

Impact Of Personnel Safety Training On Employee Involvement And Participation In Workplace Safety Management

Bolatiwa Adunni Olokede¹, Francis Ezieshi Monyei² and Wilfred Isioma Ukpere*³

Abstract

To better understand the required intervention to enhance employee engagement in the workplace and the effectiveness of personnel safety training, a quantitative research approach was used in this paper, which examined the Nigerian manufacturing industry. The self-administered questionnaire for the survey portion of the research was created using the five-point Likert scale approach and utilized the "drop-off and pick-up" method to get the necessary data. This tool guarantees that the researcher's objectives are measured by the questionnaire and that it is simple to reproduce the results. To gather the necessary data for this study, a sample of 663 participants from 211 carefully chosen manufacturing workplaces, 196 of which were registered and 15 of which were not, was drawn from three state capitals in Nigeria: Ikeja (Lagos), Akure (Ondo), and Ibadan (Oyo state). The survey was assessed using the Statistical Package for Social Sciences, version 26, correlation and multiple regression analytical techniques. Findings revealed that there is a huge positive impact¹ of personnel safety training on employee involvement and participation in the safety management of the workplace. Thus, the study recommended that stakeholders of the under-studied workplace must ensure the training of personnel and also carry them along in the design of safety policies, as this is proven to heighten their wilful involvement and participation in the safety management of the firm.

Keywords: Safety training, Employee participation and involvement, Management, Personnel, Workplace.

INTRODUCTION

The ILO mandates safe and healthy workplaces as a basic human right, regardless of economic circumstances, yet incidences occur regularly with significant damage to human and material resources. Even though work-related accidents are a global problem, developed countries have made significant progress in devising strategies to curb and prevent them (ILO, 2016; Abubakar, 2015). This is because personnel safety training is a top priority on the national agendas of these developed countries, while infrastructure is systematically improved, and preventative measures are taken seriously. Given the prevalence of serious workplace accidents worldwide, the quality of employee safety training in the majority of companies has drawn significant attention in recent years (Haslam, Haefeli, & Haslam, 2010; Samanta & Gochhayat, 2023). An estimated 2.3 million workers are affected by industrial accidents each year, according to the International Labour Organisation (ILO), which keeps an eye on workplace health and safety throughout the world (ILO, 2016). In developing nations, safety issues and endeavours fall short of legal requirements. Yet, they experienced over 80% of the global burden of occupational incidences, with work-related injury threats ten to twenty times greater than developed economies (Agbola, 2012; Tadesse & Kumie, 2007). Sub-Saharan

Africa has the lowest workplace safety standards in the world, with the highest incidence of fatal accidents per 1,000 personnel. In poor countries, workplace safety management is still in its infancy, and those in charge of making things better do not seem to care about the appalling state of affairs (Adeyemi, Akinyemi, Musa & Olorunfemi, 2016). Monyei,

^{1,2,3}Department of Psychology and People Management, College of Business and Economics University of Johannesburg,

Arachie and Ukpere (2023) claim that workplace accidents and injuries are expected to overtake natural causes of mortality as the second biggest cause of death globally by 2020 as a result of this concerning trend (Gyekye, 2006). Furthermore, these incidences directly harm society, the government, the environment, and the employment of people (Kumie, Amera, Berhane Samet, Hundal, Michael & Gilliland, 2016). It is, therefore, remarkable that despite its repercussions, personnel safety training or practices remain haphazard in many nations, while the number of incidents and other work-related injuries remains high across industries (Vuorio, Rantanen, Johnson, Ollila, Salminen & Braithwaite, 2014). The data from incident reports strongly suggests that workplace safety is primarily compromised by several fundamental reasons, including safety ignorance, apathy towards safety, a lack of adequate safe work processes, and management errors. This underscores the need to manage occupational health and safety beyond these isolated incidents (Yorio & Wachter, 2014; Adeogun & Okafor, 2013). Adeyemi et al., (2016) claim that workplace incidents are strongly correlated with employee's involvement or participation in safety management. Certain employees lacked basic safety knowledge, abilities, and competence, while others had compromised their safety to follow the supervisor's instructions, even when doing so meant sacrificing their safety to keep their jobs. Due to a lack of awareness of safety precautions or apathy, several workers failed to take full advantage of safety training programmes even in workplaces where their employers had offered it (Vuorio et al., 2014). The problem is exacerbated by employees' indifference to getting involved and participating in workplace safety. Thus, recurring incidents cast doubt on the actuality of management's obligation to establish a safe work environment. In addition, they draw attention to their managerial approaches, which may indicate a leadership deficiency in workplace safety, whilst exposing management safety values in the employment relations domain to scrutiny (Oyelohunnu, 2009). It is interesting to note that while developed economies continue to press for improvements in personnel safety training and employee participation in workplace safety at all costs, workplace safety management appears to be increasingly difficult in developing nations, particularly in various industrial sectors (Abubakar, 2015). This also seems to have affected how business executives and subordinates approach safety concerns because safety perceptions are founded on beliefs that zero-safety tolerance is unrealistic. It is, therefore, expected of these business executives, to mandate strict adherence to workplace safety practices by ensuring that safety is embedded in company objectives (Orazulike, 2016). Employees' unsafe behavioural patterns predict workplace incidents. Consequently, the high number of workplace incidents within developing countries, particularly in Sub-Saharan regions, attests to the failure of company executives and administrators towards ensuring a safe working environment. This suggests possible loopholes in company practices within the workplace and personnel safety training domain, as well as an infringement of international conventions such as the ILO and WHO agreements. The problem is that the current situation is unlikely to improve without active safety interventions from key stakeholders, including business executives, workforces, national governments, and international agencies, given the increasing shifts in workplace characteristics, prevailing employment arrangements, and widespread negligence of employees in complying with safety requirements. Moreover, the apparent weakness of safety legislation, intervention or its enforcement in the developing nations allows firms to compromise safety requirements in their bid to earn super-normal profits, thereby increasing the prevalence of safety infractions in many workplaces (Monyei, Ukpere & Nnabugwu, 2023). Indeed, workplace incidents call for more research into current safety training, policies, and reforms, which may eventually result in the discovery of additional tactics and measures to curb its growing occurrences (Lewis-Beck & Alford, 1980). This course of action is essential because it seems that current initiatives to address personnel safety training and issues are compromised and rendered ineffective by a persistent lack of involvement and participation of the workforce, together with company interruptions and inadequacies.

Hence, given the foregoing narratives, the clear need for empirical study of personnel safety training and the active involvement and participation of the workforce is pertinent. Additionally, this should help with required actions to inspire the development and application of efficient safety management in the workplace, and its enforcement by business executives, as these are prerequisite antidotes for workplace and workforce unsafe behaviours.

LITERATURE REVIEW

Theoretical Underpinning - The Ability, Motivation and Opportunity Theory (AMO)

The AMO theory of performance postulates that people's ability to exhibit adequate performance is dependent on their capacity to function, their drive to complete tasks, and the availability of opportunities for participation (Boselie & Van Der Wiele, 2002). The theory has emphasised the significance of taking these factors into account within its framework to enhance workforce results. The idea states that the availability of opportunities for engagement in the work environment, the presence of relevant capabilities such as skills and competencies, and suitable motivation are all important for achieving optimal employee performance (Jiang, Lepak, Hu, & Baer, 2012). Consequently, this lays the foundation for the creation of compassionate human capital development (HCD) plans that meet the needs and competencies of the staff while also increasing their motivation to produce their best work with quality outputs. Employees who possess the knowledge, skills, and competencies to perform assigned tasks, tend to demonstrate a greater willingness and confidence to perform such tasks (Jiang et al., 2012). This degree of self-assurance at work has been linked to a rise in their sense of self-efficacy, which empowers people to contribute effectively, particularly when these behaviours are maintained in a suitable work environment. As such, there is evidence to support the hypothesis that improved personnel outcomes are positively connected with well-designed HCD initiatives, especially those that foster opportunity, inspire, and improve skills. Furthermore, businesses stand a better chance of realising their objectives when personnel are managed using practises that yield these crucial factors. The assumptions of the AMO theory demonstrate a wide range of applicability in explaining and predicting various workplace behaviours and relationships (Reader, Mearns, Lopes & Kuha, 2017). According to scholars, the elements of ability, motivation, and opportunities are defined by the repetition of trades between two or more persons that are mutually dependent and generate obligations (e.g., tasks, accomplishment, and fair gains) (Reader et al., 2017). Broadly speaking, the theory is relevant because employment relations, as well as the strategies used to manage the pool of human capital, are based on a series of exchanges in which one party is more likely to reciprocate the deeds of another party, based on the task assigned. The AMO's underlying theory, when this is combined with the idea of personnel safety training, is that when an organisation shows real concern for the health and safety of its workers (also known as a positive safety workplace), those workers are more likely to develop implicit obligations to return the favour by getting involved in and contributing to safety behaviours that are advantageous to the company. Additionally, besides carrying out their primary work duties, they may also extend their behaviour to fulfil additional roles by establishing safety protocols (Neal & Griffin, 2006). Thus the AMO theory supports the expected relationship between the examined constructs (personnel safety training and workforce involvement).

Conceptual Understanding of Safety Training Practices and Performance Outcomes

Training is an essential HCD activity that has been shown to improve numerous determinants of workplace outcomes (Dlamini, Zogli & Lawa, 2022; Bal, Bozkurt & Ertemsir, 2013). It describes the systematic process for developing knowledge and skills needed to competently perform tasks while improving attitude and knowledge to ensure effective performance. Within the parlance of organisational management, it is recognised as a crucial strategic initiative for a company to effectively address the disparity between the requirements of executing a task proficiently and the enhancement of workforce capabilities through skill improvement, thereby facilitating advancements in work conduct and operational outcomes. These practises have been observed to surpass the typical stipulations of work skill prerequisites. However, they do function as an asset in facilitating increased autonomy and drive for discretionary action (Dlamini et al., 2022).

The Role of Education and Training in Workplace Safety Management

Monyei, Aiyelabegun, Kelvin-Iloafu and Ukpere (2023) posit that workplace accidents in

developing nations are largely caused by inept strategy, inconsistent sustainability practices and inadequate safety training and skills. Therefore, since workplace safety training and education improve working environment and conditions, the WHO recommends the training of all workforce cadre who may be affected by health and safety issues as part of the global plan to improve working conditions (WHO, 2007). However, it is shown that training may not always lead to excellent attitudes and behaviours and may be limited in particular instances. Dijik, Bubas and Smits (2015) assert that poor personnel safety training in terms of amount and quality can make it difficult to educate and inform workers. Whereas, when different independent methods are added to the chosen method of training or instruction, both the capacity and the quality of the training improve. Dijik et al., (2015) further suggest the integration of interactive e-learning modules, video conferences, remote learning, participatory workshops, educational plays, and other online facilities to increase training coverage, quality, efficiency, and adherence. This is because when properly trained, workers can engage in the company's safety initiatives and achieve the desired objectives. Nevertheless, education and training alone cannot solve the complexity of workplace safety without laws, inspections, and total prevention programmes that engage workers and employers to improve working conditions (Dijik et al., 2015). The rational model of safety and health promotion states that several elements improve workplace and personnel safety (WHO, 2007), and of these, compelling workplaces to follow environmental/societal safety requirements has been asserted to improve health/wellbeing and safety management (Idubor & Oisamoje, 2013). Thus, given its emphasis on safety, employee safety training programmes must be created to increase workers' awareness of safety issues, teach them how to follow workplace safety management policies and procedures to avoid accidents, and equip them with the knowledge and skills needed to handle potential risks at work (Dlamini et al., 2022; Laberge, MacEachen & Calvet, 2014). Personnel safety training is a planned effort to influence or shape safety attitudes or behaviour, which appears to contribute to most incident avoidance. Instructions on how to recognise and manage work dangers, standard work procedures, the proper use of safety equipment, and other preventative measures are typically included in such activities. Additionally, it makes it easier to create safety targets and encourage staff efficacy in promoting safety. Empirical data substantiates the correlation between safety training and enhanced workplace commitment, employee engagement, better service quality, innovation, and firm profitability (Osman, HO & Carmen Galang, 2011; Bal et al., 2013; Mushayi, Deacon, & Smallwood, 2018; Laberge et al., 2014). Concerning safety, studies have linked it with reduced workplace safety incidences because of improved ability, skills, and aptitudes in terms of risk prevention and control, as well as overall personnel safety behaviours. Similarly, investing in safety training is argued to provide both economic and socio-humanistic dividends to the organisation. In terms of its socio-humanistic advantages, it encourages teamwork and coordination among employees, which is essential for instilling appropriate behaviour and fostering collaborative efforts to prevent the occurrence of some preventable incidents (Dlamini et al., 2022; Bal et al., 2013). It also motivates staff members and reinforces their sense of security. Laberge et al., (2014) underline that the training benefits for employees are reliant on safety awareness goals, intent, and methodology. Most personnel safety training and education methods are trainer-centred and unidirectional, making them inefficient. Burke and Signal (2010) argue it is more effective when learners are engaged rather than passively acquiring knowledge through lectures and films. Safety training should enhance technical and professional abilities, according to Bena, Berchiolla, Coffano, Debernardi, and Icardi (2009), who also suggests that safety training

characteristics and goals might forecast the program's efficacy. WHO (2007) and Dijik et al. (2015) discovered that better outcomes are obtained when workers are given the freedom to use new skills rather than just being taught safety. Thus, to learn from their jobs, people need to possess cross-disciplinary skills and experience. According to these researchers, people are better able to choose, discuss, share, and recognise their limitations as well as information and skills. Additionally, workers' non-participation, lack of commitment, or involvement with safety training is predicted by their unhappiness with training methodologies and frameworks (Dijik et al., 2015).

Linking Employee Involvement, Participation, and Performance Outcomes to Safety Management

A behaviour-based method called "employee involvement" or "participation" tries to include individuals or groups in the upward communication and decision-making processes inside an organisation (Vredenburg, 2002). According to Jiang et al. (2012), this practice has been seen as an element of an organization's supporting policies that give staff members the chance to provide input on organisational processes, especially those that aim to improve working conditions. This approach is seen as a chance to enhance the HCD package, which inspires workers to support organisational objectives. In a similar vein, it is seen as a sign that a company values its workers' potential and recognises their importance in achieving organisational objectives. It has been demonstrated that when workers feel their efforts are appreciated and acknowledged, their work takes on greater significance and they become more committed to their jobs. Burke and Signal (2010) state that giving workers a say in how their responsibilities are designed as well as how safety management procedures are implemented, tracked, and reviewed will probably help them feel more invested in the programmes. As a result, they frequently exhibit greater determination in their attempts to lower workplace injuries and accidents. According to Ford and Tetrick (2008), psychological empowerment results from involving staff members in safety committees and other aspects of the safety management process. This enhances the organization's performance in terms of safety. Subramaniam, Shamsudin, Zin, Ramalu, and Hassan (2016) claim that encouraging safety participation is a facilitating or supportive mechanism to encourage workers to perform safe work actions. Additionally, it is said that one of the key factors influencing employee commitment is providing opportunities for their input in decision-making. According to Farndale, Van Ruiten, Kelliher, and Hope-Hailey (2011), employees who are given the chance to engage in or contribute to organisational decisions, as well as those who are encouraged to express concerns and offer ideas to improve their well-being at work, are more likely to strongly believe in the organization's values and goals and to be willing to put in more effort to achieve those goals. Overall, Soomro, Gilal, and Jatoi (2011) found that employee participation is well-established in the HCD practice areas that are positively correlated with employee performance and, of course, overall organisational performance. Evidence, however, indicates that these strategies must be proactive to be effective. It is proposed that for the plan to yield the intended effects, employees must accept their worth and have hope for it (Vredenburg, 2002). According to Subramaniam et al. (2016), managers may effectively support employee engagement when they foster an environment that allows employees to freely engage in discretionary conduct. More significantly, research indicates that workers view an environment at work where employee input is encouraged as a sign that management is open to change. Therefore, in addition to creating an atmosphere that encourages employee participation, people are more engaged in the objectives of the company when they can shape decisions. This helps people embrace, trust, and identify with the aims of the business, which in turn increases their drive to stay committed and contribute to the success of the organisation (Farndale et al., 2011).

RESEARCH METHODOLOGY

From the perspective of the Nigerian manufacturing industry, this paper used a quantitative research approach to examine the required intervention to improve the effectiveness of employee engagement in the workplace and personnel safety training. A self-administered questionnaire using the "drop-off and pick-up" approach was used to

gather the necessary data for the survey phase of the study. The questionnaire was created using a five-point Likert scale method, with the options being strongly disagree (1), disagree (2), neutral (3), agree (4), and strongly agree (5). The study employed a pre-existing questionnaire that was modified from earlier validated surveys to gather responses from the participants regarding the topics covered by the study constructs. For the fact that a standard questionnaire has already been tested for dependability and validated in previous research, it was modified for use in this study. This tool guarantees easy replication of the results and that the questionnaire assesses the things the researcher wishes to measure. To

gather the necessary data for this study, a sample of 663 participants from 211 carefully chosen manufacturing workplaces, 196 of which were registered and 15 of which were not, was drawn from three state capitals in Nigeria, namely Ikeja (Lagos), Akure (Ondo), and Ibadan (Oyo state). In keeping with research ethics, the employees' anonymity was carefully preserved throughout the investigation process. Using basic random probability sampling and non-probabilistic sampling, three workers from each industry were chosen at random to represent participants in the manufacturing workplace who were registered and those who were not. To ascertain the questionnaire's contextual relevance, researchers evaluated the content specificity of the survey. The questions were revalidated and their suitability for the Nigerian manufacturing context was evaluated during the piloting process. The survey was assessed using the Statistical Package for Social Sciences, version 26, correlation and multiple regression analytical techniques.

Data Analyses

Table 1: Respondents' Perceptions of Safety Training Practices in the Manufacturing Industry

Statements on Safety Training (ST)	Strongly Disagree (SD)	Disagree (D)	Neutral (N)	Agree (A)	Strongly Agree	Mean	Std. Deviation	Ranking
ST1 ← Employees at my organisation receive thorough training on workplace health and safety matters.	4.1 %	11.2 %	14.0 %	46.2 %	24.5 %	3.76	1.069	2
Recruits in ST2 → have sufficient training to understand safety protocols.	4.5 %	12.6 %	13.1 %	47.6 %	22.2 %	3.70	1.085	4
ST3→ In training programmes, safety concerns are given first importance.	4.5 %	8.9%	15.9 %	47.0 %	23.7 %	3.76	1.051	1
ST4 → I possess the necessary training to handle situations at work.	3.3 %	15.9 %	13.4 %	45.6 %	21.8 %	3.67	1.084	5
ST5 → The management promotes employees' participation in safety education courses.	5.6 %	13.1 %	12.9 %	41.7 %	26.7 %	3.71	1.158	3
ST6 →I have obtained sufficient safety training to enable me to evaluate workplace hazards.	9.2 %	12.3 %	11.9 %	40.9 %	25.7 %	3.62	1.246	6
Total		3.703	.90897					

Source: Researcher's fieldwork

It is pertinent to presents respondents' accounts of the variable items, which were deployed to investigate the availability and application of safety training in relation to their safety behaviours. These expressed perceptions are illustrated in Table 1 above. In Table 1, the first safety training item (ST1), indicates respondents' views about the quality of safety training offered to them in terms of its comprehensiveness, stating: "My company provides comprehensive training to employees around workplace health and safety issues". In light of this, the findings show that almost 15% of the respondents disagreed with the statement's assertions (SD = 4.1% + D = 11.2%), where "D" denotes disagreement and "SD" strongly disagrees. Additionally, according to the data, 71% of respondents agreed that their employer should give workers thorough training on health and safety issues at work (A = 46.2% + SA = 24.5%), with 14% remaining neutral,

indicating that they had doubts about the assertion. According to Table 1 above, a

significant portion of participants (about 71%) agreed with the ST1 item, indicating that employers have to give blue-collar employees thorough training on workplace health and safety issues. Furthermore, the statistical analysis revealed that the response outlook had a moderately high mean score of (3.76 1.07, which is consistent with the fact that a greater proportion of blue-collar workers reported that their employers provided them with sufficient and thorough safety training to help them resolve health and safety-related issues at work. About the variable item (ST2), which aimed to ascertain whether recently hired staff members are properly trained to understand safety protocols and guidelines, the findings indicate that roughly 17% of the participants disagreed with this statement (SD = 4.5% + D = 12.6%). On the other hand, while 13.1% of respondents expressed no opinion, over 70% of respondents felt that recruits receive sufficient training on safety regulations and procedures (A = roughly 48% + SA = approximately 22%). The high degree of agreement implied by this item indicates that many blue-collar workers agree that newly hired staff members had sufficient training to understand safety policies and procedures. The reasonably high mean score of 3.70 1.09 derived from their responses, which showed that many of the factory workers in this study agreed that newly hired workers were trained and are therefore informed about safety laws and procedures, supporting the high rate of acknowledgement. The obtained standard deviation score for this comment (3.70 1.09) shows a unified opinion among blue-collar manufacturing workers since a majority agreed with the statement. About the extent of priority given to safety issues in training programmes (ST3), the results demonstrate that about 13% of the respondents did not agree that high priority is given to safety issues in the offered safety training at their companies (SD = 4.5 + D = 8.9%). Additionally, it reveals that roughly 71% of respondents agreed with the claim, while roughly 16% of respondents decided to remain neutral regarding this statement item (A = 47% + SA = 23.7%). The large percentage of respondents who agreed with this statement suggests that most of them thought safety issues should be given top priority in the safety training programmes their firms set up for them. It was noted that the mean value was 3.76 1.05, which is moderately high considering the good feedback on this assertion. The data indicates that a significant number of factory workers had good perceptions about the importance of safety problems being covered in the safety training that their employers provided. Hence, it could be further deduced from the expressed views that there would be a better drive towards working safely, considering that high priority is already given to safety issues in the training programmes. The 4th variable item (ST4) probed respondents' perceptions about the content of safety training through the statement: "I am adequately trained to respond to emergencies in my workplace". Accordingly, around 19% of the respondents disagreed with the statement (SD = 3.3% + D = 15.9%). About 13% of the respondents remained neutral in this respect, while close to 67% maintained that they are adequately trained to respond to emergencies (A = 45.6% + SA = 21.8%). The greater percentage of employees who felt that guidance and skills on how to handle safety emergencies at work are part of the safety training they receive (about 67%) is indicative of the higher positive answer rate for this item. A quite high mean score of 3.67 1.08 was recorded, supporting the majority's assertion. This score indicates that factory workers generally feel that the safety training content is sufficient and readily available for their emergency reaction preparation. Furthermore, the disposition of management towards the effectiveness of safety training was examined through the variable item (ST5), namely: "Management encourages workers to attend safety training programmes." The presented views for this statement show that 19% of the respondents did not agree that management does encourage workers to attend safety training programmes (SD = 5.6% + D = 13.1%). Meanwhile, about 68% of the respondents confirmed that this statement is true (SA = 26.7% + A = 41.7%), while about 13% refrained from commenting on this statement by choosing a neutral standpoint. The high number of participants who agreed with this statement indicates that there was a notable consensus amongst participants that employees are encouraged to attend the safety training that the workplace provides. Conversely, responses concerning the ST5 item were supported by a moderately high mean (3.71 1.16), confirming the broad agreement among the blue-collar workers that they were motivated to attend organised safety training at their factories. Concerning the

sixth item, which probed the adequacy of safety training provided concerning its capacity

to impact the workers' ability to assess hazards at the workplace and in practical terms, the statement claimed the following: "The safety training that I have received is adequate to enable me to assess hazards in the workplace". Accordingly, it was revealed that about 22% of the respondents did not agree that such provisions are available in the safety training that they receive (SD = 9.2% + D = 12.3%). About 12% of the respondents were indifferent towards this statement and chose to remain neutral, which could be because they have not had access to this type of safety training or perhaps because they have not attended any safety training programme. However, about 67% of the respondents agreed with the statement, with 41.7% expressing simple agreement and 26.7% expressing strong agreement. The high number of people who declared that their safety training increased their potential to assess workplace hazards (approximately 67%) sufficiently suggests that the workplace safety training addressed hazards or work risks, ensuring that employees are prepared to tackle any arising safety concerns. The responses were supported by a moderately high mean value of 3.62 1.25, equally congruent with the high level of agreement with the claims that safety training can increase employees' abilities to address workplace hazard assessment procedures. It also suggests that there is a higher degree of unity in respect of its practicality to empower employees towards addressing work hazards, which is ideal for upholding a safe workplace. Meanwhile, judging by the ratings of the different statements, which were established through mean assessments (from highest to lowest), the third variable item (ST3), namely: "Safety issues are afforded high priority in training programmes," was revealed as the highest-ranked item (Table 1) with a mean value of 3.76 1.05. The lowest-ranked statement was item six (ST6): "The safety training that I have received is adequate to enable me to assess hazards in the workplace," with a mean score of 3.62 1.25. All the statements had significant mean scores of 3.62 and above, implying that the responses leaned more towards agreeing than disagreeing. According to the above ratings, it appears that the best assessment of safety training in Nigeria's manufacturing context lies more in the content of safety training concerning the extent to which training programmes exhibit safety priority. Respondents' responses concerning the availability and quality of safety incentive management practices are presented in the following sub-section.

Table 2: Perceptions of Employee Involvement and Participation Practice and Safety Performance

Statements (EIP)	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)	Mean	Std. Dev.	Ranking
EIP1 → Before making final decisions on safety-related problems, management always solicits feedback from employees.	6.2	19.0	22.5	39.2	13.1	3.34	1.115	5
EIP2 → Employees and management representatives make up the safety committees at my workplace.	4.2	13.4	19.5	43.4	19.5	3.61	1.073	2
EIP3 → The management encourages staff participation in safety-related issues.	4.5	16.1	20.9	43.1	15.4	3.49	1.074	4
EIP4 → Employees and management often discuss matters about workplace health and safety.	3.3	15.6	18.4	44.8	17.9	3.59	1.054	3

EIP5 → My place of employment genuinely permits employee participation on safety-related issues.	3.7	12.6	17.0	43.8	22.8	3.69	1.07 1	1
Total						3.54 2	.907 3	

Source: Researcher’s fieldwork

The respondents’ perceptions of the application of EIP as a management practice to motivate safety behaviour in Nigeria’s manufacturing industry are presented in this section. Their responses concerning the level at which they are allowed to be involved in and participate in safety activities are shown in Table 2 above. As shown in this table (2), the first variable item (EIP1) investigated whether management (individuals at the highest level of management with designated authority to manage an organisation's daily operations) welcomed opinions from employees before making final decisions on safety-related matters. The responses highlighted that about 52% of the respondents agreed with this statement (A = 39.2% + SA = 13.1%), while about 23% remained neutral. However, about 25% disagreed with the statement's claims (SD = 6.2% + D = 19%). A moderately high mean (3.34 1.12) supported this account, which matched the results. This implies that although there appeared to be mixed responses to this statement, many workers agreed that several companies’ management structures in Nigeria’s manufacturing industry welcomed employees’ opinions before making safety-related decisions. Regarding item EIP2 in Table 2 above, which read: "Employees and management representatives make up the safety committees at my workplace", the responses show that about 18% of the respondents disagreed with this statement (SD = 4.2% + D = 13.4%), around 20% of respondents remained neutral, and about 63% agreed (A = 43.4% + SA = 19.5%). The responses reveal a somewhat high mean (3.61 1.07), indicating that a significant number of participants agreed that safety committees consisting of management and employee representatives exist at Nigerian manufacturing companies. Similarly, item EIP3 investigated whether management encourages staff participation in safety-related issues. Therefore, the data indicates that roughly 21% of respondents disagreed with the statement (SD = 5% + D = 16%), roughly 21% were neutral, and 59% agreed (A = 43.1% + SA = 15.4%). Some respondents remained neutral. The moderately high mean score of 3.49 1.07 obtained from all of these responses indicates that the majority of respondents agreed with the statement. It also suggests that a larger percentage of blue-collar workers acknowledged that management does involve employees in safety-related matters in Nigeria’s manufacturing workplaces. Regarding item EIP4, namely: About 19% of respondents disputed that management often talks with staff about workplace health and safety concerns in their firms (SD = 3.3% + D = 15.6%). Management does communicate with staff about workplace health and safety issues regularly. Around 18% remained neutral, while about 63% agreed with this claim (A = 44.8% + SA = 17.9%). A somewhat high mean score (3.59 1.05) corroborated these responses, suggesting that a sizable portion of these factory workers (63%) agreed that management routinely meets with staff members on matters about workplace health and safety. It equally suggests the possibility that many employees experienced this kind of managerial goodwill in several companies in Nigeria’s manufacturing industry. In the same way, the variable item, EIP5, considered whether employees are allowed to take part in safety issues at work. Based on the responses, about 17% of the respondents said that this kind of opportunity was not available at their workplace, hence disagreeing with the statement, while 4% strongly disagreed and about 13% disagreed. Conversely, about 67% agreed that they do indeed receive this privilege at their workplace (A = 43.8% + SA = 22.8%). However, about 18% of the workers remained neutral regarding the statement. This data was created with a reasonably high mean score (3.69 1.07), indicating that blue-collar workers were more unanimous in their perception that workers are genuinely permitted to engage in workplace safety problems. The ranking position of the variable items engaged in measuring EIP (Table 2) showed that the most recognised measure of EIP was EIP5, namely: "Employees at my workplace are sincerely allowed to participate in safety matters," resulted in a mean score of 3.69 1.07. EIP1,

namely: In the context of the study, the least measure of this EIP practice was "Management always invites ideas from employees before making final decisions on safety-related topics," which had the lowest score (3.34 1.12). Although all of the items are potential mechanisms to encourage employees to be involved in and participate in safety, the ranked positions and their moderately high mean values suggest that the freedom granted to employees to sincerely participate in safety matters is best supported as a critical path that motivates employee safety performance in this industry. The results of the subsequent variable (safety climate) and the replies received are shown in the following section. These variables address

employees' perceptions about the level of commitment shown by top management as a demonstration of their genuine interest in safety at work, portraying the organisation's existing safety climate.

Factor Analysis

By convention, a primary consideration in running a factor analysis (FA) is to ensure that the employed datasets are suitable for the procedure in terms of sample size. In light of these prerequisites, the Kaiser-Meyer-Olkin (KMO) measure of sample adequacy and Bartlett's test of sphericity were often used as diagnostic methods to verify a dataset's appropriateness. A high KMO value indicates that there is a strong connection in the data. KMO tests quantify the percentage of variance among the variables that can be explained by the common variance. By determining whether or not the correlation matrix is an identity matrix, Bartlett's test of sphericity can be used to assess whether or not a dataset is suitable for factor analysis. An identity correlation matrix merely indicates that the variables are unrelated.

Table 3: Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's Test of Sphericity

KMO and Bartlett's Test			
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	Bartlett's Test of Sphericity		
.965	Approx. Chi-Square	Df	Sig
.	21699.405	946	.000

Source: Researcher's fieldwork

The data used is in line with the KMO measure of adequacy's requisite (Kaiser, 1974), according to Table 3's statistics. This means that the data involved must have coefficients ranging from 0 to 1, with values below 0.5 considered unacceptable, values near 0.6 considered good or acceptable, values between 0.7 and 0.8 considered adequate, and values above 0.9 considered excellent (Hair, Black, Babin & Anderson, 2018; Pallant, 2011). With an outstanding KMO index of 0.965, the KMO statistic provided in this study thus satisfied the sample adequacy criteria. The reported Bartlett's test of sphericity index for this study was deemed significant with an index value of 0.000 ($p < 0.05$), by Bartlett's test of sphericity guidelines, which dictates that the data should hold a significant p-value level of less than 0.05. The fact that the observed correlation matrix differed from an identity matrix at this level of significance suggests that the variables have a relationship with one another and are appropriate for structure detection (Pallant, 2011). Together with the figures, coefficients of 0.3 and above were provided in the created correlation matrix, which is included in the overall factor analysis results. Additionally, these data provide more proof that the analyses in this study were adequate. Furthermore, according to Pallant (2011), this statistical position is a suitable methodological criterion to confirm if the data are suitable for factor analysis (FA). According to the information above, the dataset used in this study was perfect for FA processes because it complied with the established guidelines and met the suggested statistical requirements in terms of sufficient sample size and appropriate correlation. This implies that the metrics captured the essence of what they were designed to quantify. Taking into account the information that came before, principal component analysis (PCA) was used to perform FA on the raw data. By using a factorial approach,

factors can be found or linear combinations that accurately reflect the relationships between the set of variables to be reached can be extracted. As a result, the varimax rotational technique with Kaiser Normalisation was utilised to adopt one of the commonly used extraction techniques, namely Kaiser's criterion or the Eigenvalue principle. Varimax rotation is a popular orthogonal rotation method that is effective in reducing the number of variables that have large loadings on each factor (Pallant, 2011). Beyond this use, it accommodates the statistical assumption in significant statistical analysis by enabling the created factors to be portrayed as uncorrelated. As an example, it offers the fundamental framework for

executing multiple regression analysis, where multicollinearity is a prerequisite. The primary idea behind factor analysis is demonstrated by its ability to isolate major factors from many observed variables. The provided eigenvalues allow for the detection of the precise amount of variance that each factor accounts for within the observed variables. Factors in this category should be kept in general, even though they can be utilised for other studies, as it is believed that any factor with an eigenvalue larger than or equal to 1 (≥ 1) illustrates the fact that it explains more variation than a single observable variable (Pallant, 2011). By this standard, Table 3 below shows the extracted components that were kept from the factor analysis that was done, along with their matching eigenvalues.

Table 4: Factor Analysis/Extracted Components Using the Total Variance Explained Output

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	19.894	45.215	45.215	5.203	11.826	11.826
2	2.900	6.590	51.805	4.356	9.900	21.726
3	1.986	4.515	56.320	4.302	9.778	31.504
4	1.784	4.055	60.374	4.010	9.113	40.616
5	1.301	2.956	63.330	3.721	8.456	49.073
6	1.221	2.776	66.106	3.498	7.951	57.024
7	1.084	2.464	68.570	3.090	7.022	64.046
8	1.006	2.287	70.857	2.997	6.812	70.857
9	.782	1.776	72.634			
10	.717	1.630	74.264			
11	.655	1.488	75.752			
12	.633	1.438	77.191			
13	.562	1.278	78.468			
14	.536	1.218	79.687			
15	.494	1.122	80.809			
16	.487	1.106	81.915			
17	.447	1.016	82.931			
18	.430	.977	83.907			

Source: Researcher's fieldwork

Table 4 shows that eight of the listed factors or components in FA have eigenvalues of 1 or more. By Kaiser's inclusion criteria for factor analyses to continue, these were the only components that met the criteria for further data analyses and were kept as acceptable principal components in this study. Also, the presented results (Table 4) show that there were differences between the initial eigenvalues and the eigenvalues of the components following rotation. Research suggests that these changes are normal and expected to occur because of the adjustment brought about by the engaged rotation procedure, wherein some

commands had to be inserted into the SPSS during factor analysis procedures (Pallant, 2011). Yet, it is stated that while some modifications may occur in eigenvalues, the amount of the total variance explained is expected to remain unchanged, as shown in the table. Hence, this suggests that the results are appropriate. In addition to the information in Table 4 above, the statistics show how much the different identified dimensions contribute to explaining the common variance. It is shown in the distribution list that the eight major factors in the component space accounted for about 70.9% of the overall variance, while the eigenvalues of these components ranged between 1.006 and 19.894. With an eigenvalue of 19.894, component 1 explained more of the total variance (45.2% of it) than any other component (70.9%); component 2 accounted for 6.6% with an eigenvalue of 2.900; component 3 contributed roughly 4.5% (eigenvalue of 1.986); component 4 about 4.1% (1.784); component 5 accounted for almost 3%, that is, 2.95% (1.301); the 6th component roughly about 2.8% (1.221); the 7th component contributed

about 2.5% (1.084); and the last component almost 2.3% towards the total variance with an eigenvalue of 1.006. Hair et al. (2012) state that a construct's total variance explained in the social sciences must be 60% or above for it to be considered valid in factor analysis. This principle indicates that this number was within the acceptable range, as demonstrated by the relevant data in this study's total variance score of roughly 71%. It equally upheld the adequacy of the extracted components.

Table 5: Pattern/Structure Coefficients of the Extracted Components

Factors	Item	Factor loadings	Eigenvalues	% of Variance
Factor 2: Safety training (ST)				
The management pushes employees to participate in safety training courses.	ST5	.746	2.900	6.590
Employees at my organisation receive thorough training on occupational health and safety problems.	ST1	.721		
I have the necessary training to handle situations at work.	ST4	.720		
My level of safety training is sufficient to enable me to evaluate workplace hazards.	ST6	.692		
Adequate training is provided to recruits so they can learn safety protocols.	ST2	.661		
Training programmes give top importance to safety concerns.	ST3	.633		
Factor 6: Employee involvement and participation (EIP)				
The management encourages staff participation in safety-related issues.	EIP3	.663	1.221	2.776
Employees and management often discuss matters about workplace health and safety.	EIP4	.624		
My place of employment genuinely permits employee participation in safety-related issues.	EIP5	.624		
Safety committees in my workplace are made up of both staff and management representatives.	EIP2	.603		
Before making final decisions on subjects about safety, management always solicits feedback from staff	EIP1	.531		

Factors	Item	Factor loadings	Eigenvalues	% of Variance
members.				
Total variance				9.366

Source: Researchers' fieldwork

Note. Extraction Method: Principal Component Analysis

Rotation Method: Varimax with Kaiser Normalization

A detailed account is presented in Table 5 above of the specific linear combinations of items regarding each of the extracted components with the factor loadings on each of the variables. The application of this presentation style is argued to be strongly preferable in illustrating the loadings and their associated factors when the varimax rotated solution is employed as a rotation technique (Pallant, 2011). Table 5 shows that the first component (S1) was about 45% (45.2%) of the total variance (70.9%). It has an eigenvalue of 19.894 and lists 8 questions (Q-2, Q-3, Q-4, Q-5, Q-6, Q-7, Q-8, and Q-9), while each of the other parts has a smaller value. The cumulative percentage of variance (70.9%) shows that the solution or extracted constructs have good commonalities, which are expected to be greater than 0.5. The result shows no issue with items loading on another or multiple factors, thus confirming the one-dimensionality of the measures. For example, the loaded items on the safety incentive construct (S1) conformed to what was presumed in the questionnaires (ranging from SI9–SI2). The data indicated that the variable items in each of the individual factors were highly correlated (as shown in the sufficient factor loadings on each of the constructs), which substantiates that the variables had adequate convergent and discriminant validity. In particular, the safety incentive items (SI) loaded well on this dimension, with eight listed items and satisfactory loadings (0.501; 0.503; 0.569; 0.682; 0.721; 0.784; 0.812; & 0.839). In other words, items that were labelled ST because they were thought to measure safety training loaded cleanly on the safety training construct,

with their high loadings being recorded only on this construct, which they were thought to measure. This means that these variables had good face validity and should be considered important when measuring the different factors that they were intended to measure. Also, the factor loadings on the different items ranged from 0.495 to 0.839, with only one loading with an index of 0.495. All the other loadings had values above 0.5. However, regarding the adequacy of the represented factor loading values, there were no fixed cut-offs for factor loadings. Recommend loadings of between 0.5 and 0.7, wherein item loadings of about 0.5 are passable, those in the threshold limit of 0.6 are deemed to be acceptable, and factor loadings of 0.7 and above are perceived to be most ideal, and for values above 0.5 are appropriate for better results. In addition to the existing suggestions, loadings in the threshold range of 0.5 and more are considered sufficiently significant for studies with sample sizes greater than 120. Nonetheless, the choice of cut-off limits might be best considered at the discretion of a researcher, based on logically supported grounds. Given the suggested acceptable loadings, the cut-off criterion of 0.5 was chosen in this study. As a result, all items with factor loadings of 0.5 and above were retained. Importantly, items with a minimum value loading of 0.5 were considered to maximise the number of constructs to be included in the current study. The decision to keep any item in such categories is anchored on the claims that deleting them may have no significant effects on the resulting factor loadings. Moreover, the adoption of a 0.5 threshold aligns with the rule of thumb. Against this background, the set criteria prevented the exclusion of any of the items from the obtained factors, except when such a removal was inevitable. The two constructs for this study consisted of independent and dependent variables: safety training (measured with six items); and employee involvement and participation (measured with five items). A dataset with reliably high communalities, where there are no cross-loadings and several of its variable items are cleanly loaded on a single individual factor, is a strong dataset. Therefore, the confirmed validity of the utilised constructs in this study indicates that the final factors were suitable and strong enough to measure the understudied variables amongst participants in the current study and the other analyses.

DISCUSSION

The study's findings differ from those of previous studies in Nigeria (Bello, Oyelaran, & Daniyan, 2022; Aluko et al., 2016; Orazulike, 2016) and developing countries (Jilcha & Kitaw, 2017; Kumie, Amara, Berhane, Samet, Hundal, Michael & Gilliland, 2016). According to these studies, the critical issues affecting workplace safety performance included an inadequate level of personnel safety training in terms of quality, content, focus, and so on. Besides this, the usual lack of consistent, comprehensive training on safety practises (Dijik et al., 2015), and sufficient skills to address safety issues, were noted (Aluko et al., 2016). As argued in extant studies, quality training programmes should inform employees about the nature of workplace hazards, the safety rules, and appropriate procedures in case of emergencies, whilst empowering workers to apply the learned knowledge in compliance with the set rules. It has been explicitly stated that the effectiveness of safety preparation through training should significantly decrease workplace accidents and injuries (Kumie et al., 2016). However, these positions differ from existing reports on workplace-related health, workplace hazards, and other safety-related problems in Nigeria, which have been established to be prevalent (Otitolaiye, Abd Aziz, Munauwar & Omer, 2021; Abere et al., 2017; Umeokafor, Evaggelinos, Lundy, Isaac, Allan, Igwegbe & Umeadi, 2014). The corpus of research indicates that employee performance at work is significantly impacted by promoting employee involvement and participation in organisational matters and procedures, particularly to enhance working conditions (Yorio & Watcher, 2014). According to the research, this behaviour suggests that companies have supportive policies that encourage workers to make significant contributions to the objectives of the company (Jiang et al., 2012; Soomro et al., 2011). It has been noted that such practices indicate an organisation's intention to create an effective bond with the employees and to show their recognition of employees' potential and value in achieving organisational goals. According to a report, employees who intensely perceive that their effort is appreciated and recognized, are likely to be more committed as work becomes more meaningful to such people and, in turn, facilitate improved focus on organisational expectations (Umeokafor et al., 2014).

CONCLUSION

Safety training has become increasingly recognized as a critical source to motivate employees' safety performance behaviour. It offers an apt avenue for providing the necessary safety investments to enhance task skills requirements, (knowledge, increased capacity to facilitate risk identification and knowing what to do). In addition, it is a systematic resource for improved discretion and incentives for discretionary efforts, which are all vital to preventing workplace safety incidents. Earlier studies highlighted that appropriate safety training increases the development of employees' capacities so that they can identify risks associated with their jobs to a large extent and are prepared to keep challenging situations under control as much as possible. However, the researchers noted that people's perceptions of its absolute contents or properties may influence their judged relevance and acceptance of its potential to stimulate desired performances. In the context of this study, blue-collar workers' perceptions of the effectiveness of workplace safety training to increase their safety performance behaviours were assessed. The findings revealed that many manufacturing workplaces have established safety training programmes to some extent. However, its alleged effect on encouraging positive safety performance behaviour is debatable. The participants' responses revealed mixed acknowledgements of the efficacy of this practice, although the expressed perceptions indicate possible exaggerated or feigned information. For example, though some of the participants interviewed expressed discontentment with the contents, scope, approach, styles, and conduct of safety training to the extent that the presumed use of this practice has become irrelevant or of little impact, the other surveyed respondents extolled its virtues. The employees' perceptions concerning the effectiveness of safety training were evaluated based on factors that included training quality in terms of comprehensiveness, coverage, content, context, and adequacy. The overall statistics from the present data showed that a vast majority of the respondents shared positive perceptions of the impact of safety training programmes on their work safety performances. All the safety training statements recorded high mean scores of 3.62 and above, accentuating that the responses leaned towards the

agreeing side. The claims demonstrated the quality of the espoused training, including that workers do receive comprehensive safety training with a direct focus on workplace health and safety issues (about 71%). Also, adequate training was provided to newly appointed employees or to those who were given new tasks and had to learn the safety rules and procedures (approx.70%). High priority was given to safety issues in the offered safety training (around 71%), employees were adequately trained to respond to emergencies in their workplaces (about 67%), and workers were encouraged to attend safety training programmes offered by management (approx. 68%). In comparison, the safety training provided was sufficient and adequately empowered workers to assess hazards in their workplaces (about 67%). Hence, this feedback suggests that the quality of safety training provided in Nigeria's manufacturing workplaces has been reasonable thus far.

RECOMMENDATION'S

A Need for More Safety Training

The designed quality of personnel safety training must be re-examined for employees to evaluate the training as being meaningful, sufficient, and satisfying to a large degree. A well-thought-out training programme can adequately prepare employees and empower them to maximise their potential to contribute to the achievement of business goals and objectives owing to the impacts of the programme on increasing appropriate workplace behaviours (appropriate skills, abilities, knowledge, employee competency, work engagement and efficiency, right attitudes). Therefore, to derive the beneficial outcome of investments made in safety training, Nigeria's manufacturers and top management should focus on designing training programmes that are well-structured and suited to accommodate the behavioural demands of the hired workforce in Nigeria's manufacturing sector.

A Need to Accelerate Employee Participation and Involvement

Considering the investigated concept of employee involvement and participation in work safety-related matters, this study demonstrates a critical need for this practice to be implemented and accelerated in Nigeria's manufacturing sector to enhance safety performance. According to the participant narratives, several employees felt excluded from welfare decisions and were compelled to comply with whatever management demanded as a means to keep their jobs. Based on the study's findings, therefore, it is indisputable that manufacturing industries' management must be deliberate and consistent in treating employees as valuable contributors to work safety issues and not merely as means to the organization's goals, if they really want employees to genuinely participate in safety goals.

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