A Study on the leadership behaviour, safety leadership and safety performance in the Construction industry in South Africa

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ABSTRACT

The review of recent publications of employee safety to investigate the relationship between leadership behaviour, safety communication and performance in the construction industry. Method: The study is a cross sectional study, over 348 questionnaires were e-mailed to construction companies in Gauteng, with 155 valid responses received and 44.5% valid response rate achieved. Confirmatory Factor Analysis was carried out to test the factor structure and determine if the composite reliability was significant with a factor loading of > 0.5, resulting in an acceptable model fit. Through the analysis of SPSS, the results show that leadership visibility and behaviour affects safety culture and safety performance in the construction industry. Safety performance was affected and improved with contingency leadership and a positive safety organisational culture. The study suggests improving safety performance by providing well-entrenched safety management systems with the foundation being, safety leadership, communication, commitment and employee training.

***Keywords*:** *safety leadership, safety culture, safety management, safety performance,*

1. Introduction

The construction industry is central to the efficient and effective delivery of the infrastructure which is important if the South African government is to achieve its stated goals in respect of the challenges involved in infrastructure development. The construction industry is characterised by a wide range of diverse activities. In addition, it is a highly complex and hazardous environment and is known for countless injuries and fatalities. This study has focused on the variables that influence leadership competencies as regards strategically improving the safety performance in the construction industry. The study also aimed to construct and evaluate a measuring instrument or tool that could be used in developing a competency framework for safety leadership in the construction industry. It is essential that the construction industry is cognisant of both the rapidly changing environment in which it operates and, in particular, of the current and evolving economic, legal and regulatory changes that affect it. It was against this backdrop that the literature review was conducted and the existing body of relevant knowledge explored.

This paper gives a premlinary overview of the study of safety leadership in the construction industry in Gauteng, South Africa. Aspects such as leadership behaviours, style, qualities and commitment are discussed. The purpose of this article is to build on safety leadership and safety management, to improvement on literature and develop a theory of safety leadership, focusing explicitly on the role of leaders in driving safety performance within construction companies.

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Petersen [1] first introduced the aspect of safety leadership. He stated that "safety leadership is infinitely more important than policy, for the safety leader through his or her actions or decisions, sends clear messages to the organisation as to which policies are important and which are not". Petersen departs by directly identifying and articulating the value, behaviours, traits and policies associated with safety leadership and its associated philosophy to the examination of leadership. This study focused on a number of leadership theories based on various conceptual perspectives including trait theories, behavioural theories, participant theories, situational leadership contingency theories as well as transformational and transactional leadership. There has been considerable debate as to which theories are particularly applicable to the top level of management of organisations. Much of the leadership literature, with the exception of the charismatic and transformational approaches, focuses on the study of leadership at all levels of the organization, Tichy, [2].

The management of safety in organisations is likely to be impacted by the role leaders play at all levels in the organisation, as evidenced by the widespread focus on top management commitment by a number of researchers e.g. Choi & Behling [3]. Thus, there is a need for a theory of leadership that focuses explicitly on the role of leaders as managers of quality at different levels in the organisation. The central goal of most organisations is to ensure that safety becomes a value in the minds of employees. The attitudes and opinions of individuals are based on such values while these attitudes and behaviours, in turn, direct behaviour. Thus, values may further be regarded as ethics that guide the way in which individuals view safety and safe behaviour, albeit in the workplace or in the public domain.

According to Posner and Schmidt [4], leader values are at the core of people's personality and their values influence the choices they make, people they trust, appeals they respond to and the way they invest their time and energy. Leader values are also likely to form the basis for the vision they develop and the cultures they foster in organization's Deming, 2002[5] argues that for continuous improvement and improved safety performance, consistent with the plan-do-check-act cycle, the following elements must be evident in management commitment, employee involvement, planning, implementation and operation, proactive checking, corrective action, reactive checking, corrective action and management review. Good principles of leadership suggest that the behaviours associated safety management are themselves appropriate leadership behaviours. Consequently, it is possible to extract from Deming's management philosophy, a set of traits, values, and behaviours that can lead to positive outcomes for organisations, along the lines of Anderson [6] articulation of a theory underlying the Deming management method. Such an articulation leads to the identification of crucial leader behaviours in the domains of employee engagement, teamwork and continuous improvement for safety performance in the workplace.

The study highlights culture as a critical issue in managing health and safety within the construction companies and shows that in the process of transforming the organisations safety culture, there is a significant relationship between leadership behaviour and the safety culture in the workplace. The influence which leadership has in setting the tone and culture within the organisation directly impacts the behaviour of employees in their contribution towards safe working practices. Applying and adhering to safety management systems, should be taken into consideration when working towards a zero harm vision or goal. Hinze and Wilson, [7] conducted a study with owner/managers, construction managers, construction superintendents and construction employees. This study resulted in the formulation of five high impact techniques that are designed to help clients/owners and contractors to achieve zero accidents on their construction projects. These techniques include pre-project planning for safety, safety orientation and training, written safety incentive programmes, alcohol and substance abuse programmes, and accident/incident investigations.

As organisation's increasingly recognize the need to include their business strategies into operational strategies, prevention of injuries and workplace hazards will steadily decline. Interventions such as training, risk assessments, safety management systems or safety related prevention programmes will contribute to the safety culture in the workplace and provide towards safe guarding employees and the reduction of injuries in construction companies.

The decisions which leaders make, what they say and the systems they implement to place a value on safety in the workplace, determines the effectiveness of safety practices and systems. Petersen, [8] Leadership has a responsibility towards the safety culture in the workplace and the culture determines whether safety objectives are supported and sustain employee's own interest towards safety activities towards creating an organisation that eliminates hazards in the workplace, fatalities and life changing illness and diseases.

2. The role of safety leadership in safety management

The leadership towards safety and the culture in the workplace cannot be delegated to employees. The core of culture is formed by values and are observed and manifested in behaviours. Hofstede, [9]. The growing literature on leadership stresses the importance of safety management to organisational performance and has repeatedly stressed the lack of leadership support for the failure of many health and safety improvement initiatives. Several researchers in the health and safety management have pointed to the importance of the role of leadership in safety in the workplace. Analyis of the literature concluded that drivers of safety performance in the organisations rest ultimately with top management. Managing safety on par with other business functions requires that leaders have valid performance measures by which to assess progress and drive strategy, [10] Safety measures needs to be to be explicitly linked to and drawn from strategy. Many safety experts believe that the key to successful management of safety begins at the top of the organisation, as far as the board. Kapp [11] argues that because senior managers create the organisational systems including the design and implementation of safety management systems, safety performance must begin with management's own commitment to the overall improvement process in the workplace. Anderson [6] is of the view that transformational leadership reinforces values, articulates and implements vision, and establishes visionary leadership in the form of motivating continuous improvement. These practices include values, vision, credibility, collaboration, feedback and recognition, accountability, communication and action orientated. In a research study conducted by Hidley [12] argues that the strongest indicators of safety performance are workplace culture and leadership qualities. Safety studies have measured the policies and procedures that are in place in organisations with positive safety cultures. However, "it is practically impossible to develop safety rules and procedures that respond to all given situations in organizations", Diaz-Cabrera [13]. It is, thus, important to understand which values underpin the safety practices of organisations which known for their positive safety cultures because such values ultimately impact on behaviour, despite the policies and procedures that are in place.

I. The difference in management and leadership

Katter [14] is one of the few researchers who have specifically addressed the issue of the difference between leadership and management. Kotter found that, as regards the impact of leadership on both safety and organisational culture, there are at least eight definable leadership practices, which are connected to the development and support of a high safety performing culture. The similarity with Kotter's [14] view is that not all people in positions of leadership actually provide leadership. More specifically, all leaders need to be managers but not all managers are necessarily leaders. Thus, both (seemingly) routine behaviours, such as team design and structuring behaviours and ultimate leadership behaviours Kotter, [14], such as institutionalizing a culture of quality, and continuous improvement and customer focus behaviours, are included in the realm of leadership behaviours in the theory developed here. Figure 2.1 below show the difference in leadership and management approach.

Table 2.1 Difference between leadership and management

Management	Leadership
Management involves coping with complexity	Leadership involves coping with change
Management communicates	Leaders persuade
Management is responsible for procedures and practices	Leaders set the vision for the future
Management is responsible for planning and organising	Leaders guide people through difficult times
Management ensures plans are achieved by controlling and solving problems	Leaders align people, and set the direction

Source: Adapted from Kotter (1990a)

Leaders must display behaviours and actions that will drive the strategy and ultimately the safety performance. In driving safety peformance , leaders must assess whether they are creating the right culture desired. According to Krause[15], employees do not create such a culture, it is developed and sustained by the organisation's leadership. The core principles of safety ladership suggest that leaders in any organisation, regardless of their hierarchical level of functioning, location and position, as in the case with construction companies, should focus on continious improving the safety of its employees through communication and training and seeking their engagement. Recent research by Wachter [16], [17] has shown that safety management system practices and employee perception constructs 'work' to improve the objective safety performance of engaging workers e.g. employee engagement acts as an important mediator between safety predictors and safety outcomes.

Throughout the years, research on leadership has taken a number of different perspectives such as the trait approach, the behavioural approach, the contingency approach, and the charismatic approach, Yukl [18]. Despite their implications for the management of safety in organisations, these theories have not explicitly focused on quality and on the role of leaders as managers of safety in the workplace. Bass [19], for example, reported that his initial assumption was that transformational leadership was limited to senior executives (1984), arguing that the behaviours evident of transformational leadership were more prevalent at the higher organisational levels as compared to the lower levels. However, on the basis of interviews conducted with chief executives and senior managers rather than data collected directly from the subordinates of managers, Bass, [20] subsequently found evidence of transformational leadership at every level in organisations.

II. Management commitment

According to Reason, [21], management commitment to safety is recognised as a fundamental component of an organisation's safety culture. Several studies have asserted that employee perception of management commitment correlates strongly with safety performance Zohar, Barling, Parker, [22]. The majority of companies make considerable efforts to communicate their dedication to safety in the workplace and, yet, in the researcher's experience working with safety cultures, it would appear that, in many instances, managers feel they are committed to safety while employees believe that management is more committed to production than to safety. The following are essential to the development of a positive safety culture:

1. communicating company values
2. demonstrating leadership
3. clarifying required and expected behaviour
4. personalising safety outcomes
5. developing positive safety attitudes
6. engaging and owning safety responsibilities and accountabilities

7. increasing hazard/risk awareness and preventive behaviours
8. improving, monitoring, reviewing and reflecting on personal effectiveness.

Motivated employees tend to focus their energy on improved productivity, quality and the successful implementation of change rather than on health and safety concerns, workplace problems, and relations between employees and management. Other benefits of having motivated employees include: cost reduction; improvement in employee relations; protection against business interruptions; improvement in reliability and productivity; building up public trust; building organisational capability and compliance with laws.

3. Methodology

The study made use of various data collection methods including self-report method techniques and secondary data analysis. Both the 'qualitative and quantitative' data were collected using these techniques: During the data analysis the researcher purposely segmented and coded the data in order to develop themes, categories and sub-categories.

III. Demographics of participants

Three hundred and forty eight (348) questionnaires were distributed by email to the respondents, only 155 were found useful for conducting the analysis, the response rate obtained was approximately 44.5 %. The demographic profile of the respondents include: gender; age, educational attainment, position in the organisation, years experience in position. The total sample of the cross sectional survey comprised of 155 respondents. The gender distribution of the respondents' shows that (49.7%, n= 155) were male and (50.3, n=155) were female.

The age of the respondent's ranged from 25 to 54 years. The majority of the respondents were construction/ operational employees (32.7%, n=150), only (4.0 %) were executive/senior management employees. On the years of experience, the majority had worked in their current positions for between 6 and 10 years (30.5%,n=150, while 43% had been in their positions for more than a decade. The majority of the respondents (30.5%, n=154) had at least a secondary certificate. The level of educational attainments could be a reflection of the respondents' occupations. Majority of participants (69.5%, n=107) held a post-matriculation qualification in the form of a diploma, bachelor's degree, honour's degree, master's degree or a PhD. The majority of the participants (54.7%, n= 150) were construction supervisors/foremen and construction employees. Approximately a quarter of the respondents had experience between 1 to 5 years (24.7 %, n=150).

Self-administered questionnaires that included a safety leadership scale, a safety culture and a safety performance scale were used to collect data in the construction industry in Gauteng, South Africa.

IV. Data Analysis and methods

When determining the questionnaire items, it is crucial to ensure the validity and content, since this is an important measure of survey instruments accuracy. The content validity of the questionnaire utilized in this study was confirmed through review if the relevant literature and interviews with participants. The research model was tested using Structural Equation Modeling (SEM) techniques. SEM technique was adopted being an extensive approach use by researcher to test associations among observed latent variables, Suki and Ramayah [23]. Descriptive analysis, exploratory factor analysis and item total correlation analysis were used to summarise the number of safety leadership constructs into smaller number of manageable factors. Confirmatory analysis and the structural equation modeling approach were used to examine contracts of safety vision, commitment, culture,
communication, training and validity and reliability of the constructs conducted showed that there is a strong relationship between safety leadership, safety culture and safety performance.

Correlation analysis showed that safety vision, culture, communication as a factor of safety leadership, had main influence on CEOs and managers' safety commitment and influences safety culture. The results of the statistical analysis indicated that organisational leaders would do well to develop a strategy by which they improve the safety cultures within their organisations, which will then have a positive effect on safety performance.

4. Research finding

Although the construction industry is one of the most dangerous places to work in, accidents can be prevented by leadership influencing the right behaviours. This study is based on the ongoing research of the safety leadership in the construction industry in South Africa. Research to date has focused on the constriction companies based in the Gauteng province. Although the study indicates that there is a significant relationship between safety leadership, several implications can be drawn from the key findings of the study. By understanding that leadership behaviour , style and commiitment has a direct influence on safety performance within the workplace in preventing injuries and fatalities in the construction industry. Findings and empirial evidence suggest that leadership behaviour contributes greatly towards the reduction of accidents in the workplace. The study also suggests that tranformational leadership style and safety motivation is a positive driver for the correct safety behaviours in the construction sector. The literature review points towards a string correlation between leaders with transformational styles and lower injury rates and the perception by employees of their commitment to health and safety.Transformational leadership can elicit safety performance or behaviour because effective tranformational leaders encourage employees to subsribe to group or organisatinal safety goals. Employee engagement, contributes towards safety motivation and leaders must ensure that team work and participation in decision making must be used to address safety non compliance in the workplace. Finally, the study provides significant validation of the relational model of safety leadership and safety management development.

5. Discussion and conclusion

This study extends and builds on Petersen's work, by arguing for a stronger impact of safety leadership on organisational culture that then subsequently impacts on values, attitudes, and behaviours of individuals in organisations attempting to manage safety in the workplace. Ultimately it is top management's commitment to safety that influences employee behaviours. The general consensus of the authors of these case studies is that organisations that successfully manage the performance of safety tend to have leaders that can effectively influence employees through their leadership behaviours, style and commitment and can motivate employees though engagement in the management of safety. The subject of safety leadership is important for the contribution towards the improvement of workplace safety in the construction industry.

6. Conclusion

One cannot argue that the disparity of opinions about the subject highlights the leadership of organisations and the style of leadership in respect of safety and management safety within the workplace and how this must be realised in order to achieve the desired results. The debate is also important in understanding both the way in which safety is managed in the construction industry in South Africa and also how leadership impacts on improvements in the workplace as far as safety is concerned. It is widely acknowledged that, in cases in which leaders possesses remarkable qualities, this enables them to exercise influence over others while also setting them apart from others. Creating a safety vision is the domain of top management. The degree to which a vision is shared and understood is a function of how engaging the process has been and depends on the level of buy-in and engagement that it receives from employees. Based on the findings of this study, leaders are advised to consider ways in which to enhance safety by ensuring the effective design of jobs, engaging employees, communication and top management commitment towards an incident free workplace. Organisational culture is a complex combination of factors and has a strong influence over the ability to enact change in

organisations. This can be taken proactively by leaders who "walk the talk" in providing examples for change in their own behaviour.

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