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Creating Safety Awareness through a Training Intervention: a Case at a Gold Mine in South Africa

HRM

KEYWORDS : commitment; mindset training intervention; mining industry

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ABSTRACT

In the productivity-driven mining industry, safety and employee engagement become a hazard. The mining industry in South Africa experiences challenges such as a high accident rate, employees who are not engaged and individual employees who do not see safety as their own responsibility because they think it is the responsibility of the safety department. A change intervention may create safety awareness among employees. There is a general lack of understanding among managers and academics regarding the effectiveness of such a programme. The main focus of the study being reported here was to determine the effectiveness of a mindset training programme to create safety awareness at a plant in the gold mining industry in South Africa. The empirical results showed that the concept of safety crystallised as a single factor in the after-training factor analysis whereas previously it was concealed in the interpersonal skills, safety and productivity-orientated factor.

INTRODUCTION

Although research on the general theme of work engagement has been conducted by various researchers (Bhatnager 2007 [1], Bhatnager 2008 [2]; Bowes 2008 [3]; Cartwright & Holmes 2006 [4]; Frank, Finnegan & Taylor 2004 [6]; Havenga, Stanz & Visagie 2011 [7]; Ketter 2008 [9]; Ng Ging & Tay 2010 [13]; Ngobeni & Bezuidenhout 2011 [14]; Rothmann 2002 [15]; Schaufeli & Bakker 2004 [16]; Seits & Crim 2006 [17]), there is a marked lack of knowledge on specific human resources interventions that could improve the work engagement of employees in the challenging and highly technical mining industry.

South Africa is considered to have one of the most unsafe working cultures in mining globally (Naidoo 2010 [12]). According to Williamson (2000 cited in Laurence 2005:49 [10]), a positive safety culture requires higher management commitment to safety, a safety emphasis on training, open communication channels and full-time personnel reporting directly to top management. The Zero Injury Institute (2012) [18] proposes that requirements to achieve zero injury are for example a vision, a culture change, unity of purpose and training. In general, employee engagement can be regarded as a combination of a positive psychological contract and the willingness to offer discretionary behaviour by the employee (Chartered Institute of Personnel and Development 2009 [5]).

PURPOSE OF THE STUDY

The main purpose of the study was to examine if a mindset training programme can create safety awareness at a gold mining in South Africa. To achieve the primary objective, the study addressed the following research question: Can a mindset training programme create safety awareness at a plant in the gold mining industry in South Africa?

RESEARCH METHODOLOGY

The sample and research design

A plant at a gold mine in North-West (one of South Africa's nine provinces) was targeted for this investigation. For the empirical research, all the participants of a two-day change intervention workshop were invited to complete the survey. This is convenience sampling, which is a non-probability sampling technique where the sample is selected because it is readily available and convenient. The population consisted of 232 staff members at the plant, and the sample size was 224 employees who attended the workshop. The response rate was therefore 97%. The results are however only applicable to this specific plant and cannot be extended to all plants in the gold mining industry.

A quantitative research design was used. The questionnaire comprised of two sections: demographic information and the different themes that were covered during the training intervention. A 5-point Likert itemised rating scale was used, where respondents indicated their level of agreement with each of the 14 statements (ranging from poor to excellent), before and after the training intervention.

RESULTS

The biographical data

The respondents were asked to provide biographical information. The target group was evenly distributed. The largest portion of the respondents, 92.4% (207 of the 224) were from the categories 26 years of age to older than 51 years of age, with 7.59% (17) of the respondents being younger than 21 years of age. The group consisted of mainly males, namely 75.45% (169 of the 224 respondents). With regard to home language, the four largest groups were Setswana (18.75% which represented 42 respondents), Sesotho (18.75% = 42 respondents), isiXhosa (19.2% = 43 respondents) and Afrikaans (13.39% = 30 respondents). Most of the respondents originated from the Eastern Cape (18.75% = 42 respondents), North-West (18.3% = 41 respondents) and Gauteng (17.41% = 39 respondents). Most (93 respondents) had as highest qualification Grade 12 with 16% (36 respondents) holding tertiary qualifications.

Reliability of the questionnaire

Cronbach's alpha is a measure of reliability. The computation of Cronbach's alpha is based on the number of items in the survey (k) and the ratio of the average inter-item covariance to the average item variance. Testing the before-the-course questions resulted in a Cronbach's alpha of 0.929 on 224 valid observations. The after-the-course value was 0.898. It was therefore clear that this was a reliable measure instrument.

Factor analysis

A principal factor analysis was performed in this study (Morrison 1967 [11]). The factor analysis for the before-training items resulted in three factors being identified. The loadings of the items for each of the three factors are given in Table 1, namely:

- interpersonal skills, safety and productivity;
- values and business; and
- mind and emotions.

TABLE 1:
Summary of the 3 factors that presented before the training intervention

I am able to understand ...	Factor 1: Interper-sonal skills, safety and producti-vity	Factor 2: Values and business	Factor 3: Mind and emotions
conflict	.49		
communication	.61		
that safety is a team effort	.83		

that safety involves the correct mindset	.75		
that safety is my duty and not the duty of the safety department	.79		
productivity in terms of leadership	.62		
productivity in terms of outputs	.41		
productivity in terms of task clarity	.58		
the importance of values		.57	
basic business knowledge		.82	
basic economics		.81	
the functioning of the brain			.80
the functioning of mindsets			.70
emotions			.73

Factor 1 deals mainly with the participants' cognitive understanding of how to remain safe, while upholding the productivity targets that are set. Among this group of participants, productivity in terms of leadership, task clarity, the outputs that are produced, communicating effectively and being able to handle conflict were thus closely related to understanding how to be safe. Factor 2 deals with basic business intelligence in the form of understanding the importance of values and having a basic understanding of business and economic principles. Factor 3 deals primarily with aspects that take place within the individual at an intrapersonal level. Here the individual forms a basic understanding of how the brain functions, of various mindsets and of the experience of emotions.

The loadings of the after-training items for each of the three factors are given in Table 2, namely:

- mind, productivity and business;
- communication and safety; and
- interpersonal skills and values.

TABLE 2:
Summary of the 3 factors that presented After the training intervention

I am able to understand …	Factor 1: Mind, produc-tivity and business	Factor 2: Commu-nication and safety	Factor 3: Inter-personal skills and values
the functioning of the brain	0.51		
the functioning of mindsets	0.50		
productivity in terms of leadership	0.69		
productivity in terms of task clarity	0.61		
productivity in terms of outputs	0.75		
basic business knowledge	0.78		
basic economics	0.78		
communication		0.60	
that safety is a team effort		0.73	
that safety involves the correct mindset		0.75	
that safety is my duty and not the duty of the safety department		0.80	
emotions			0.74
conflict			0.63
the importance of values			0.57

Hence, after the mindset training intervention, the most significant change that took place (compared to the factors that presented before the training) was that safety emerged as a stand-alone factor. The empirical evidence thus indicated that an improved awareness of safety manifested after the mindset training took place. According to factor 2, the importance of communication as part of safety is clear. Understanding the brain and mindset is an essential part of being productive in the mining industry. The participants indicated clearly that an understanding of their emotions, conflict and values would assist them in dealing effectively with issues in the workplace.

To answer the research question, the results can be summarised as follows. In the after-the-course factor analysis, the concept of safety crystallised as a single factor, while previously it was concealed in the interpersonal skills, safety and productivity-orientated factor. This proved that the course was effective in changing the mindsets of the participants with regard to the importance of safety, as well as integrating the mind, productivity and business matters. Lastly, there was a positive change regarding the understanding of the role of values on issues like emotions and conflict.

CONCLUSION AND MANAGERIAL IMPLICATIONS

The empirical study proved that respondents grasped the basics of the functioning of the brain, values, emotions, safety as a responsibility and business intelligence. The respondents' indication that they had a better understanding of the business and that they were prepared to take ownership of safety in the workplace showed that a training intervention to create an awareness of employee engagement at this plant of the gold mining industry was successful. A practical implication is the importance of building a culture of employee engagement in the organisation. Besides creating a vision, a new culture, unity of purpose and training, leaders should act with integrity, demonstrate managerial competencies and promote emotional, cognitive and physical engagement. Management at the mine need to ensure that the employees internalise safety awareness and should not only transfer the responsibility for safety to the safety department at the plants.

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