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Revolutionizing Worker Productivity Through Empowerment-Driven Motivation in South Africa's Construction Industry

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Abstract:

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This study aimed to identify the empowerment-driven motivational factors that influence the productivity of construction workers in South Africa with a focus on evaluating effective empowerment strategies to guide the industry towards the efficiency of productivity. A quantitative research approach was employed, and data were collected using an online questionnaire administered to randomly selected construction professionals in the South African Construction Industry. A total of 263 respondents comprising construction professionals and contractors registered with CIBD Grades 1-9 were surveyed. The data was analysed using descriptive and inferential statistics such as the mean ranking technique and exploratory factor analysis (EFA), respectively. The top-ranked motivational empowerment factors influencing workers' productivity were good supervision, access to information needed to perform the job effectively, and trust and communication with the management. Using EFA to reduce the factor loadings in the rotated component matrix, the results showed that a six-factor structure was obtained for motivational empowerment and classified as 'enabling work environment and intrinsic motivation', 'employee advancement packages', 'productivity enhancement', 'workplace stability', 'team building of workers' and 'leadership style'. This study adds to the body of knowledge by providing empirical evidence and insights in terms of how empowerment-based motivation strategies can assist in addressing common productivity challenges in construction businesses.

Keywords:

Construction business, construction industry, empowerment, motivation, productivity, workforce sustainability

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Introduction

The construction industry across the world is a critical driver of economic development, contributing significantly to infrastructure development, employment, and the growth of Gross Domestic Product (GDP) (Barbosa, Woetzel and Mischke, 2017). Larsson et al. (2021) opined that in spite of its importance, the industry continues to grapple with persistent productivity issues, including low worker morale and workforce inefficiencies, high turnover, absenteeism, and project delays (Alper Ay, 2025; Naoum & Egbu, 2016; Shoar & Banaitis, 2019). This is corroborated by Jahanger et al. (2025) and Mahamid (2013) who stated that the low productivity level of workers' output is considered an extremely challenging problem in construction firms. These challenges are often rooted in a lack of effective motivation and empowerment strategies within firms in the construction industry. Factors such as inadequate worker skills, monetary incentives, change orders, poor communication, recognition, unskilled management, site conditions, number of workers, and late payments are identified as problems affecting construction workers' productivity (CWP) (Shoar & Banaitis, 2019). These factors are determined wherever the expected productivity of the worker is accomplished (Durdyev et al., 2018). However, to ensure that workers perform optimally, it is imperative to ascertain what motivates workers throughout construction projects. Hence, construction worker motivation is empowerment, such as worker skills, recognition, autonomy, site conditions, management implementation, and adequate communication (Meyer et al., 2025; Halepota, 2005). These factors enhance CWP (Ezenwere Mercy, 2017; Bellé, 2015) when management meets the needs of the construction workers.

Globally, the relationship between employee motivation and productivity is well-established (e.g. Alper Ay, 2025; Jahanger, Trejo & Louis, 2025; Aghayeva & Ślusarczyk, 2019). Be that as it may, context-specific applications, particularly in developing countries are underexplored. In the South African context, historical socio-economic inequalities, evolving labour laws, as well as cultural and political dynamics uniquely influence worker behaviour and motivation (Rulashe, 2024). But, current management approaches in the construction industry recurrently disregard the importance of psychological empowerment, intrinsic motivation, and participative leadership, which are vital for engendering sustainable productivity. Thus, there is a need to identify the factors causing construction workers' low productivity, time and cost overruns reduction, as well as enhancing the sustainability of workers' productivity during project delivery (Pancasila, et al., 2020). Identifying these factors is critical because CWP during project delivery impacts the profitability of construction firms (Tsehayae 2015). In addition, it should be noted that CWP, as a source of project risk, has the highest variability in a project (Tsehayae, 2015).

Against this background, an empowerment-based motivational incentive to sustain productivity amongst workers becomes crucial, and thus, a study of its role in South Africa's construction industry is needed. This is essential for sustaining optimum levels of productivity throughout the delivery of construction projects. This study addresses an important gap by investigating how empowerment-driven motivation, a multidimensional approach that is non-monetary driven, can revolutionise worker productivity within South Africa’s construction context. This study provides context-relevant optimal approaches based on empirical evidence that motivational

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strategies must be multifaceted, engaging both psychological and structural dimensions to create a more resilient and effective workforce. This study also contributes to the body of knowledge in the field of construction industry psychology by demonstrating that empowerment-driven motivation, such as leadership, creation of an enabling environment, recognition and team building, as well as systemic alignment, can significantly revolutionise productivity in the South African construction industry.

Theoretical underpinning

The construction industry is marked by labour-intensive operations, skill shortages, and socioeconomic issues; thus, a theoretically grounded approach to motivational empowerment is vital. Therefore, to identify motivational empowerment factors that will enhance workers' productivity in the construction industry, the study utilised Maslow's hierarchy of needs theory, the Herzberg two-factor theory, and the Self-Determination Theory (SDT) to understand this phenomenon and conceptualise the adoption of motivational empowerment in enhancing workers' productivity in the construction industry.

Employees' perception of personal growth and developmental prospects is a critical determinant of their engagement at work. Rooted in Maslow's hierarchy of needs, this desire for advancement aligns with the aspiration for self-actualisation (Hewage & Ruwanpura, 2006). This motivates the employees to continually strive for greater achievements (Hewage & Ruwanpura, 2006). Conversely, a job position that lacks a progression plan can demotivate, trap, and be uninspiring to a worker by causing disengagement from their assignment. Therefore, construction businesses that provide their employees with relevant career development opportunities are expected to benefit from the product.

Employment security is proposed as a hygiene factor in the two-factor theory (Herzberg et al., 1959) and as a "necessity of existence" in the ERG (Existence, Relatedness, and Growth) theory (Alderfer, 1972). Job security means a relaxed atmosphere in the workplace; it reduces employee turnover and strengthens an organisation's reputation and image (Irabor and Okolie, 2019).

Ryan and Deci (2019) assert that the Self-Determination Theory (SDT) is a well-known theory of motivation that offers leaders a framework grounded in empirical research for successfully inspiring their workforce. Social environment elements, such as leaders' interpersonal style, are described by SDT as predicting high motivation in the workplace (Deci et al., 2017). According to the theory, motivation, well-being, and optimal functioning are all dependent on the three fundamental psychological requirements of humans: autonomy, ability, and connectedness (Deci & Ryan, 2017).

Literature review

Motivational Empowerment Influencing on Workers' Productivity

Many studies have examined the impact of motivational processes and the requirements for organisational effectiveness (Paais & Pattiruhu, 2020; Anwar et al., 2017). Thus, understanding how to motivate workers within the organisation is crucial to good management (Kuvaas et al., 2017; Ryan & Deci, 2011). In addition, the appropriate motivating factors for effective employee performance increase

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productivity and the survival of businesses operating in the construction industry. Motivational empowerments are considered non-monetary factors that can influence workers' productivity in the construction industry. This aspect of motivation indicates that non-monetary recognition is more rewarding than monetary factors. These motivational empowerments are discussed below and summarised in Table 1.

Worker's recognition

Recognition is an important part of the motivation in any construction industry to achieve maximum workers' productivity (Andavar & Ali, 2020; Anwar & Abd Zebari, 2015). Providing recognition makes employees feel valued and fulfilled. It propels employees' desire to perform well in their tasks. The more workers' behaviour on a task is positively recognised, the more motivated they will be at their workplace (Pancasila et al., 2020). Recognising the impact of workers during a successful production requires valuing their contributions. The construction industry must recognise its workers as a key factor in effective production (Anwar & Qadir, 2017). According to Desselle et al. (2022), rewarding workers' performance through recognition is better than giving grants. For instance, most employees appreciate things acknowledged in company newsletters, letters of recommendation, verbal thanks, and extra time off. Organisations should use this avenue to show that their companies care and value their employees. Anwar and Qadir (2017) cited that employees recognised at their workplace are highly motivated to raise their performance and increase their willingness to contribute more to task activities. Effective worker performance results from motivation and skills applied during project delivery (Febrianti & Se, 2020). Thus, employee appreciation and work performance are directly related. Valuing an employee influences motivation and self-esteem greatly in the workplace. The effect of this demonstrates that valuing employees during project execution improves their morale towards any assigned tasks. This could be termed as a hallmark of any industry's overall efficiency.

Skill development opportunities

Workers consistently find greater motivation in their work environments when they encounter abundant prospects for professional growth and career advancement (Aghayeva & Ślusarczyk, 2019; Funso et al., 2016). Skill development amongst workers is a crucial opportunity for them to advance technically in their area of specialisation. Employees thrive better when a company offers them the skill tools required to foster creativity within their obligated positions. This would contribute greatly to an industry's overall success by establishing a beneficial structure to sustain the company's development (Ohueri et al., 2018). The availability of career development opportunities exerts a profound influence on the motivation of the employees, a factor intrinsically linked to the quality and diversity of training and educational initiatives within a company.

Employment security

Employment security is the most influential motivational tool, far from the psychological burden that allows individuals to do their best for the industry and ultimately maximise performance (Sekhar et al., 2013). Zhang (2004) emphasised that an organisation that considers employment security as part of its policies offers

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workers confidence in achieving their career goals (Fatimah et al., 2012). A study conducted by Yamamoto (2013) found that workers received bonuses and rewards as motivation instigators for good work, work safety, work commitment, and improved productivity. Also, Ali and Anwar (2021) proved that job satisfaction is a priority for construction workers; it is an important factor for workers at the local and international levels of the construction industry. This shows that employment stability is an important motivational factor influencing the productivity of workers. Furthermore, empirical studies have shown a positive relationship between job security and employee motivation, wherein job security positively affects employee performance. Job security has many benefits, including making employees more engaged and committed to their jobs (Khorev, 2021).

Autonomy

A worker's level of motivation for their work is influenced by meeting their basic psychological requirements. When managers encourage autonomy, skills, and connections, employees are more likely to be autonomously driven (Van den Broeck et al., 2016). When an employee performs a task autonomously and recognises the importance and purpose of their work, they are said to be autonomous (Ryan and Deci, 2017). As a result, self-motivated employees will perform better, learn more, and enjoy their jobs more (Deci et al., 2017). On the other hand, a worker loses motivation and becomes dominated when their basic psychological needs are not satisfied. Workers who participate in activities to feel needed or accomplish distinct goals exhibit controlled motivation (Ryan & Deci, 2017). Rewards, force dynamics, or internal pressures like guilt or upholding one's self-esteem can contribute to controlled behaviour. In contrast to regulated motivation, autonomous motivation leads to improved behaviour, favourable subjective experiences, reduced stress at work, and improved job performance, all of which improve employee satisfaction (Fernet & Austin, 2014).

Team building and collaborative environment

A spirit of teamwork often emerges when individuals are compelled to cooperate and rely on each other's contributions for their livelihood. Within such a collaborative setting, construction workers may experience an increased sense of empowerment and productivity compared to working independently (Baird & Munir, 2018; Dahou & Hacini, 2018). This effect can be extended to various factors of the construction project, ultimately bolstering the workforce, fostering allegiance to the brand, and extending the duration of their association with the organisation.

Amongst construction workers, a sense of friendship frequently emerges when individuals must collaborate and depend on each other's contributions to their livelihoods (Kuvaas et al., 2017). In such a collaborative environment, construction workers may feel more empowered and productive than when working in isolation. This enhanced spirit of teamwork can permeate different aspects of construction projects. Ultimately, this could strengthen the workforce, nurture loyalty to the company, and prolong their tenure within the organisation (Dahou & Hacini, 2018).

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Table 1: Summary of list of motivational empowerment

Empowerment variables	Sources
Good supervision	Hong et al., (2021), Basahel, (2021), Van Tam et al. (2018)
Growth opportunities in your carrier	Hong et al. (2021), Febrianti & Se (2020), Mokhniuk & Yushchyshyna (2018)
Job security	Sekhar et al. (2013), Yamamoto (2013), Khorev (2021),
Challenging work (e.g., designing work with a variety of tasks and responsibilities)	Sutrisna and Goulding (2019), Raharjo et al. (2018)
Recognition by authority by mentioning your name in the meeting	Bellé (2015), Pancasila *et al.* (2020), Basalamah (2021)
Taking part in decision-making	Meyer et al., (2025), Andavar & Ali (2020), Anwar & Abd Zebari (2015)
Opportunity for skill development	Hong et al. (2021), Mokhniuk & Yushchyshyna (2018)
Cooperation from other workers	Kuvaas et al. (2017), Baird & Munir (2018); Dahou & Hacini (2018)
Freedom for innovative thinking	Deci & Ryan (2017), Andavar & Ali (2020)
The satisfaction derived from work itself	Ali & Anwar (2021), Bhatta et al. (2018)
Good work environment	Shoar & Banaitis (2019), Funso et al. (2016)
Proper work scheduling	Rachid et al. (2019), Agrawal and Halder (2020)
Trust and communication with the management	Ezenwere (2017), Aghayeva & Ślusarczyk (2019)
Adequate team spirit	Baird & Munir (2018); Dahou & Hacini (2018)
Good working facilities	Shoar & Banaitis (2019), Funso et al. (2016)
Systematic flow of work	Agrawal and Halder (2020), Cerezo-Narváez et al. (2020)
Pursuing long-term career prospects with the organization	Basalamah (2021), Funso et al. (2016), Ugulu et al. (2016)
Flexibility in work schedule to accommodate personal needs	Agrawal and Halder (2020), Cerezo-Narváez et al. (2020), Chaturvedi et al. (2018)
Access to information needed to perform the job effectively	Diawati et al. (2023), Prastyaningtyas et al. (2023)
Access to resources needed to perform the job effectively	Diawati et al. (2023), Prastyaningtyas et al. (2023)

Source: Authors own construct

Methodology

To achieve the research aim, a quantitative approach was applied. A quantitative research technique has, however, been described as a research strategy that can be used in research to quantify and statistically analyse data and estimate outcomes in numbers (Ellis et al.,2024). An initial list of possible motivational empowerment to sustainable employee productivity was derived from a literature review.

Population and sampling size

The total population in this study, comprising construction professionals and general building (GB) and Civil contractors (CC) registered with the CIBD, was 4219 and 8400, respectively. The research population is therefore 12,610 (4219 + 8400) construction practitioners. The sampling frame for this study is therefore construction professions including architects construction managers, quantity surveyors, and project managers as well as contractors of two categories, civil building (CB) and general building (GB), that are registered with CIDB Grades 1-9. According to Fellows and Liu (2008), one of the biggest challenges with sampling is determining the sample size to be studied. Hence, Czaja and Blair (2005) formula, used in Panda & Mohapatra (2024) and Akadiri (2011) was used to determine the sample size

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$$ss = z^2 \, x \frac{p(1-p)}{c^2}$$

Where ss = sample size z = standardised variable p = percentage picking a choice, expressed as a decimal c = confidence interval, expressed as a decimal.

From the calculations, the sample size estimated for this study from the research population was 317.

The Survey Administration and Data Collection

The questionnaire utilised in collecting the data was designed and structured into two sections. The first section solicited background information of the respondent, whereas the second was designed to gather information pertaining to the motivational empowerment influencing workers' productivity in the South African construction industry. This section was structured into a Likert scale question format of 1 to 5, where 1 = Not important at all, 2 = not important, 3 = somewhat important, 4 = important, and 5 = most important. The respondents were required to evaluate on a scale of how important each of the variables of motivational empowerment is. The simple random sampling technique was employed to aid in gathering the data. Based on the sample size calculation, the survey was administered using a sample drawn from the CIDB professional register.

To facilitate the data collection, a formal request procedure was followed by furnishing the CIDB with a permission letter explaining the purpose of the survey and requesting their members to participate in the study. This expedited distribution of the survey through the national CIDB database of professionals, from which contact information could be accessed. Invitation letters were sent via email on 18th September 2023. It is important to highlight that a series of follow-ups were made telephonically on September 23 and September 30, 2023. and 83% of the sample agreed to participate. After providing their informed consent, on October 6, 2023, the participants received the study questionnaire via the LimeSurvey link and SurveyMonkey. This strategy was used as a result of the wide geographic dispersion of the respondents. Of the 317-questionnaire distributed, the number of respondents who completed the survey totalled 263, representing an 83% response rate.

Data analysis techniques

Both descriptive and inferential statistics were adopted in analysing the data collected to evaluate the motivational empowerment factors influencing workers' productivity in the construction industry. The descriptive statistics was computed to analyse the demographic data as well as evaluate the level of importance of the motivational empowerment factors. Precisely, the mean ranking technique was employed to aid in ranking the motivational empowerment factors in a hierarchical order. In terms of the inferential statistics, the Exploratory Factor analysis (EFA) was computed to assist in reducing the large number of factors into smaller groups. In determining the scale item reliability, Cronbach's coefficient alpha was derived through an internal reliability test. Cronbach's alpha is between 0 and 1, and the higher, the better. For interpreting the Cronbach's alpha coefficient, it is proposed by Gallais et al. (2017) that Cronbach's alpha coefficients must be above 0.7 or at least 0.6 to be termed reliable. As indicated in Table 3, the factors had alpha coefficient of 0.74 which suggests that the five-point Likert scale measurement was reliable.

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Presentation of Findings

Background information of the respondents

This section provides a brief overview of the respondents' background, including their occupation or profession, gender, age, and educational qualification. Concerning the occupation of respondents, it is noticeable that 29.7% of the respondents are quantity surveyors, followed by general foreman (28.1%) and Civil Engineer (Site Engr) (20.5%). The descriptive statistics revealed that out of 263 responses obtained, 224 were males, representing 85.2% and 39 were females, representing 14.8% of the respondents. With regard to the age group of the respondents, the results indicate that out of 263 responses received, 34.2% were between the ages of 31-40 years, 27.8% were between the ages of 41 to 50 years, and 24.3% between the ages of 25 to 30 years. In terms of the educational qualification of respondents, it is evident that out of 263 responses received, 36.1% of the respondents are BSc / BTech / Advanced Diploma holders, 28.1% are honour's degree holders, whereas 21.3% of the respondents are Master's degree holders. The results are depicted in Table 2.

Table 2: Background information of respondents

Occupation / profession	**Frequency**	**Percent (%)**
Architect	11	4.2
Project Manager	19	7.2
Civil Engineer (Site Engr)	54	20.5
Quantity Surveyor	78	29.7
General Foreman	74	28.1
Construction Manager	27	10.3
Total	263	100.0
Gender	**Frequency**	**Percent (%)**
Female	39	14.8
Male	224	85.2
Total	263	100
Age (years)	**Frequency**	**Percent (%)**
< 25 years	16	6.1
25 - 30	64	24.3
31 - 40	90	34.2
41 - 50	73	27.8
51 - 60	14	5.3
> 60 years	6	2.3
Total	263	100.0
Level of education	**Frequency**	**Percent (%)**
Matric certificate	8	3.0
ND (National Diploma)	20	7.6
BSc / BTech / Advanced Diploma	95	36.1
Honours degree	74	28.1
Master's degree	56	21.3
PhD	6	2.3
Other	4	1.5
Total	263	100.0

Source: Authors own construct

Motivational empowerment for workers' productivity

In order to assess respondents perspective relative to motivational empowerment factors for enhancing workers' productivity, closed-ended questions with a Likert scale of five-response options were adopted. The options are presented thus: 1 = Not important at all; 2 = Not important; 3 = Slightly important; 4 = Important; and 5 = Very important. According to the descriptive analysis presented in table 3, 20 items were measured to demonstrate the importance of motivating the workers by empowerment. The mean scores obtained are all above 3.00, which signifies the significance of these items in determining the factors contributing to the sustainable productivity of construction workers.

The results presented in Table 3 show that C_C1' good supervision' exhibited the highest with an MS of 4.72, followed by C_C2 ‘access to information needed to perform the job effectively' with an MS of 4.67, C_C3 ‘trust and communication with the management' with an MS of 4.65, 'good work environment' with an MS of 4.63, and C_C5 ‘job security' with an MS of 4.60. Other items also demonstrated strong MS, but the respondents perceived 'taking part in decision making' as the least significant (MS = 4.39) in empowering the workers.

From all indications, it is observed that the perceptions of all the respondents revealed that good supervision could be crucial in empowering workers to attain improved productivity. The respondents also found access to information critical to performance improvement, including adequate trust and communication with the management, a conducive work environment, and job security, as the principal factors to consider in empowering the workers' in the construction industry.

Table 3: Motivational empowerment for workers' productivity

Descriptive statistics for motivational empowerment					
Code	Item	Mean	SD	Rank	Cronbach's Alpha Coefficient
C_C1	Good supervision	4.72	0.547	1	0.74
C_C2	Access to information needed to perform the job effectively	4.67	0.559	2	
C_C3	Trust and communication with the management	4.65	0.598	3	
C_C4	Good work environment	4.63	0.569	4	
C_C5	Job security	4.60	0.596	5	
C_C6	Access to resources needed to perform the job effectively	4.59	0.655	6	
C_C7	Pursue your long-term career prospects with the organisation	4.59	0.644	6	
C_C8	Adequate team spirit	4.58	0.612	8	
C_C9	Proper work scheduling	4.58	0.675	8	
C_C10	Freedom for innovative thinking	4.58	0.687	8	
C_C11	Systematic flow of work	4.57	0.620	8	
C_C12	There are good working facilities	4.56	0.718	12	
C_C13	Growth opportunities in your carrier	4.56	0.659	12	
C_C14	Cooperation from other workers	4.55	0.602	14	
C_C15	Opportunity for skill development	4.53	0.769	15	
C_C16	The satisfaction derived from work itself	4.50	0.715	16	
C_C17	Challenging work (e.g., designing work with a variety of tasks and responsibilities)	4.47	0.661	17	
C_C18	Flexibility in work schedule to accommodate personal needs	4.46	0.719	18	
C_C19	Recognition by authority by mentioning your name in the meeting	4.41	0.780	19	
C_C20	Taking part in decision-making	4.39	0.834	20	

Source: Authors own construct

Identifying underlying motivational empowerment influencing workers' productivity

This section presents the results of determining the underlying factors influencing workers' productivity relative to motivational empowerment. The results were derived from applying exploratory factor analysis (EFA) to realise data reduction and specifying the relationships between the variables grouped under motivational empowerment (Civelek, 2018). The reliability of the results derived is substantiated by computing the Kaiser-Meyer-Olkin (KMO) and Bartlett's test of Sphericity, combined with the total variance explained and factor loading estimates. According to Civelek (2018), the KMO test is acceptable at a threshold score > 0.50 and Bartlett's test of Sphericity at a threshold score of $p<0.050$ to ascertain the sufficiency threshold of items and the level of correlation within the data analysed. Yong and Pearce (2013) and Civelek (2018) intimated that KMO test scores > 0.70 are within the average threshold of sampling adequacy, test scores > 0.80 are within the good threshold, and test scores > 0.90 are within the excellent threshold. All the aforesaid criteria were duly observed to determine the underlying factors influencing the productivity threshold of construction workers in South Africa.

KMO and Bartlett's Sphericity tests for motivational empowerment

Presenting the results concerning the determination of the item's sampling adequacy and the significance of assuring the use of EFA to identify the underlying factors in motivational empowerment, a KMO test score of 0.76 was obtained, which indicates a threshold of average sampling adequacy of data (Yong & Pearce, 2013). The Bartlett's test of Sphericity exhibited a test score of p=0.00, which demonstrates the fitness threshold of the data for EFA (Civelek, 2018). The results are presented in Table 4.

Table 4: KMO and Bartlett's Sphericity test results for motivational empowerment

KMO and Bartlett's test of Sphericity		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.76
Bartlett's Test of Sphericity	Approx. Chi-Square	547.838
	df	190
	Sig.	0.00
Observations	Items are significant and adequate for multivariate analysis.	

Source: Authors own construct

Factor loading analysis of motivational empowerment

Tables 5 and 6 present the results of the total variance explained and rotated component matrix for motivational empowerment. A careful interrogation of the total variance explained table revealed the PCA discovered six underlying factors with eigenvalues greater than one, accounting for 49.427% of the total variance (Table 5).

The rotated component matrix presented in Table 6 demonstrates the linear combination of the loadings on the six factors. The loading array relative to the rotated component matrix indicates that four items converged on factor 1, namely 'there are good working facilities', 'opportunity for skill development', 'freedom for innovative thinking', and 'the satisfaction derived from work itself'. Factor 2 has five linearly converged items, namely 'recognition by the authority by mentioning your name in the meeting', ‘access to information needed to perform job effectively’, 'growth opportunities in your carrier', 'taking part in decision making'

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and ‘Pursue your long-term career prospects with the organization’. With regard to factor 3, four items are linearly converged, including 'proper work scheduling', 'access to resources needed to perform the job effectively', ‘flexibility in work schedule to accommodate personal needs’ and ‘systematic flow of work’. Factor 4 contains linear convergence of three significant items, including 'job security', followed 'trust and communication with the management', and 'good work environment'. Factor 5 includes the combination of two items consisting of 'cooperation from other workers' and 'challenging work, e.g., (designing work with a variety of tasks and responsibilities)'. Last but not the least, factor 6 has a linear convergence of two items comprising 'good supervision' and 'adequate team spirit'.

The findings in the rotated component matrix produce a simplified interpretation of the linear combination of the items on their corresponding loading factors. Evidently, all the items demonstrated strong association as principal underlying factors influencing workers' productivity in motivational empowerment.

Table 5: Total variance explained for motivational empowerment

Total Variance Explained						
	Initial Eigenvalues			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.477	17.385	17.385	1.964	9.821	9.821
2	1.468	7.338	24.723	1.880	9.399	19.221
3	1.370	6.848	31.571	1.760	8.800	28.021
4	1.258	6.291	37.862	1.618	8.090	36.111
5	1.194	5.970	43.831	1.464	7.321	43.432
6	1.119	5.596	49.427	1.199	5.995	49.427
7	.973	4.866	54.293			
8	.940	4.701	58.994			
9	.891	4.455	63.449			
10	.827	4.136	67.585			
11	.802	4.009	71.594			
12	.772	3.862	75.457			
13	.765	3.825	79.281			
14	.713	3.565	82.847			
15	.672	3.358	86.205			
16	.609	3.046	89.251			
17	.576	2.882	92.133			
18	.552	2.759	94.892			
19	.528	2.639	97.531			
20	.494	2.469	100.000			
Extraction Method: Principal Component Analysis.						

Source: Authors own construct

Table 6: Rotated component matrix for motivational empowerment

Rotated Component Matrix[a]						
	Component					
	1	2	3	4	5	6
There are good working facilities	.654					
Opportunity for skill development	.630					
Freedom for innovative thinking	.572					
The satisfaction derived from work itself	.557					
Recognition by authority by mentioning your name in the meeting		.666				
Access to information needed to perform job effectively		.509				
Growth opportunities in your carrier		.503				
Taking part in decision making		.493				
Pursue your long-term career prospects with the organization		.465				
Proper work scheduling			.747			
Access to resources needed to perform job effectively			.677			
Flexibility in work schedule to accommodate personal needs			.343			
Systematic flow of work			.293			
Job security				.689		
Trust and communication with the management				.681		
Good work environment				.524		
Cooperation from other workers					.724	
Challenging work e.g., (designing work with variety of tasks and responsibilities)					.633	
Good supervision						.623
Adequate team spirit						.597

Source: Authors own construct

Discussion of findings

Enabling work environment and intrinsic motivation

Evidently, enabling work environment and intrinsic motivation is defined by four items, including: 'there are good working facilities' (0.654), 'opportunity for skill development' (0.630), 'freedom for innovative thinking' (0.572), and 'the satisfaction derived from work itself' (0.557). Notably, the corresponding factor loading for each variable has been enclosed in parentheses. These variables are categorised in two motivational factors covering issues that fall within the purview of the enabling work environment and intrinsic motivation.

Similar findings emerged in research studies conducted by the following authors: Deci and Ryan, (2017), Andavar and Ali, (2020), Anwar and Abd Zebari, (2015). These findings are also supported by Hong et al. (2021), Mokhniuk and Yushchyshyna (2018) who revealed that creating an enabling work environment is an important non-monetary technique for enhancing workers' productivity. According to Hong et al. (2021) and Mokhniuk and Yushchyshyna (2018), motivational empowerment such as good working facilities and freedom for innovative thinking are crucial in motivating construction workers. These empowerment-based motivation effectively cause the workers to improve in their productivity levels during project execution. Intrinsic motivation has the control to motivate workers to achieve better performance at workplace. According to Ali and Anwar (2021), workers tend to prioritize intrinsic motivation over other

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motivational factors. In addition, Bhatta et al. (2018) opine that the satisfaction derived from work itself and opportunity for skill development emerge as a convincing motivational tool that can sustain workers' performance and commitment on accomplishing the firm's main objectives.

Employee advancement packages

Clearly, employee advancement packages are associated with five items namely recognition by the authority by mentioning your name in the meeting (0.666), access to information needed to perform job effectively (0.509), growth opportunities in your carrier (0.503), taking part in decision making (0.493) and pursue your long-term career prospects with the organization (0.465). The corresponding factor loading for each variable is enclosed in bracket.

Similar findings emerged in research studies as conducted by the following authors: Pancasila et al. (2020) and Basalamah (2021). These findings are consistent with Meyer et al. (2025) Andavar and Ali, (2020), Anwar and Abd Zebari (2015) who confirmed the use of employee advancement packages as an approach for improving workers' productivity during project delivery. According to Meyer et al., (2025), Pancasila et al. (2020) and Andavar and Ali, (2020), empowerment such recognition by the authority by mentioning names in the meeting, growth opportunities in your carrier, and taking part in decision making for workers are important in motivating construction workers. These empowerment-based factors successfully motivate workers to excel in their standing levels of productivity and commit in achieving the firm's core objectives.

Productivity enhancement

Evidently, productivity enhancement to workers are described by four variables namely, proper work scheduling (0.747), access to resources needed to perform the job effectively (0.677), flexibility in work schedule to accommodate personal needs (0.343) and systematic flow of work (0.293). The corresponding factor loading for each variable is enclosed in bracket.

Related research studies conducted by Diawati et al. (2023), Prastyaningtyas et al. (2023) pointed out that productivity enhancement for workers particularly within the construction industry context could enhance productivity. Furthermore, these findings are supported by Rachid et al. (2019) and Agrawal and Halder, (2020) who revealed that proper work scheduling, and access to resources needed to perform job effectively are methods for improving workers' productivity. These empowerment-based factors motivate workers to give their best thereby increasing the productivity on site and ensuring the survival of the firm with the construction industry.

Workplace Stability

Job security (0.716), trust and communication with the management' (0.660), and good work environment' (0.569) are among the factors associated with workplace stability. The corresponding factor loading for each variable is in an enclosed bracket. Previous studies conducted by Sekhar et al. (2013), Khorev, (2021), and Aghayeva & Ślusarczyk, (2019) revealed that job security, and trust and communication with the management is a key motivation to workers productivity. These findings are also in consonant with that of Ezenwere Mercy (2017) who

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stated that communication and job security empowerment can improve workers' productivity. These empowerment-based factors assist in building workers confidence thereby increasing the performance during project delivery. Similarly, good work environment for workers can encourage workforce to perform beyond employers' expectations according to Shoar and Banaitis, (2019) and Funso et al. (2016).

Team building of workers

The fifth component classified as team building of workers consists of two features, namely cooperation from other workers (0.724) and challenging work, e.g., (designing work with a variety of tasks and responsibilities) (0.633) Specifically, the corresponding factor loading for the variables are in enclosed bracket. Kuvaas et al. (2017), Baird and Munir (2018), Dahou and Hacini (2018) revealed that cooperation from other workers is good team building exercise that can enhance workers productivity. Also, work challenge in terms of design work with a variety of tasks and responsibilities can boost worker productivity (Sutrisna & Goulding 2019; Raharjo et al., 2018).

Leadership style

The sixth factor comprised two items, namely adequate team spirit' (0.597), and good supervision (0.623). The corresponding factor loading for the variables are in an enclosed bracket. This finding is akin to the normative literature and align with previous studies conducted by Hong et al. (2021), Basahel (2021), Van Tam et al. (2018) who revealed that good supervisor is a critical factor that enhances sustainable productivity of worker. Secondly, adequate team spirit are confidence builders for the management team to increase productivity of workers thereby cutting down absenteeism rates in the workplace (Baird & Munir, 2018; Dahou & Hacini, 2018).

Conclusion and recommendation

This paper investigated the role of motivational empowerment in improving sustainable worker productivity within the South African construction industry. It was obvious from the descriptive statistics that the top ranked motivational empowerment influencing workers productivity in South Africa were good supervision (MS of 4.72 and SD of 0.547), access to information needed to perform the job effectively (MS of 4.67 and SD of 0.559), and trust and communication with the management (MS of 4.65 and SD of 0.598). Notably, taking part in decision-making with a mean score of 4.39 and SD of 0.834 was the least ranked factor. This shows that motivational empowerment factors are significant in terms of influencing workers' productivity.

The variables were further subjected to PCA to reduce the data set and categorise the most significant motivational empowerment for improving workers' productivity. The PCA pertaining to motivational empowerment was categorised into six aspects. The six factors are enabling work environment and intrinsic motivation, employee advancement packages, productivity enhancement, workplace stability, team building of workers, and leadership style.

This outcome suggests that it is important to improve efforts to revolutionise worker productivity by promoting non-monetary motivational factors, such as enabling a

work environment and intrinsic motivation, employee advancement packages, and productivity enhancement within firms in the construction industry. Furthermore, workplace stability, team building of workers, and leadership style are targeted approaches aimed at motivating workers towards sustainable productivity. The six factors and the variables related to them can be valuable in influencing all the stakeholders' decisions concerning worker motivation for sustainable productivity in the SACI. Hence, there is need for policymakers and regulators to support this approach through the establishment of industry-wide guidelines and empowerment schemes that boost firms to implement the motivational strategies. Embedding these workforce policies would not only improve productivity but also reduce inadequacies across all the construction industries.

Following the conclusions, the following are recommended. Further research should focus on examining whether the most significant variables of the motivational empowerment of construction worker productivity differ by culture, industry, and socioeconomic status. Because this study is quantitative in nature, qualitative research would also be able to further advance greater insight into construction workers' daily experience and sense of motivational empowerment. Empirical research can also examine whether technological empowerment is important in complementing the factors derived from this study.

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