can successfully navigate challenges related to accident risk and leverage their intellectual capital in the assessment of those risks by encouraging employee participation with the right attitudes and behaviors, which may ensure compliance with accident risk assessment in the upstream oil and gas sector. According to a claim made by Kroth and Boverie in 2013 that was cited by Swathi in 2014, employees who took part were enthusiastic and complied with all procedures about the work they did, which included evaluating accident risks, because they had the right attitude that ensured compliance with procedures set out by management. Excitation, zeal, and productivity go hand in hand with passion. According to Salimath and Kavitha (2016), employees who participate are aware of various situations and are dedicated, motivated, active, and enthusiastic about problem-solving, including carrying out an accurate accident risk assessment to lower accidents. A highly engaged worker in the upstream oil and gas sector consistently goes above and beyond expectations when evaluating accident risks because they will be fully aware of the various accident risks confronting them, they will have the right attitude and behavior toward accident risk assessment, and they will also adhere to procedures (Wright and Cropanzano, 2000). A safe workplace is facilitated by high levels of employee participation in accident risk assessment (Shaw, 2005).

It can be inferred from the literature review that four key factors are intimately connected to employee accident risk assessment awareness (Shamsul et al., 2012). These elements are listed below: (1) Human behavior, (2) accident risk assessment education, (3) accident risk assessment knowledge, and (4) workplace accident risk assessment policies These four components make it possible to conclude that the upstream oil and gas sector has attained a sufficient level of accident risk assessment awareness. The term "compliance" has multiple meanings in the regulatory literature. According to one interpretation, compliance is behavior that complies with a legal requirement (Parker and Nielsen, 2017). This definition reflects an objectivist approach to compliance, which is concerned with how, why, and under what conditions businesses and individuals abide by regulatory standards or do not (Parker and Nielsen, 2011). A second viewpoint holds that compliance is a process by which the meaning of regulatory standards is altered as they are interpreted, put into practice, and bargained by the businesses and people to whom they are directed, as well as those they interact with (Edelman and Talesh 2011; Parker and Nielsen 2011; 2017). In this interpretive approach, the term "compliance" can refer to meanings and interpretations, social customs and practices, as well as interactions and communications among various process participants (Parker and Nielsen, 2011). This method views compliance as a social construction, leading to differences in perceptions of what compliance entails. In the larger upstream oil and gas organizational context, compliance is defined as "a state of accordance between an actor's behavior and predefined explicit accident risk assessment procedures and standards, or other norms on the other" (Foorthuis et al., 2012).In the upstream oil and gas industry, compliance with accident risk assessments can be reflective, self-conscious, non-reflective, or non-conscious (Paulsen, 2016).

Behavior as a whole can be characterized as an area of employee psychology science that includes processes involving employees, their groups, or organizations in acquiring services in order to have one's needs and wishes met. The concept of behavior can refer to an employee's behavior, but it also always refers to all of the employee's thoughts, feelings, and physical movements that are related to that employee's behavior as they go about their work (Wayne, Deborah, 2008; Wayne, Deborah, & Rik, 2018; and others). Employee behavior in the upstream oil and gas industry generally refers to a wide range of actions taken by a person or employee. In the upstream oil and gas industry, employee behavior science is deeply entwined with other fields like psychology, social psychology, sociology, and cultural anthropology. According to the cognitive-psychological perspective, a person's behavior is a reflection of their attitude toward, routines for, and intentions regarding accident risk assessment, as well as their perception of accident risk assessment, learning, emotion, and other characteristics (Solomon, 2004; East et al., 2016; and others). According to the reviewed scientific literature (Harrison, Mullen, and Green, 1992; Adler, Matthews, 1994; Van der Pligt, 1994; Norman, Conner, 1994; Armitage, Conner, 2000; Chaiklin, 2011), an employee's attitude toward accident risk assessment is strongly correlated with their behavior in the upstream oil and gas sector

According to Pálinkás (2011), accident risk assessment encompasses all procedures that may be performed to limit or eliminate the likelihood of an accident occurring or having a negative impact on an organization in the upstream oil and gas business. As history has demonstrated, there is no quick fix or secret formula for determining accident risk (Klinke & Renn, 2002). Based on our literature review, we can identify a variety of strategies for estimating accident risk. These approaches may be classified using the deterministic approach, which covers qualitative, quantitative, and hybrid techniques, and the stochastic approach (which includes the classic statistical approach and accident forecasting modeling). In this study, however, the traditional statistical technique and the accident-predicting method, known as the stochastic approach, were used. "Upstream oil and gas operations" refer to the activities that occur from oil and gas exploration to the production of crude oil and gas (Wright & Gallun, 2008). Drilling for oil, extracting oil and natural gas, and undertaking geological and geophysical research are all part of these activities (G&G). The study tests hypotheses from Amitai Etzioni's theories of compliance, situational awareness, and attitude formation to find out how accident risk assessment affects project time performance in Ghana's upstream oil and gas industry as an emerging economy. The employee's role is a moderating factor. The following sections describe the various employee tasks in the upstream oil and gas industry as well as the theories that have been applied to examine employee roles in accident risk assessment in the upstream oil and gas industry. Before examining the results, we first offer our study's methodology and then its methodology.

RESEARCH QUESTION

- ✓ What is the role of staff in project accident risk assessment in Ghana's upstream oil and gas companies?
- ✓ What is the relationship between staff roles and project accident risk assessment in Ghana’s upstream oil and gas industry?

II. LITERATURE REVIEW

ACCIDENT RISK ASSESSMENT

According to Winch (2010), accident risk management can be broken down into four phases: identifying and categorizing the risk, assessing the risk, responding to the risk, and controlling the risk. In the upstream oil and gas industry, identifying accident risks is a crucial first step in risk management, according to KarimiAzari et al. (2011) and Zavadskas et al. (2010). According to Al-Bahar and Crandall (1990), "accident risk identification" is an analytical process that continuously determines, assesses, and categorizes the initial significance of the accident risks connected to projects as well as the interconnections that exist between these accident risks (Liu, Zhao, & Yan, 2016). According to An et al. (2011), the goal of accident risk identification in the upstream oil and gas industry is to systematically identify all potentially dangerous events. The upstream oil and gas industry has also used a number of accident risk identification techniques, including the brainstorming approach, checklists, "what if?" analyses, hazard and operability (HAZOP) studies, FTA, and FMEA (Zeng et al., 2005; Zeng et al., 2007; An et al., 2011; Pinto et al., 2011). A straightforward "zero-one" model was created by Ben-David and Raz (2001) to choose an accident risk response strategy. The goal function was to reduce the total expected accident risk costs. Using various decision-making and optimization techniques have led to an increase in the number of studies in this field. In order to help practitioners create an effective accident risk response plan, Wu et al. (2018) proposed a novel accident risk response method by cracking open the project process's "black box" and taking accident risk correlations among various subprocesses into consideration. A further review may also be required when circumstances change as a result of the introduction of new equipment or procedures, the emergence of new accident risks, or both in the oil and gas industry (Hughes and Ferrett, 2012). The upstream oil and gas industry places a high priority on accident risk control and monitoring because they help management catch mistakes early and make sure that the organization's accident risk assessment management practices are in line with its goals (Meghouar, 2014; Kamyab, 2014; Nazri, Hamid, & Muslim, 2014; Paul, 2014; Baslom & Tong, 2019; Al-Taweel, 2015; Ishak, 2016; Klapproth & Martin, 2018; Obi & Okekeokosisi, 2018).

PROJECT AND PROJECT MANAGEMENT

A project is a particular kind of work that is finished over a predetermined period of time with a sequence of activities or phases (i.e., beginning, planning, carrying out the work, and closing phase) and has a distinct beginning and end, according to Sydow, Lindkvist, and DeFillippi (2004) and Bredin and Söderlund (2011). When a typical company lacks the time or resources to do so alongside its usual activities, projects are utilized to develop desirable concepts (Sanghera, 2019). A project may be internal, with participants just from the company, or external, with participation from numerous organizations (Tonnquist, 2009; Lundin et al., 2015). Project managers can provide a graphical representation of how long the project is expected to take by summarizing the start and finish times for each distinct work that is a component of the project (Solis-Carcano, Corona-Suarez, & Garcia-Ibarra, 2015). A baseline is established and agreed upon in the first phases of the project in order to track and assess its progress (Shivakumar, 2018). Time, cost, and quality are looked at, as they are frequently measured in project performance measurements (Belout, 1998; Bredin & Söderlund, 2011). If a project's baseline is starting to stray from it, it must be revised, and action must be taken to get the project back on track by either properly updating the baseline or assigning the required resources (Belout & Gauvreau, 2004). Planning, coordinating, and supervising the achievement of project objectives while taking the needs of the stakeholders into consideration are the main responsibilities of project management in the upstream oil and gas industry (Harris & McCaffer, 2013).

EMPLOYEE ROLES

STAFF ATTITUDINAL ROLE TOWARDS PROJECT ACCIDENT RISK ASSESSMENT

According to Garira (2020), employers recognize that employees' actions and behaviors have a significant impact on how well they estimate the risk of accidents. Furthermore, Stanton et al. (2005) discovered that, while inappropriate and destructive behavior can significantly reduce the efficacy of accident risk assessment, right and constructive behavior can significantly increase it. A worker's attitude toward accident risk assessment is highly correlated with project accident risk assessment in the upstream oil and gas industry, according to the reviewed scientific literature (Harrison, Mullen, and Green, 1992; Adler, Matthews, 1994; Van der Pligt, 1994; Norman, Conner, 1994; Armitage, Conner, 2000; Chaiklin, 2011).

ISSN: 2394-4404

STAFF PROJECT ACCIDENT RISK ASSESSMENT AWARENESS ROLE

The findings of Falola and his colleagues (2014), which showed a substantial association between accident risk awareness and employees' performance on accident risk assessments, indicate the beneficial contribution of employee awareness to accident risk assessment. A study on employee awareness programs was conducted by Adeniji et al. (2012), who discovered that they had a positive impact on accident risk assessment. Bin Atan et al., in their 2015 study, looked at how awareness affects worker performance. The findings revealed a strong relationship between employees' performance on accident risk assessment and effective accident risk awareness. According to the findings of Chatzoglou and Diamantidis (2014), the design of an awareness program has the most impact on how well company employees understand the dangers of accidents.

STAFF PROJECT ACCIDENT RISK ASSESSMENT COMPLIANCE ROLE

According to Lama's (2013) study, there is a direct link between employee compliance and the firm's effectiveness in assessing accident risk as measured by cost, quality, return on equity, earning yield, and return on assets. The reason for the conformance-performance relationship was developed by this relationship. Employee compliance improves the accuracy of accident risk assessments, according to studies by Adowa and Okereke (2013), Arasa and Ottichilo (2015), Berisha-Vokshi, Xhelili-Krasniqi, and Ujkani (2015), Bokpin (2013), and Juhmani (2012). However, there was no discernible connection between employee compliance and the effectiveness of the company's accident risk assessment, according to Street and Bryant (2000) and Glaum and Street (2003). Studies by Das (2014), Hassan (2013), Omar (2015), and Peterson (2013) all showed a substantial correlation between compliance and the accuracy of accident risk assessments, supporting this. According to Lama (2013) and Tan (2015), two crucial components of corporate governance are compliance and accident risk assessment performance. Other comparable research has also shown a connection between compliance and the effectiveness of business accident risk assessment, including those by Dickinson, Sullivan, and Stock, Zacharias, and Schnellbaecher in 2013 and 2017, respectively.

EFFECT OF ACCIDENT RISK ASSESSMENT ON PROJECT TIME PERFORMANCE

Project accidents may have potentially disastrous social and economic impacts for enterprises, people, and their families as a whole (Elsebaei et al. 2020). An examination of past research revealed a strong connection between project success and accident risk management. "A bigger risk may lead to a larger reward" is a remark to that effect (Al Ajmi & Makinde, 2018). Reduced accident risks will result in a more efficient use of project time. The impact of project accident risk assessment management on construction project planning was examined by Hartono et al. in 2019. Their study's conclusions state that adopting project accident risk assessment management techniques greatly increases the probability that a project will be finished on time. They also show how faster project completion times are a benefit of having an accident risk manager on the team. In order to succeed, project managers and accident risk managers need to be acutely aware of project uncertainties, use project accident risk assessment management techniques, and have a solid awareness of the business environment.

RESEARCH MODEL

This section first examines Amitai Etzioni's Theory of Compliance, which aids in our examination of the compliance roles of employees in project accident risk assessment. Then, we discuss Situational Awareness Theory, which also assisted in our determination of the awareness roles of employees, and finally, the Theory of Attitude Formation, which assisted in our discovery of the attitudinal roles of employees in project accident risk assessment in the upstream oil and gas industry in Ghana. Then, we offer our study model and hypotheses.

AMITAI ETZIONI'S THEORY OF COMPLIANCE

Etzioni (1975) created a novel method for studying organizational structure that he refers to as "compliance theory." He categorizes groups of people and institutions based on the power they wield and the level of participation they exhibit. Coercive, utilitarian, and normative organizational power are the three types identified by Etzioni. These are connected to alienative, calculating, and moral involvement (see Figure 1).

Types of Involvement \ Types of Power			
Alienative	x		
Calculative		x	
Moral			x

Figure 1: Etzioni's compliance types

This figure, while grossly oversimplifying the relationships, helps to make clear the pattern among the components.

COERCIVE POWER

Force and fear are used by coercive authority to control subordinates. Prisons, mental health facilities that require patients to be locked up, and basic military training are a few examples of institutions that use coercive force.

UTILITARIAN POWER

In order to control individuals at a lower level, utilitarian power employs compensation or extrinsic benefits. Such extrinsic benefits are prioritized by most businesses. Salary, merit pay, bonuses, working conditions, and job security are some examples of these rewards. Unions, farmers' cooperatives, and different government entities are examples of utilitarian organizations, in addition to numerous commercial enterprises.

NORMATIVE POWER

Normative power is exercised through the distribution of intrinsic incentives, such as engaging labor, goal identification, and societal contribution. The capacity of management to control symbolic incentives, distribute esteem and prestige symbols, implement rituals, and affect the distribution of acceptance and positive reactions throughout the company is what gives management power in this situation. Professionals are employed in large numbers by normative organizations. This will help the researcher find out from the upstream oil and gas staff whether they comply with all accident risk assessment procedures that are put forth by their various companies. As a result, hypothesis 1

H1: Compliance is positively related to a staff role in accident risk assessment procedures in the upstream oil and gas industry.

SITUATIONAL AWARENESS THEORY

The definitions that gave rise to the idea and the ways that situational awareness is measured in the real world have a close relationship with the theories of situational awareness. Information processing, activity, and ecology theories are the three primary ones that are most prevalent. Endsley's (1995) three-level theoretical model of situational awareness is the greatest example of the information processing technique. In this, higher-order cognitive processing is seen when situational awareness develops. According to Bedny & Meister's (1999) description of reflective-orientational activity, the activity-theoretic approach places situational awareness among many other different elements. The perceptual cycle model depicts situational awareness as a dynamic interaction between people and their surroundings. This strategy's proponents contend that situational awareness is defined by the context of the encounter (Smith & Hancock, 1995; Adams, Tenney, & Pew, 1995). We'll go over each of these points of view one by one.

THREE-LEVEL MODEL

The three-level situational awareness model (Endsley, 1995) was initially developed to comprehend aviation tasks (such as aircraft piloting and air traffic control, where people must stay current with a dynamically changing environment), but it is argued that it could be expanded into other domains such as power generation, petrochemicals, nuclear, command and control, medicine, etc. Situational assessment studies and applications may essentially be used for any work that requires users to keep track of occurrences. Because the upstream oil and gas business, also known as the petrochemical industry, is the subject of this research, the researcher chose to employ this model. The three hierarchical stages of situational evaluation in Endsley's paradigm each serve as a required (but insufficient) stepping stone to the subsequent, higher level. From perception to interpretation to prediction, this model follows a cycle of information processing. The levels of situational awareness range from the lowest to the greatest as follows:

1)Level 1 SA: Perception of the accident risk assessment elements in the environment

The staff's perception of accident risk assessment, other employees' attitudes toward accident risk assessment, other accident risks that are being or will be evaluated, and the environment in which accident risk is being evaluated all fall under this level of situational awareness, which is the lowest level. Accident risk assessment data at this point is not interpreted; rather, it just serves to illustrate how information was first received in its unprocessed state.

LEVEL 2 SA: COMPREHENSION OF THE CURRENT SITUATION

Understanding might result from the accident risk assessment's impression. If the employees taking part in the assessment of the accident risks can understand how the data may be pooled and synthesized to produce an accident risk assessment, it is stated that comprehension is essential to grasping the significance of the accident risk assessment and having a sense of what's happening. This allows the personnel to review if their actions involving accident risk assessment are having the desired results. Endsley contends that the level of understanding attained is a testament to the staff's proficiency in accident risk assessment in the upstream oil and gas business. Despite obtaining the same Level 1 SA as their more proficient peers, people with lesser skill levels may have a lower Level 2 SA. This is done to assist the researcher in determining if workers in Ghana's upstream oil and gas sector truly comprehend the processes and methodology used by the corporations to estimate accident risk.

LEVEL 3 SA: PREDICTION OF FUTURE ACCIDENT RISK STATUS

This is the highest level of situational awareness in accident risk assessment and is associated with the ability to forecast the evolution of accident risk components in the upstream oil and gas sector. Level 1 SA and level 2 SA accuracy play a major role in the accuracy of accident risk prediction. When employees are aware of the anticipated future accident risk, they have more time to address problems and formulate a plan of action. Similar to this, other staff members engaged in activities that need to be completed on time largely rely on accident risk prediction to foresee issues and address them quickly.

Figure 2 provides a representation of Endsley's model. The figure demonstrates how a cognitive model of human action in a dynamic system includes situational awareness. Endsley has described how task variables and individual characteristics affect situational awareness. This explains why two people who are given distinct tasks and circumstances, as well as people with diverse skills, experiences, and training, could reach different results

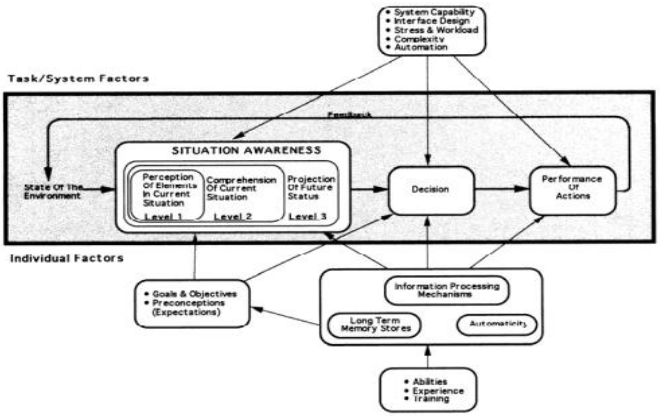

Figure 2: The three-level model of situational awareness (from Endsley & Smolensky, 1998).

According to Endsley's (1995) three-level model, as information is processed at higher levels, there is an increase in consciousness. She makes the point that understanding entails fusing knowledge and objectives with outside information, which in turn affects how the world is expected to develop. Since the model is based on common cognitive processes, it appears to be generic and provides a wide theoretical framework with several potential applications. Endsley suggests that situational awareness in the context of dynamic systems is typically defined in terms of system-specific subcategories such as mode awareness, spatial awareness, and time awareness. Hence, hypothesis 2

H2: Awareness is positively related to a staff role in accident risk assessment procedures in the upstream oil and gas industry.

THE THEORETICAL PRINCIPLES OF ATTITUDE FORMATION

We are constantly influenced by the social groups and organizations we belong to, which is why the phenomenon of attitude formation follows us throughout our lives. It can be broadly characterized as a transition from a state of not having an attitude to one that favors or despises a particular outcome, such as having a favorable or unfavorable attitude toward accident risks while being influenced by specific attitude-forming elements in the upstream oil and gas sector. In contrast to outspoken opinion, attitude is "silent," but it is expressed and activated when decisions about accident risk assessment are required to take particular actions to decide how to act in particular accident risk situations. Attitude is formed in the upstream oil and gas industry and stored in the upstream oil and gas staff's memory throughout their lifetime (whether to participate, lead, etc.). According to the scientific literature analyzed, attitude formation in the upstream oil and gas industry will be depicted in two ways:

- ✓ as a phenomenon influenced by cognitive or affective factors.
- ✓ as a result of a multi-component process consisting of certain components (cognitive, affective, and behavioral).

THE ATTITUDE FORMATION AS A PHENOMENON INFLUENCED BY COGNITIVE OR AFFECTIVE FACTORS

Researchers who have studied attitude formation include Zajonc and Markus (1982); Petty, Fabrigar, and Wegener (1997); Ajzen (2001); Maio, Haddock, and Verplanken (2019). Their research shows that cognitive and affective factors have an impact on attitude formation. The upstream oil and gas industry's assessment of accident risk is influenced by affective factors, which are personal emotions and reactions. Staff in the upstream oil and gas sector have the following personality traits, beliefs, values, and habits: These attitudes are affective (emotional). This attitude is a result of specific personal evaluations that are expressed in the upstream oil and gas industry (of self, others, and events). As a result of an individual's socialization through first-hand experience, interactions with the environment, and interfaces or external relationships with other people, whether in the same upstream oil and gas industry or not, attitudes toward accident risk assessment in that industry are formed. Cognitive factors include the influence of external factors and are associated with the phenomenon of socialization and the influence of our social environment. These attitudes are cognitive in nature (Figure 3). In conclusion, internal factors like a person's desires, values, feelings, sensations, and other internal personal factors influence affective (emotional) attitudes toward accident risk assessment in the upstream oil and gas industry. In this situation, the individual's or upstream oil and gas industry staff's internal psychological needs that can be satisfied shape their attitude toward accident risk assessment (expressing certain values, emotions, habits, regrets, etc.). Cognitively based attitudes towards accident risk assessments are formed under the influence of external environmental stimuli, influenced by information received from the outside, or as a result of the process of external socialization either in the same oil and gas industry or outside the oil and gas industry, based on the associations between the object of the attitude and the external environment.

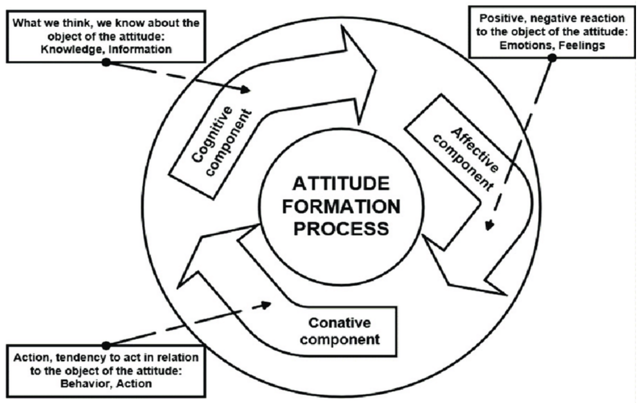

Figure 3: Attitude Formation Influenced by Cognitive or Affective Factors

 ISSN: 2394-4404

THE ATTITUDE FORMATION AS A RESULT OF A MULTICOMPONENT PROCESS

Employees' accident risk assessment attitude formation is viewed by Breckler (1984), Edwards (1990), Eagly and Chaiken (1993), and others as the result of a multistep process with specific components (cognitive, affective, and behavioral). Employee accident risk assessment attitude formation is based on successive components that can be categorized as cognitive (experience, cognition), affective (emotional), and conative (behavioral) in the most widely discussed three-component model of employee accident risk assessment attitude formation, also known as the ABC model in the scientific literature (Figure 3). It will be analyzed in more detail to see how the employee accident risk assessment attitude formation process in the upstream oil and gas industry acts at each of the above levels and what factors influence it. Therefore Hypothesis 3 was framed.

H3: Attitude is positively related to a staff role in accident risk assessment procedures in the upstream oil and gas industry.

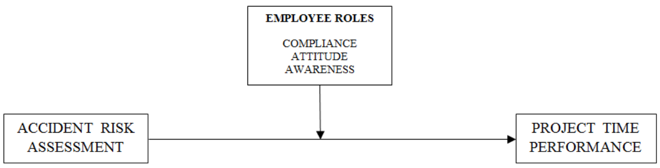

Figure 4: Research Model

III. METHODOLOGY

SAMPLING AND INSTRUMENT DEVELOPMENT

Between January and June 2021, 589 workers in Ghana's upstream oil and gas sector who were based in Takoradi's Jubilee Field in the country's western region provided quantitative data. In order to represent the interest in project responsibilities and risk assessment knowledge of upstream oil and gas personnel, respondents were purposively sampled (Patton, 2002). A five-point Likert scale with a range of 1 to 5 was used to ask respondents how much they agreed and disagreed with each statement (strongly disagree to strongly agree). The multi-scales adapted from Narver and Slater's (1990) intelligence production and dissemination model were used to assess project accident risk and staff roles. The questionnaire was pre-tested for easy responses to research statements in order to assure validity (Saunders et al., 2009). Twenty participants took part in the pilot testing from the Takoradi oil and gas sector, which shares traits with Takoradi due to their proximity and the fact that they are both major oil and gas centers.

IV. DATA ANALYSIS AND RESULTS

DESCRIPTIVE STATISTICS AND NORMALITY ANALYSIS

Under the staff attitude towards accident risk assessment, there were six questions, and the descriptive statistics as shown in Table 1 reveal that the range of values for the means and standard deviation ranged from (mean = 3.01 to 3.46, SD = 0.92 to 1.07). Each item was rated above neutral as all the estimated means were above 3.00, suggesting that there is a high level of agreement in the response provided. According to the results of the six items (see Appendix I for a description of the scales used), SREAT 1 was highly rated with an estimated mean value of 3.46, while SREAT 5 had the lowest estimated mean value of 3.01. As shown, all six items under "Staff Attitude Toward Accident Risk Assessment" have skewness and kurtosis values ranging from (Skewness = 0.47 to -0.72, Kurtosis = -0.72 to 0.64)—an indication that normality is achieved. This means that the data obtained on staff attitudes toward accident risk assessment is close enough to normal to indicate that a statistical tool can be used without concern.

Item	Mean	Std. Deviation	Skewness	Kurtosis
Staff role employee attitude				
SREAT1	3.46	0.95	0.47	-0.42
SREAT2	3.24	0.96	0.55	-0.43
SREAT3	3.15	0.95	0.76	0.09
SREAT4	3.06	0.97	0.94	0.47
SREAT5	3.01	0.92	0.91	0.64
SREAT6	3.33	1.07	0.50	-0.72

This table shows the descriptive and normality statistics of responses obtained from the employees in the upstream oil and gas industry in Ghana for employee attitude towards accident risk assessment, indicating the data is normal and can be used statistically.

Source: Field Data (2022)

Table 1: Descriptive Statistics and Normality Analysis for Employees' Attitudinal Roles Toward Project Accident Risk Assessment

As shown in Table 2, the estimated mean and standard deviation for the eleven items in the staff accident risk assessment compliance ranged from (mean = 2.81 to 4.24; SD = 0.57 to 1.03). According to the results, SREC 1 had the lowest mean value of 2.81, which is less than 3.01, indicating that respondents disagreed with the item. Aside from SREC 1, the rest of the items were highly rated above 3.0, suggesting that there is some level of agreement (refer to Appendix I for a description of the scales used). Among the 11 items in the constructs, item SREC 3 received the highest rating. Also, the normality of the responses was computed, and the results suggest that all items have skewness and kurtosis within the recommended range of -2.00 to 2.00, indicating that normality was achieved. which means that the data obtained under staff accident risk assessment compliance is close enough to normal to indicate that a statistical tool can be used without concern.

Item	Mean	Std. Deviation	Skewness	Kurtosis
Staff role employee compliance				
SREC1	2.81	0.79	0.93	1.05
SREC2	3.66	0.97	0.27	-0.81
SREC3	4.24	0.96	-0.43	-0.68
SREC4	3.53	0.99	0.44	-0.43
SREC5	3.67	1.03	0.30	-0.88
SREC6	3.73	0.84	0.32	-0.33
SREC7	3.86	0.90	0.13	-0.78
SREC8	3.84	0.57	1.54	1.87
SREC9	3.74	0.89	1.41	1.74
SREC10	3.94	0.98	1.45	1.67
SREC11	3.87	0.77	1.47	1.64

The responses collected from workers in Ghana's upstream oil and gas industry as part of employee project accident risk assessment compliance are shown in this table, together with statistics confirming their normalcy and suitability for statistical analysis.

Source: Field Data (2022)

Table 2: Descriptive Statistics and Normality Analysis for Employee Accident Risk Assessment Compliance

The study created six items (SREAW1 through SREAW6), with the mean and standard deviation ranging from (mean = 3.00 to 4.10; SD = 0.69 to 0.96), as shown in Table 3. It can be observed that all items were rated highly (above 3.00), an indication that there is a high level of agreement with the responses provided. For instance, SREAW 1 recorded an estimated mean value of 4.07 and a deviation of 0.70, an indication of agreement. Furthermore, the results indicate that all items have skewness and kurtosis between -2.000 and 2.000, indicating that normalcy has been achieved. This means that the data obtained under the staff accident risk awareness was close enough to normal to mean that the statistical tool can be used without concern.

Item	Mean	Std. Deviation	Skewness	Kurtosis
Staff role employee awareness				
SREAW1	4.07	0.70	-0.90	1.95
SREAW2	4.10	0.69	-0.37	-0.03
SREAW3	2.72	0.89	0.33	-0.43
SREAW4	3.09	0.92	-0.27	-0.69
SREAW5	3.00	0.95	-0.07	-0.87
SREAW6	3.03	0.96	-0.09	-0.92

This table shows the descriptive and normality statistics of responses obtained from the employees in the upstream oil and gas industry in Ghana under employee project accident risk awareness, indicating the data is normal and can be used statistically.

Source: Field Data (2022)

Table 3: Descriptive Statistics and Normality Analysis for Employee's Accident Risk Awareness

This section presents the results of the descriptive statistics on the risk assignment items. The study made use of five items ranging from AccRA1 to AccRA5 (Appendix I gives a detailed description of AccRA1–AccRA5). As evidenced in the results, the estimated mean and deviation for all the items ranged from (mean = 3.75–3.88; SD = 0.73–0.77; as indicated in Table 4). This suggests a high level of agreement, as the estimated mean values were above neutral. As shown, the estimated mean and deviation for item 1 (AccRA1) are estimated to be (mean = 3.75; SD = 0.77). The results also display the skewness and kurtosis information, as all the estimated values were within the acceptable range of -2.00 -2.00. Hence, normality is achieved. This suggests that the data obtained under accident risk assessment was near normal enough that statistical tools may be utilized without fear.

Item	Mean	Std. Deviation	Skewness	Kurtosis
Risk Assessment				
AccRA1	3.75	0.77	-0.79	1.19
AccRA2	3.88	0.73	-0.98	1.21
AccRA3	3.88	0.75	-0.71	1.30
AccRA4	3.75	0.77	-0.79	1.19
AccRA5	3.75	0.73	-0.75	1.32

The descriptive statistics and normality statistics of the replies from Ghanaian upstream oil and gas sector workers collected as part of a project accident risk assessment are shown in the table above, which demonstrates that the data is valid and suitable for statistical use.

Source: Field Data (2022)

Table 4: Descriptive Statistics and Normality Analysis for Accident Risk Assessment

The study presents a summary of the project time performance data, as shown in Table 5. Five things, from Prp 1 to Prp 5, were involved, as depicted (Appendix I gives a detailed description of Prp 1–5). The items were predicted to have a mean between 2.73 and 3.65 and a standard deviation between 0.71 and 0.97. This outcome demonstrates that the items were largely agreed upon by the respondents. Furthermore, skewness and kurtosis were used to assess normalcy, and the results show that all of the items had skewness and kurtosis ranges between - 0.98 and 0.16 and -0.99 and 0.77, respectively, indicating normalcy. This means that the statistical tool may be used without hesitation because the data obtained under project time performance was sufficiently near normal.

Item	**Mean**	**Std. Deviation**	**Skewness**	**Kurtosis**
Project Time Performance				
Prp 1	3.31	0.82	- 0.54	- 0.61
Prp 2	2.73	0.71	0.16	- 0.99
Prp 3	3.65	0.91	- 0.98	0.77
Prp 4	3.14	0.96	- 0.19	- 0.89
Prp 5	3.17	0.97	- 0.20	- 0.86

The table above provides descriptive statistics and normality statistics of the responses from Ghanaian upstream oil and gas sector personnel that were gathered as part of a project-time performance, demonstrating that the data is valid and appropriate for statistical use.

Source: Field Data (2022)

Table 5: Descriptive Statistics and Normality Analysis for Project Time Performance

ISSN: 2394-4404

ANALYSIS OF RELIABILITY AND VALIDITY

A construct's reliability in the structural model was accessible using the Composite Reliability (CR), which assesses a construct's reliability in the measurement model. The CR provides a more retroactive method for assessing overall dependability and calculates the consistency of the concept itself, including stability and equivalence (Hair, Black, Babin, Anderson, & Tatham, 2014). A reliability score of at least 0.70 is regarded as acceptable for adequate scale reliability. The reliability value ranges from 0.00 to 1.00. (Hair et al., 2014). The findings for composite reliability are displayed in Table 6 under the CR. Assuming that all latent variables have acceptable reliability, the composite reliability of all latent variables has a reading above 0.70, with values ranging from 0.809 to 0.943. As a result, the item scale exhibits a high degree of internal consistency.

Convergent and discriminant validity are the two categories of validity. According to Hair et al. (2014), discriminant validity measures how truly separate or independent a concept is from other constructs, whereas convergent validity measures the degree to which indicators of a given construct converge or share a significant percentage of variation (Hair et al., 2014). According to the findings of the confirmatory factor analysis, the results of the study, as given in Table 6, reveal the item loading and coefficient of determination through the factor loading coefficient. To calculate how much variation is explained by each item in the structural model, Hair et al. (2014) recommended that the item loading be at least 0.50. According to the results, the items' loadings varied from 0.619 to 0.934, and the R-squared value was between 0.384 and 0.872. This implies that convergent validity has been achieved. By contrasting the average variance extracted (AVE) value with the correlation squared, it was possible to determine the constructs' independence (Fornell & Larcker, 1981). According to Table 6, in order for two constructs to meet the criteria for discriminant validity, their AVEs must be larger than the square of the correlation between them. On the table's diagonal, the square root of the AVE is displayed. There was discriminant validity since no associations were equal to or larger than the square root of the AVE. Each AVE value is found to be greater than the correlation square, supporting discriminant validity or, in other words, the absence of multicollinearity (Byrne, 2001).

	CR	AVE	MSV	MaxR (H)	1	2	3	4
1. Employee attitude	0.938	0.719	0.077	0.951	*0.848*			
2. Risk Assessment	0.903	0.652	0.011	0.924	-0.007	0.807		
3. Employee awareness	0.886	0.663	0.158	0.915	-0.277***	0.076	0.814	
4.Employee compliance	0.819	0.531	0.126	0.821	-0.184**	-0.041	0.355***	0.729

The table displays the validity and reliability of the scales that were employed in the study to support the case for their usage in assessing project accident risk and personnel roles in Ghana's upstream oil and gas sector.

Significance of Correlations: † $p < 0.100$; $p < 0.050$; ** $p < 0.010$;*** $p < 0.001$*

Source: Field Data (2022)

Table 6: Model Reliability and Validity Measures

The findings of Hypothesis 1's examination of the impact of staff attitude on accident risk assessment point to a positive and substantial relationship between staff attitude and project accident risk assessment (*$\beta = 0.375$, CR = 6.920, p-value = 0.000*). Hence, hypothesis one is positive and supportive, as indicated in Table 7. This finding suggests that employee attitudes in the upstream oil and gas industry can influence how accident risk is assessed. In other words, if the staff has a positive attitude, accident risk assessment can be performed effectively. However, if the staff does not have a positive attitude, an accident risk assessment will not be performed effectively and may result in accidents in the upstream oil and gas industry.

In hypothesis 2, the impact of staff awareness on accident risk assessment was investigated. The findings demonstrate that staff awareness positively and significantly influences the estimation of accident risk. (*$\beta = 0.405$, CR = 7.736, p-value = 0.000*). So, according to Table 7, hypothesis two is correct and helpful. This research suggests that staff accident risk in the upstream oil and gas sector might affect how accident risk is assessed. To put it another way, a good accident risk assessment may be carried out if the workforce is thoroughly aware of the numerous accident hazards through education and training. However, an accident risk assessment will not be carried out correctly and may result in fatalities in the upstream oil and gas business if the staff is not made aware of the numerous accident hazards.

The analysis of Hypothesis 3's link between staff compliance and accident risk assessment reveals that staff compliance has a positive and substantial impact on accident risk assessment. (*$\beta = 0.503$, CR = 7.499, p-value = 0.000*). In light of this, hypothesis three is positive and supportive, as indicated in Table 7. This suggests that the upstream oil and gas business will experience a drop in accidents as more workers adhere to laws and regulations related to accident risk assessment.

Variable	*Estimate(β)*	*S.E.*	*C.R.*	*p-value*	*Remark*
Employee Role					
H1. Employee Attitude	0.375	0.054	6.920	0.000	Support
H2. Employee Awareness	0.405	0.052	7.736	0.000	Support
H3. Employee Compliance	0.503	0.067	7.499	0.000	Support

This table illustrates the relationships between project accident risk assessment and employee roles (i.e., Attitude, Awareness, and Compliance) in the Ghanaian upstream oil and gas sector.

Note: Dependent Variable: Project Accident Risk Assessment

Source: Field Data (2022)

Table 7: Relationship Between Employee Various Roles and Accident Risk Assessment in Ghana's Upstream Oil and Gas Industry

The findings in Table 8 demonstrate that Hypothesis 1 is correct, with an inverse connection between project time performance and accident risk assessment (*$\beta = -0.353$, CR = -4.196, p-value = 0.000*). This indicates that the hypothesis was statistically significant and supported at a 5% level. This shows that when accident risk assessment is done correctly, there won't be any incidents, resulting in projects finishing on time. However, ineffective accident risk assessment in the upstream oil and gas sector can result in project delays since unforeseen incidents might either stop or delay the operation.

	Path	(β)	S.E.	C.R.	Pvalue	Remark
H 4	Accident risk assessment → Project Time Performance	-0.353	0.110	-4.196	0.000	Support

β is standardized weight; SE is standard error; CR is critical ratio

Source: Field Data (2021)

Table 8: Relationship Between Accident Risk Assessment and Project Time Performance.

V. DISCUSSION AND CONCLUSION

Hartono et al. (2019) looked at the effect of project accident risk assessment management on CPP in the same environment. According to the findings of their study, using project accident risk assessment management methods significantly improves the likelihood that a project will be completed on schedule. Additionally, they demonstrate how having an accident risk manager on staff has a favorable effect on project completion times. Practically speaking, project managers and accident risk managers must pay close attention to project uncertainties, employ project accident risk assessment management approaches, and have a thorough understanding of the business environment in order to achieve success. While Abazid and Harb (2018) conducted their research in order to acquire a thorough conception of accident risk and the effects it has on project-related sectors and necessary management operations. A project accident could alter the organization's goals or possibly make it impossible for the business to compete in all markets, including upstream oil and gas (Asanka and Ranasinghe, 2015). The social and economic effects of project accidents on businesses, people, and their families as a whole can be extremely catastrophic (Elsebaei et al. 2020). According to Okorie and Aigbavboa (2016), construction site accidents are the main reason why affected enterprises go out of business. The expenditures that companies bear also serve to highlight the effects of accidents, according to DeCamp and Herskovitz's (2015) report. Workers' compensation, case management, the use of paid time off or sick time, short- and/or long-term disability, worker replacement costs (i.e., training staff to replace the injured worker), as well as the time and money expended investigating the accident and implementing any necessary corrective measures, which may include changing policies or upgrading equipment, are all costs that need to be taken into account. The coworkers of the victim will likewise feel unhappy and unmotivated to do their assigned activities, according to Elsebaei et al. (2020).

According to Lawrence's (2015) research, project timeline performance was impacted by the control of accident risk throughout the planning stage. It is recommended that more emphasis be placed on planning accident risk assessment management in accordance with their effects and influences, as well as on communication and project accident risk assessment management by developing plans for efficient accident risk assessment communication and accident risk handling when undertaking projects (Cross, 2019).

The positive contribution of employees' attitudes to accident risk assessment (see Table 7) is supported by Garira (2020), who stated that employers recognize that employees' actions and behaviors have a significant impact on how well they estimate the risk of accidents. Furthermore, Stanton et al. (2005) discovered that, while inappropriate and destructive behavior can significantly reduce the efficacy of accident risk assessment, right and constructive behavior can significantly increase it. A worker's attitude toward accident risk assessment is highly correlated with their attitude in the upstream oil and gas industry, according to the reviewed scientific literature (Harrison, Mullen, and Green, 1992; Adler, Matthews, 1994; Van der Pligt, 1994; Norman, Conner, 1994; Armitage, Conner, 2000; Chaiklin, 2011).

The positive contribution of employee awareness to accident risk assessment (see Table 7) is supported by the findings of Falola and his colleagues (2014), which showed a substantial association between accident risk awareness and employees' performance on accident risk assessments, indicating the beneficial contribution of employee awareness to accident risk assessment. A study on employee awareness programs was conducted by Adeniji et al. (2012), who discovered that they had a positive impact on accident risk assessment. In their 2015 study, Bin Atan et al. looked at how awareness affects worker performance. The findings revealed a strong relationship between employees' performance on accident risk assessment and effective accident risk awareness. According to the findings of Chatzoglou and Diamantidis (2014), the design of an awareness program has the most impact on how well company employees understand the dangers of accidents.

The positive contribution of employees' compliance with accident risk assessment (see Table 7) is supported by Lama's (2013) study, which also demonstrated that there is a direct link between employee compliance and the firm's effectiveness in assessing accident risk as measured by cost, quality, return on equity, earning yield, and return on assets. The reason for the conformance-performance relationship was developed by this relationship. Employee compliance improves the accuracy of accident risk assessments, according to studies by Adowa and Okereke (2013), Arasa and Ottichilo (2015), Berisha-Vokshi, Xhelili-Krasniqi, and Ujkani (2015), Bokpin (2013), and Juhmani (2012). However, there was no discernible connection between employee compliance and the effectiveness of the company's accident risk assessment, according to Street and Bryant (2000) and Glaum and Street (2003). Studies by Das (2014), Hassan (2013), Omar (2015), and Peterson (2013) all showed a substantial correlation between compliance and the accuracy of accident risk assessments, supporting this. According to Lama (2013) and Tan (2015), two crucial components of corporate governance are compliance and accident risk assessment performance. The study is also consistent with other comparable research that has also shown a connection between compliance and the effectiveness of business accident risk assessment, including those by Dickinson, Sullivan, and Stock, Zacharias, and Schnellbaecher in 2013 and 2017, respectively.

The positive contribution of employee awareness to accident risk assessment (see Table 8) is supported by the findings of Al Ajmi & Makinde (2018). According to them, an examination of past research revealed a strong connection between project success and accident risk management. "A bigger risk may lead to a larger reward" is a remark to that effect. Reduced accident risks will result in a more efficient use of project time. The impact of project accident risk assessment management on construction project planning was examined by Hartono et al. in 2019, which is also supported by the research findings. Their study's conclusions state that adopting project accident risk assessment management techniques greatly increases the probability that a project will be finished on time. They also show how faster project completion times are a benefit of having an accident risk manager on the team. In order to succeed, project managers and accident risk managers need to be acutely aware of project uncertainties, use project accident risk assessment management techniques, and have a solid awareness of the business environment.

VI. CONCLUSION

An organization in the upstream oil and gas industry may execute any method to reduce or completely prevent the possibility of an accident happening or having a detrimental effect on the firm. As a result, the evaluation of accident risks identifies areas that require management. The study showed that employees in the Ghanaian upstream oil and gas industry perform their roles up to expectations in the area of complying with the various accident risk assessments; they also have the right attitude towards accident risk assessment, and they are also very aware of the accident risk assessment procedures in the upstream oil and gas industry. This is to say that the work culture of non-management staff in the Ghanaian upstream oil and gas industry is not different from the work culture of developed upstream oil and gas economies. Finally, the study discovered that in Ghana's upstream oil and gas business, a developing country, accident risk assessment had an effect on project time performance. This means that once an accident risk assessment is properly conducted, projects in the upstream oil and gas industry will always be finished on time.

REFERENCES

[1] Abazid, M., & Harb, H. (2018). An Overview of Risk Management in the Construction Projects. Academic Research International. 9(1).
[2] Adeniji, M. A. (2002). An Analysis of Human Resources Development Programs in Two Selected Nigerian University Libraries. (Master's Thesis, Department of Library and Information Studies, University of Ibadan). Retrieved from: https://www.academia.edu/29954513/The_Effect_of_Manpower_Training_and_Development_on_Officers_Morale_in_Nigeria_Paramilitary_A_Case_Study_of_Nigerian_Police_Force_in_Ogun_state
[3] Adjapong, E. O. (2018). Oil and Gas Production In Ghana: Blessing or Curse? Large. Stanford. Edu. Retrieved from: http://large.stanford.edu/courses/2018/ph240/owusu-adjapong2/
[4] Adler, N., & Matthews, K. (1994). Health Psychology: Why Do Some People Get Sick and Some Stay Well? Annual Review of Psychology. Vol. 45(1), 1, 229–259. doi:10.1146/ annurev.ps.45.020194.001305
[5] Adowa, B. D., & Okereke, C. (2013). Can Environmental Performance Rating Programs Succeed in Africa? An Evaluation of Ghana's AKOBEN Project. Management of Environmental Quality, 24(5), 599-618. doi: http://dx.doi.org/10.1108/MEQ-01-2012-0003.
[6] Ajzen, I. (1985). From Intentions to Actions: A Theory of Planned Behavior in Action Control: From Cognition to Behavior, eds. J. Kuhl and J. Beckmann. SSSP Springer Series in Social Psychology. – Springer, Berlin, Heidelberg. 11–39. doi: 10.1007/978-3-642-69746-3_2
[7] Al-Ajmi, H. F., & Makinde, E. (2018). Risk Management in Construction Projects. Journal of Advanced Management Science Vol, 6(2).
[8] Al-Bahar, J. F., & Crandall, K. C. (1990). Systematic Risk Management Approach for Construction Projects, J. Constr. Eng. M., 116, 533 - 46. https://doi.org/10.1061/(ASCE)0733-9364(1990)116:3(533)
[9] Al-Taweel, L. M. (2015). Measuring the Gap Between the Syrian Accounting Qualifications and the International Accounting Education Based on IES 2 and IES 3. The Economics and Finance Letters, 2(3), 24-34. Retrieved from: https://doi.org/10.18488/journal.29/2015.2.3/29.3.24.34
[10] Ampofo, O. Y. (2017). Occupational Health Bill Will Protect Workers – Minister. Citi fm online. Retrieved from http://citifmonline.com
[11] An, J., & Peng, S. (2016). Layout Optimization of Natural Gas Network Planning: Synchronizing Minimum Risk Loss with the Total Cost. Journal of Natural Gas Science and Engineering, 33, 255-263. doi: 10.1016/j.jngse.2016.05.017
[12] Arasa, R., & Ottichilo, L. (2015). Determinants of Know Your Customer (KYC) Compliance Among Commercial Banks in Kenya. Journal of Economics and Behavioral Studies, 7(2), 162-175.
[13] Armitage, C. J., & Conner, M. (2000). Social Cognition Models and Health Behavior: A Structured Review Psychology & Health. 15(2), 173–189. doi:10.1080/08870440008400299
[14] Arthur, J. (1994). Effects of Human Resource Systems on Manufacturing Performance and Turnover. Academy of Management Journal, 37 (3), 670 - 687.
[15] Asanka, W. A., & Ranasinghe, M. (2015). Study on the Impact of Accidents on Construction Projects. In 6th International Conference on Structural Engineering and Construction Management. p. 58 – 67.
[16] Baslom, M. M. M., & Tong, S. (2019). Knowledge Management (KM) Practices in Education and Learning: Establishing a Knowledge Economy in Saudi Arabia. Humanities and Social Sciences Letters, 7(1), 1 - 9. https://doi.org/10.18488/journal.73.2019.71.1.9
[17] Belout, A. (1998, February). Effects of Human Resource Management on Project Effectiveness and Success:

Toward a New Conceptual Framework. International Journal of Project Management, pp. 21-26.
[18] Belout, A., & Gauvreau, C. (2004, January). Factors Influencing Project Success: The Impact of Human Resource Management. International Journal of Project Management, pp. 1-11.
[19] Ben-David, I. & Raz, T. (2001). An Integrated Approach for Risk Response Development in Project Planning. J. Oper. Res. Soc. 52, 14 – 25.
[20] Berisha-Vokshi, N., Xhelili-Krasniqi, F., & Ujkani, S. (2015). Evaluation of Accounting Legal Regulation and its Role in the Quality of Financial Reporting: An Actual Overview in Republic of Kosovo. 427-431.
[21] Bin Atan, J., Raghavan, S., & Mahmood, N. (2015). Impact of Training on Employees' Job Performance: A Case Study of Malaysian Small Medium Enterprise. Review of Management, 5(1/2), 40-50.
[22] Bokpin, G. A. (2013). Determinants and Value Relevance of Corporate Disclosure. Journal of Applied Accounting Research,14(2), 127-146. doi: http://dx.doi.org/10.1108/09675421311291883.
[23] Breckler, S. J. (1984). Empirical Validation of Affect, Behavior, and Cognition as Distinct Components of Attitude. Journal of Personality and Social Psychology. 47(6), 1191 – 1205. doi:10.1037/0022- 3514.47.6.1191
[24] Bredin, K., & Söderlund, J. (2011). Human Resource Management in Project-Based Organization: The HR Quadriad Framework. Basingstoke: Palgrave Macmillan.
[25] Byrne, B. M. (2001). Structural Equation Modeling with AMOS: Basic Concepts, Applications, and Programming. Mahwah, NJ: Lawrence Erlbaum Associates.
[26] Chaiklin, H. (2011). Attitudes, Behavior, and Social Practice. The Journal of Sociology & Social Welfare. 38(1). 31 – 54.
[27] Cross, O., & Cross., D. (2019). Effect of Project Management on the Performance of Selected Construction Firms in Nigeria. 2347 - 3002.
[28] Das, M. (2014). Effectiveness of Quality Management Practices and Domain Quality Certification in Indian IT Companies: A comparative study. The International Journal of Business & Management, 2(3), 45-48.
[29] DeCamp W., & Herskovitz K. (2015). The Theories of Accident Causation. In: Security Supervision and Management. Oxford, UK: Butterworth Heinemann; p. 71 – 78.
[30] Diamantidis, A., & Chatzoglou, P. (2014). Employee Post-training Behavior and Performance: Evaluating the Results of the Training Process. International Journal of Training & Development, 18(3), 149- 170.
[31] Eagly, A. H., & Chaiken, S. (1993). The Psychology of Attitudes. – Wadsworth Publishing Company
[32] East, R., Singh, J., Wright, M., & Vanhuele, M. (2016). Consumer Behavior: Applications in Marketing. – SAGE.
[33] Edelman, L. & Talesh, S. (2011). To Comply or Not to Comply — That isn’t the Question: How Organizations Construct the Meaning of Compliance. In: Parker, C. and Nielsen, V. L. (eds). Explaining Compliance: Business Responses to Regulation. Edward Elgar, Cheltenham, United Kingdom
[34] Edwards, K. (1990). The Interplay of Affect and Cognition in Attitude Formation and Change. Journal of Personality and Social Psychology. 59(2), 202–216. doi:10.1037/0022-3514.59.2.202
[35] Elsebaei, M., Elnawawy, O., Othman A. A. E, & Badawy, M. (2020). Causes and Impacts of Site Accidents in the Egyptian Construction Industry. International Journal of Construction Management. 20:1 – 12.
[36] Elsebaei, M., Elnawawy, O., Othman A. A. E, & Badawy, M. (2020). Causes and Impacts of Site Accidents in the Egyptian Construction Industry. International Journal of Construction Management. 20:1 – 12.
[37] Eyayo, F. (2014), Evaluation of Occupational Health Hazards among Oil Industry Workers: A Case Study of Refinery Workers, IOSR Journal of Environmental Science, Toxicology, and Food Technology, Volume 8, Issue
[38] Falola, H. O., Osibanjo, A. O & Ojo, S. I. (2014). Effectiveness of Training and Development on Employees’ Performance and Organization Competitiveness in the Nigerian Banking Industry. Bulletin of the Transilvania University of Braşov Series V: Economic Sciences, 7 (56), 162 - 170.
[39] Foorthuis, R., Hofman, F., Brinkkemper, S., & Bos, R. (2012). Compliance Assessments of Projects Adhering to Enterprise Architecture. Journal of Database Management, 23(2), 44 – 71. https://doi.org/10.4018/jdm.2012040103
[40] Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. Journal of Marketing Research, 18(1), 39–50. https://doi.org/10.2307/3151312
[41] Garira, E. (2020). A Proposed Unified Conceptual Framework for Quality of Education in Schools. SAGE Open, 10(1), 2158244019899445. https://doi.org/10.1177/2158244019899445
[42] Glaum, M., & Street, D. L. (2003). Compliance with the Disclosure Requirements of Germany’s New Market: IAS versus US GAAP. Journal of International Financial Management & Accounting, 14(1), 64-100.
[43] Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Ebscohost. (2014). Multivariate Data
[44] Harris, F. & McCaffer, R. (2013). Modern Construction Management. 7th Edition, John Willey and Sons, 243-249. Retrieved from: https://www.scirp.org/(S(351jmb
[45] Harrison, J. A., Mullen, P. D., & Green, L. W. (1992). A Meta-Analysis of Studies of the Health Belief Model with Adults. Health Education Research. 7(1), 107 –116. doi:10.1093/her/7.1.107
[46] Hartono, B., Wijaya, D. F., & Arini, H. M. (2019). The Impact of Project Risk Management Maturity on Performance: Complexity as a Moderating Variable. International Journal of Engineering Business Management, 11, 1847979019855504.
[47] Hassan, M. (2013). The Influence of Corporate Governance Structures on Compliance with Mandatory IFRSs Disclosure Requirements in the Jordanian Context. International Journal of Research in Business and Social Science, 2(3), 14-25.

[48] Hughes, P., & Ferrett, E. (2012). Introduction to Health and Safety in Construction. Routledge.
[49] Ishak, K. (2016). A Factor Analysis Approach Towards a Study of the Factors Affecting Students' Choice of Higher Education Institution: A Case Study of a Private Institution (Twintech International University College of Technology). Journal of Social Economics Research, 3(2), 21 - 30. https://doi.org/10.18488/journal.35/2016.3.2/35.2.21.30
[50] Juhmani, O. I. (2012). Factors Influencing the Extent of Corporate Compliance with IFRS: Evidence from Companies Listed in Bahrain Stock Exchange. Journal of International Business and Economics, 12(2), 67-79.
[51] Kamyab, S. H. (2014). The Entrepreneurship, Knowledge Spillover and Economic Growth. International Journal of Sustainable Development & World Policy, 3(2), 45 - 54.
[52] KarimiAzari, A., Mousavi, N., Mousavi, S. F., & Hosseini, S. (2011). Risk Assessment Model Selection in Construction Industry. Expert Syst. Appl., 38, 9105 - 9111. https://doi.org/10.1016/j.eswa.2010.12.110
[53] Klapproth, F., & Martin, R. (2018). Predictors of the Drop in School Marks in Secondary School: Evidence for Effects of Students' Socio-Demographic Background. International Journal of Education and Practice, 6(3), 147 - 166. https://doi.org/10.18488/journal.61.2018. 63.147. 166
[54] Klinke, A. – Renn, O. (2002): A New Approach to Risk Evaluation and Management: Risk-Based, Precaution-Based, and Discourse-Based Strategies. Risk Analysis. Vol. 22, No. 6
[55] Lama, T. B. (2013). Empirical Evidence on the Link Between Compliance with Management and Construction Engineering (iCCPMCE-2018), 03-06, December 2018, Sydney, Australia, 104- 109.
[56] Liu, J., Zhao, X., & Yan, P. (2016). Risk Paths in International Construction Projects: Case Study from Chinese Contractors. J. Constr. Eng. M., 142, 05016002. https://doi.org/10.1061/(ASCE)CO.1943-7862.0001116
[57] Lundin, R. A., Arvidsson, N., Brady, T., Ekstedt, E., Midler, C., &Sydow, J. (2015). Managing and Working in Project Society: Institutional Challenges of Temporary Organizations. Cambridge: Cambridge University Press
[58] Maio, G., Haddock, G., & Verplanken, B. (2019). The Psychology of Attitudes & Attitude Change. – Sage Publications
[59] McBride, M., & Collinson, G. (2011). Governance of Process Safety within a Global Energy Company. Loss Prevention Bulletin, (217), 15-25.
[60] Meghouar, H. (2014). French Students of Maghreb Background and Entrepreneurship. International Journal of Business, Economics and Management, 1(7), 125 - 135.
[61] Meswani, H. (2008). Safety and Occupational Health: Challenges and Opportunities in Emerging Economies. Indian Journal of Occupational and Environmental Medicine, 12(1), 3. https://doi.org/10.4103/0019-5278.40808
[62] Narver, J. C., & Slater, S. F. (1990). The Effect of a Market Orientation on Business Profitability. Journal of Marketing, 54(4), 20–35.
[63] Nazri, M. N. M., Hamid, Z., & Muslim, H. (2014). The Inclination of Information and Communication Technology (ICT) Students Towards Entrepreneurship. International Journal of Management and Sustainability, 3(8), 484 - 492.
[64] Norman, P., & Conner, M. (1994). Attendance at Health Checks and the Role of Past Behavior in Attitude-Behavior Models. – Paper Presented at the 8th European Health Psychology Society Conference, Alicante, July
[65] Obi, M. N., & Okekeokosisi, J. (2018). Extent of Implementation of National Entrepreneurship Curriculum in Tertiary Institutions as Perceived by Educators. American Journal of Education and Learning, 3(2), 108-115. https://doi.org/10.20448/804.3.2.108.115
[66] Ojuola, J., Mostafa, S., & Mohamed, S. (2019). Construction Safety Leadership: A Complexity Perspective. In Proceedings of the 1st International Conference on Construction Project
[67] Ojuola, J., Mostafa, S., & Mohamed, S. (2020b). Investigating the Role of Leadership in Safety Outcomes Within Oil and Gas Organizations. In Safety and Reliability, 1-13. Taylor & Francis. doi:10.1080/09617353.2020.1759259.
[68] Okorie V. N., & Aigbavboa C. O. (2016). The Economic and Social Impacts of Site Accidents on the Small and Medium Sized Construction Companies in Nigeria. Paper Presented at 5th International Conference on Infrastructure Development in Africa, ICIDA. Johannesburg, South Africa. p. 505 – 513.
[69] Olusegun A, Benson O, Esther A, & Michael A. (2011). Corruption in the Construction Industry of Nigeria: Causes and Solutions. Journal of Emerging Trends in Economics and Management Sciences, Vol. 2, No. 3, pp156-159.
[70] Omar, B. (2015). The Changes of Disclosure on Compliance with the New Relations in Jordan. International Business Research, 8(2), 155-172. Retrieved from http://search.proquest.com/docview/1658410266?accountid=62746.
[71] Pálinkás, P. (2011). The Application of Risk Management Procedures in the Agriculture of the European Union. Ph.D. Thesis. Ph.D. School of Financial Management and Organizational Studies of Szent István University, Gödöllő
[72] Parker, C., & Nielsen, V. L. (2011). Explaining Compliance: Business Responses to Regulation. Edward Elgar, Cheltenham, United Kingdom
[73] Parker, C., & Nielsen, V. L. (2017). Compliance: 14 questions. In: Drahos, P. (ed.). Regulatory Theory: Foundations and Applications. Australian National University Press, Canberra: 217 - 232
[74] Patton. M. Q. (2002). Qualitative Research and Evaluation Methods (3rd ed.). Thousand Oaks, CA: Sage Publications.
[75] Paul, M. (2014). Ensuring Quality Provision of Education for All: Discovering Challenges Faced by Teachers of Students with Learning Disabilities in Regular Primary Schools in Masvingo District. International Journal of Public Policy and Administration Research, 1(1), 26 - 37

[76] Paulsen, R. (2016). Slipping into Functional Stupidity: The Bifocality of Organizational Compliance. Hum. Relat. 70 (2), 185 – 210. doi:10.1177/0018726716649246
[77] Peterson, E. A. (2013). Compliance and Ethics Programs: Competitive Advantage Through the Law. Journal of Management & Governance, 17(4), 1027-1045.
[78] Petty, R. E., Fabrigar, L. R., & Wegener, D. T. (1997). Attitudes and Attitude Change. Annual Review of Psychology. Vol. 48, 609 – 647. doi: 10.1146/annurev.psych
[79] Pinheiro, A., Cranor, B. D., & Anderson, D. O. (2011). Assessing Risk: A Simplified Methodology for Pre-job Planning in Oil & Gas Production. Professional Safety, 56(09), 34- 41.
[80] Pinto, J. K. (2007). Project Management: Achieving Competitive Advantage. Pearson/Prentice. (n.d.). Retrieved July 10, 2022. Retrieved from: http://www.sciepub.com/reference/323322
[81] Reiman, T., & Oedewald, P. (2007). Assessment of Complex Sociotechnical Systems: Theoretical Issues Concerning the Use of Organizational Culture and Organizational Core Task Concepts. Safety Science, 45(7), 745-768.
[82] Robb, M., & Miller, G. (2012). Human Factors Engineering in Oil and Gas-A Review of Industry Guidance. Work, 41(Supplement 1), 752-762.
[83] Salimath, M. G., & Kavitha, B. R., (2016). Facets of Employee Engagement - A Literature Review. IJEMR, Vol 6 Issue 06 - Online - ISSN 2249 – 2585 Print - ISSN 2249-8672 1 www.aeph.in.
[84] Sanghera, P. (2019). Certified Associate in Project Management Study Guide for the CAPM® Exam. San Francisco: A press.
[85] Saunders, M., Lewis, P., and Thornhill, A. (2009) Research Methods for Business Students. Pearson, New York.
[86] Shaw, K. (2005). An Engagement Strategy Process for Communicators. Strategic Communication Management, 9(3): 26 - 29
[87] Shivakumar, S. K. (2018). Complete Guide to Digital Project Management - From Pre-Sales to Post-Production. Bangalore: A press.
[88] Solís-Carcaño, R. G., Corona-Suárez, G. A., & García-Ibarra, A. J. (2015). The Use of Project Time Management Processes and the Schedule Performance of Construction Projects in Mexico. Journal of Construction Engineering. Retrieved from: https://www.hindawi.com/journals/jcen/2015/868479/
[89] Solomon, M. R. (2004). Consumer Behavior: Buying, Having, and Being. – Upper Saddle River, NJ.
[90] Stanton, J. M., Stam, K. R., Mastrangelo, P., & Jolton, J. (2005). Analysis of End-user Security Behaviors. Computers & Security, 24(2): 124 - 133.
[91] Street, D. L., & Bryant, S. M. (2000). Disclosure Level and Compliance with IASs: A Comparison of Companies with and without US Listings and Filings. The International Journal of Accounting, 35(3), 305-329.
[92] Sydow, J., Lindkvist, L., & DeFillippi, R. (2004). Project-Based Organizations, Embeddedness and Repositories of Knowledge: Editorial. Organizations Studies, pp. 1475-1489.
[93] Tan, J. B. (2015). Compliance to Corporate Governance Among Publicly-Listed Companies in the Philippines. Business and Economics Journal, 6(1), 1-4.
[94] Tonnquist, B. (2009). Project Management - A Complete Guide. Aarhus: Academica.
[95] Van der Pligt, J. (1994). Risk Appraisal and Health Behavior / In Social Psychology and Health: European Perspectives, pp. 131 – 152.
[96] Wayne, D. H., & Deborah, J. M. (2008). Consumer Behavior. In Cengage Learning Customer & Sales Support.
[97] Wayne, D. H., Deborah, J. M., & Rik, P. (2018). Consumer Behavior / In Cengage Learning Customer & Sales Support.
[98] Weick, K. E. (1995). Sensemaking in Organizations (Vol. 3). Sage.
[99] Winch, G. M. (2010). Managing Construction Projects. John Wiley & Sons.
[100] Wright, C., & Gallun, R. A, (2008). Fundamentals of Oil and Gas Accounting (5th ed. PennWell. 2008).
[101] Wright, T. A., & Cropanzano, R. (2000). Psychological Well-being and Job Satisfaction as Predictors of Job Performance. Journal of Occupational Health Psychology, 5(1): 84 - 94.
[102] Wu, D., Li, J., Xia, T., Bao, C., Zhao, Y., & Dai, Q. (2018). A Multi Objective Optimization Method Considering Process Risk Correlation for Project Risk Response Planning. Inf. Sci. 467, 282 – 295.
[103] Zajonc, R. B., & Markus, H. (1982). Affective and Cognitive Factors in Preferences. Journal of Consumer Research. 9(2), 123 – 131. doi:10.1086/208905.
[104] Zavadskas, E. K., Turskis, Z., & Tamošaitiene, J., (2010). Risk Assessment of Construction Projects. Journal of Civil Engineering and Management, 16(1), 33 - 46.
[105] Zeng, J., An, M., & Chan, A. H. C. (2005). A Fuzzy Reasoning Decision Making Approach Based Multi-Expert Judgement for Construction Project Risk Analysis. In Proceedings of the Twenty-first Annual Conference. Association of Researchers in Construction Management (ARCOM). London, UK. 841 - 52.
[106] Zeng, J., An, M., & Smith, N. J., (2007). Application of a Fuzzy Based Decision-Making Methodology to Construction Project Risk Assessment. International Journal of Project Management, 25(6), 589 - 600.
[107] Swathi, S., (2014). Employee Engagement and Attrition. The International Journal of Business & Management. (ISSN 2321 – 8916), 183-187
[108] Etzioni, A. (1975). A comprehensive analysis of complex organizations (rev. ed.). New York, NY: Free Press.