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The Influence of Team Effectiveness on Team Motivation in Building Construction Projects in Sierra Leone.

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Research Article

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Abstract:

Team motivation is crucial for the success of construction projects, particularly in developing economies like Sierra Leone, where projects are labor-intensive and often encounter structural challenges. Yet, a significant gap remains in integrating motivation variables within this relationship, particularly in low-income, construction-heavy economies like Sierra Leone. Hence, this study investigates how Team Experience (TmE) and Team Skills (TmS)—as indicators of team effectiveness— influence motivational factors, such as Reward Mechanism (RM), Team Reward (TR), and Team Satisfaction (TS), in the context of building construction projects. Using a quantitative method and Partial Least Squares Structural Equation Modeling (PLS-SEM), data from 250 professionals (architects, engineers, managers, and laborers) were analyzed. Findings reveal that TmE significantly influences RM ($\beta = 0.365$, $p < 0.001$), TR ($\beta = 0.282$, $p < 0.001$), and TS ($\beta = 0.340$, $p < 0.001$), suggesting that experience is a critical driver of motivation. Conversely, TmS had no significant impact on RM ($\beta = 0.101$, $p = 0.078$), but significantly influenced TR ($\beta = 0.347$, $p < 0.001$) and TS ($\beta = 0.221$, $p = 0.003$). These results emphasize the strategic importance of prioritizing team experience over technical skills in enhancing motivational structures within construction teams. These findings have practical implications for project managers and policymakers, underscoring the need for experience-based reward systems and calling for further exploration into the roles of organizational culture and external incentives in shaping team motivation.

Keywords: Team Skills; Team Experience; Team Motivation; Building Construction; PLS-SEM

Introduction

Team motivation plays a crucial role in determining the success of construction projects, particularly in contexts characterized by labor-intensive practices and resource constraints. This is particularly evident in developing nations like Sierra Leone, where construction projects are vital for economic development and often executed under limited training, governance constraints, and fluctuating project environments. Amid these conditions, the performance of project teams becomes a crucial determinant of timely and quality project delivery (Kania et al., 2020; Hassan et al., 2022; Ding et al., 2023). While team motivation has been recognized globally as a critical determinant of project success, impacting commitment, productivity, and performance, there remains a paucity of context-specific research examining how team effectiveness shapes motivation in such challenging environments.

Globally, the literature increasingly emphasizes the role of team effectiveness, encompassing both experiential knowledge and technical competencies in enhancing project outcomes (Alharbi, 2022;

Sajidan et al., 2023; Van Tam, 2025). Likewise, research has emphasized the role of intrinsic rewards and satisfaction in enhancing project team commitment, reducing turnover, and improving work performance (Aarthi & Sujatha, 2022; Manzoor et al., 2021; Saluy et al., 2022). Ahmad et al. (2023) also emphasize that a well-motivated and experienced team achieves higher results. However, many of these studies are concentrated in developed or economically stable regions, where team motivation is bolstered by robust institutional frameworks, standardized reward systems, and formalized project governance (Gu et al., 2022; González et al., 2021). In contrast, sub-Saharan Africa presents a distinct landscape. Here, construction teams often rely heavily on informal structures, and project execution is influenced more by collective experience and adaptive skill sets than by rigidly defined roles or standardized rewards (Eyiah et al., 2025).

This divergence reveals a critical research gap: the need to understand how constructs of team effectiveness—namely, Team Experience (TmE) and Team Skills (TmS)—influence motivational drivers such as Reward Mechanisms (RM), Team Reward (TR), and Team Satisfaction (TS) within the unique socio-economic and institutional constraints of Sierra Leone. While previous studies have evaluated these constructs independently, few have integrated them within a robust theoretical and empirical framework that captures their interrelationships using advanced modeling techniques such as Partial Least Squares Structural Equation Modeling (PLS-SEM).

Accordingly, this study aims to bridge this gap by examining the impact of TmE and TmS on RM, TR, and TS within Sierra Leone's building construction sector. Theoretically grounded in emotional intelligence theory, exchange theory, Kassa et al model, expectancy and self-determination frameworks (Kassa et al., 2023; Vroom, 1964; Zhang & Hao, 2022) and Deci & Ryan, (2000), this research not only contributes to the empirical literature on team effectiveness and motivation but also provides regionally tailored insights. These insights are crucial for designing effective and culturally aligned reward systems and team management strategies within low-resource construction environments.

To capture these insights, the research focused on answering the central research question that guides the study: *How does team effectiveness (measured by team experience and skills) influence team motivation (reward mechanism, team reward, and team satisfaction) in building construction projects in Sierra Leone?* The primary objectives are (1) to assess the influence of team experience on team motivation variables, (2) to examine how team skills affect reward and satisfaction outcomes, and (3) to apply PLS-SEM to model and validate the complex interrelationships among these constructs.

The novelty of this research lies in its contextual specificity, methodological rigor, and theoretical integration. By employing PLS-SEM within an underexplored geographic and economic context, this study makes a significant contribution to the construction management literature. It offers practical insights for policymakers, contractors, and project managers aiming to optimize team performance through motivational strategies in low-resource settings.

Literature review

Team effectiveness and its relationship with team motivation

Prior studies emphasize the role of team effectiveness in enhancing workplace motivation and project performance (Egemen, 2024; Matić, 2024; Sajidan et al., 2023; Singh & Jha, 2024; Van Tam, 2025). Team Experience contributes to shared knowledge, procedural memory, and adaptive capacity (Sun et al., 2022). Team Skills, meanwhile, relate to competency-based performance.

Motivational variables, such as Team Rewards, Satisfaction, and structured Reward Mechanisms, are essential in high-risk, low-resource construction environments like Sierra Leone. Research by Gu, Hu, and Hempel (2022) found that team-based reward systems significantly increase output quality and job retention in construction settings. Similarly, González et al. (2021) confirmed the mediating role of team experience in fostering reward-oriented motivation. This study extends these findings by modeling these relationships in the context of Sierra Leone's building construction sector.

Team effectiveness is integral to the success of construction projects, as it influences overall performance and outcomes (Sajidan et al., 2023). According to Hassan et al. (2022), team effectiveness refers to a team's ability to meet its goals through the collaborative efforts of its members, underpinned by strong communication, coordination, and mutual trust. In construction projects, team effectiveness is shaped by technical skills and interpersonal dynamics, which directly impact team motivation and performance (Graham et al., 2020; Niati et al., 2021; Singh & Jha, 2024). Motivational theories, such as Self-Determination Theory, suggest that when team members experience effectiveness, particularly in autonomy and competence, their intrinsic motivation is enhanced, thereby fostering greater engagement and commitment (Gutterman, 2023; Sutton & Box, 2022).

Research indicates that a well-functioning team is more likely to be motivated, demonstrating higher job satisfaction and performance. For example, highly effective teams with strong interpersonal relationships exhibit greater motivation, which has a positive impact on both individual and team performance. In the construction industry, effective teamwork can translate into reduced project delays, higher-quality output, and increased employee retention (Gu et al., 2022). These findings align with the broader view that effective teamwork creates a productive environment for motivating workers by enhancing their perception of competence and contribution to the project's success.

Team experience and its influence on team motivation

Team experience plays a crucial role in shaping team dynamics and motivating team members. Sayyam et al. (2021) argue that team experience enhances a group's collective knowledge and procedural memory, facilitating smoother collaboration and decision-making. This shared experience among team members fosters a sense of collective efficacy, which is closely linked to increased team motivation and morale. Teams with more experience are better equipped to handle project challenges and adapt to changing conditions, which boosts confidence and morale.

A study by González et al. (2021) confirmed that team experience is positively associated with higher team satisfaction and motivation, as experienced teams are more adept at navigating conflict, communicating effectively, and achieving consensus. Furthermore, experienced teams are more likely to perceive rewards as fair and meaningful, which enhances their motivation to perform. This relationship between team experience and motivation is particularly relevant in construction environments where uncertainty and complexity are high. For example, in Sierra Leone's construction sector, experienced teams may find it easier to overcome logistical challenges, enhancing their motivation through improved task accomplishment and recognition.

Team skills and their impact on team motivation

While team experience is centred on the accumulated knowledge of the group, team skills refer to the individual competencies that team members bring. Team skills can range from technical expertise, such as knowledge of construction methods and tools, to interpersonal skills, like communication, conflict resolution, and leadership. Scholars have highlighted that team skills directly affect performance outcomes, and skilled teams are better positioned to deliver high-quality work on time, within budget, and enhance owners' satisfaction (Azizan et al., 2021; Graham et al., 2020; Pathuri et al., 2022). Thus, the relationship between team skills and motivation is complex, necessitating a deeper understanding. On the one hand, highly skilled teams tend to feel more competent in handling tasks, which in turn increases their intrinsic motivation.

On the other hand, if team members lack critical skills, it can lead to frustration, lower satisfaction, and decreased motivation. Research by Gu et al. (2022) found that when team members perceive their skills as adequately matching the project's demands, they are more likely to experience satisfaction and motivation. In contrast, skill mismatches lead to dissatisfaction, negatively impacting team morale.

Moreover, the impact of team skills on motivation is particularly relevant in high-risk environments, such as construction, where the physical and technical demands of the job can be overwhelming. In Sierra Leone's building construction sector, focusing on skill development and training could be an effective strategy for enhancing team motivation and improving project outcomes. Therefore, ensuring that teams are equipped with the right skills is key to maintaining motivation and sustained performance.

Team motivation: Reward mechanism, Team reward, and Team satisfaction

Team motivation is often influenced by extrinsic and intrinsic factors, which include structured reward mechanisms, team rewards, and overall team satisfaction (Sesay, 2025). Reward mechanisms refer to the formal structures in place to acknowledge and compensate team members for their performance, such as performance-based bonuses, promotions, or other incentives. Gu, Hu, and Hempel (2022) found that well-designed reward systems are crucial in fostering motivation, particularly in industries such as construction, where the workforce is often highly diverse and performance expectations are intense. According to their research, team-based reward systems significantly increase output quality and job retention, providing clear incentives for high performance. According to Karinge et al. (2024), team rewards refer to the recognition and incentives given to project team members, including both financial and non-financial rewards, to

motivate positive behaviors and enhance morale, productivity, and overall team performance. Therefore, as an outcome mechanism, team rewards refer to the tangible and intangible benefits that team members receive in recognition of their contributions to the project. These rewards can be financial, such as bonuses or wage increases, or non-financial, such as recognition or career advancement opportunities. González et al. (2021) emphasized the importance of transparent and equitable reward systems, noting that the perception of fairness in allocating rewards is closely tied to increased job satisfaction and team motivation.

In addition to reward mechanisms, team satisfaction plays a pivotal role in motivating construction teams. According to the Herzberg Motivation-Hygiene Theory (1959), intrinsic factors such as job satisfaction, work-life balance, and personal achievement are essential for maintaining motivation. In construction teams, satisfaction can be influenced by factors such as working conditions, team cohesion, and opportunities for personal growth. When team members are satisfied with their roles and perceive their work as meaningful, they are more likely to be motivated and perform at a higher level. The claim that intrinsic and extrinsic factors influence motivation within construction teams has been traditionally explained through foundational theories such as Herzberg's Two-Factor Theory and Maslow's Hierarchy of Needs. However, much of the literature remains descriptive, with insufficient critique of how these theories are translated into practical mechanisms in resource-constrained environments, such as Sierra Leone.

Herzberg's two-factor theory, which distinguishes between hygiene factors (e.g., pay, conditions) and motivators (e.g., achievement, recognition), has frequently been referenced in construction contexts (González et al., 2021). However, recent studies suggest that hygiene factors often dominate perceptions of team motivation in low-income, high-risk environments. For instance, Adham (2023) argues that construction teams in Egypt and Ghana prioritize stability, safety, and fair compensation—hygiene factors—over intrinsic motivators. This challenges the universality of Herzberg's propositions and highlights the need to reassess which factors truly act as motivators in the Global South.

Although foundational, **Maslow's hierarchy of needs** has also drawn critique in construction project applications for assuming a linear and universal progression of needs. Project-based employment in countries like Sierra Leone tends to collapse these hierarchical stages. Recent work by Eyiah et al. (2025) highlights how collective achievement and peer respect—typically "esteem" or "self-actualization" levels—are prioritized even when physiological and safety needs remain unstable. This observation is echoed by Kumar et al. (2024), who noted similar patterns in Indian construction firms, suggesting that cultural and economic contexts heavily mediate motivational hierarchies.

Regional comparative analysis

From a comparative regional perspective, the structure and perception of motivation differ notably between developed and developing regions (Adham, 2023; Adham & Sukkar, 2024; Eyiah et al., 2025). In high-income countries, team motivation is often rooted in personalized rewards, professional development, and long-term security (Van Tam, 2025; Gu et al., 2022). Conversely, as evidenced by Sesay (2025) and Saluy et al. (2022), Sub-Saharan African teams tend to prioritize collective incentives, social cohesion, and immediate tangible benefits due to high income insecurity and limited formal employment contracts. For example, a study in Kenya by Karinge et

al. (2024) found that non-financial recognition, such as public praise and team-level achievements, had a more substantial effect on motivation than individual bonuses, indicating a communal orientation that aligns with Sierra Leone's socio-cultural dynamics.

Critically, recent empirical studies from Nigeria (Hassan et al., 2022) and Ghana (Eyiah et al., 2025) call for contextualized models that account for informal communication structures, communal team dynamics, and flexible reward systems. These elements are rarely captured in Western-centric models, which raises questions about the effectiveness of transplanting classical theories into such environments without adaptation. Moreover, Sayyam et al. (2021) emphasize the role of "functional experience" over formal qualifications in shaping team motivation in Pakistani construction projects, paralleling this study's hypothesis that Team Experience (TmE) significantly influences reward perception and satisfaction.

Several studies have demonstrated that cultural factors, such as power distance, individualism versus collectivism, and communication styles, significantly impact team effectiveness and motivation (Moumanou Grace M., 2024; Orekoya, 2024; Rogito & Nyamota, 2022). For instance, in Sierra Leone, a country with a collectivist culture, teamwork and mutual support are more influential than individual performance incentives in motivating construction teams. Additionally, many African countries' lack of standardized reward systems challenges aligning team motivation with formal performance metrics.

Regional studies have also shown that team experience and skills are more prominent, particularly in areas with limited formal education and training opportunities. In contrast, in developed countries, a greater emphasis is placed on formal qualifications and technical skills, rather than experience alone (Gadakh & Debs, 2023; Nuwan et al., 2021). Understanding these regional differences is crucial for developing context-specific strategies to enhance team motivation and performance in construction projects.

Therefore, this study responds to the need for theoretical recalibration, embedding Herzberg and Maslow within a flexible, empirical framework that captures the complex motivational dynamics of Sierra Leone's construction sector. It builds upon recent comparative and regional literature by using PLS-SEM to model how team effectiveness dimensions interact with motivation in a culturally and economically grounded manner.

Theoretical framework and model development

Our model development is grounded in the key models from recent research on team effectiveness and motivation. Among these models, we discussed Zhang and Hao's model, which introduces emotional intelligence (EI) as a crucial factor for effective team building and performance improvement in the construction industry. It enhances communication, trust, and motivation, improves decision quality, and fosters team bonding, leading to better project outcomes and higher success (Zhang & Hao, 2022). Their study aligns with Tuckman's model and Lencioni's Five Dysfunctions of a Team. Second, Kassa et al.'s model aligns with existing team effectiveness frameworks and focuses on specific features for construction project teams, demonstrating its ability to adjust measurement standards (Kassa et al., 2023). The model includes construction-specific risk management, humor, grit, and team effectiveness, making it suitable for our model

development. Third, the Team Member Exchange (TMX) Theory emphasizes the importance of strong and positive relationships between team members in enhancing motivation and project performance. In Sierra Leone's construction sector, if experienced and skilled individuals engage in high-quality exchanges, it leads to increased satisfaction, improved reward mechanisms, and increased team effectiveness. Ultimately, Vroom's Expectancy Theory posits that motivation is driven by three key factors: expectancy, instrumentality, and valence (Vroom, 1964). Construction professionals are more motivated to perform better if they perceive tangible, meaningful rewards for their efforts. However, a lack of connection or value may decrease motivation.

The conceptual framework in Figure 1 illustrates the interrelations between Team Experience (TmE), Team Skill (TmS), and their impact on rewarding and satisfying Team Motivation factors such as Reward Mechanisms (RM), Team Reward (TR), and Team Satisfaction (TS). TmE and TmS are key contributory factors that define how teams act and succeed in project execution.

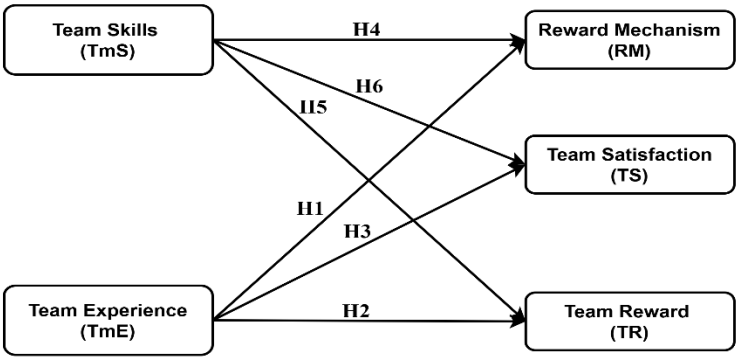

Figure 1: Conceptual Framework for Team Motivation

Source: Author (2025)

Methodology

This study employs a quantitative research design and a cross-sectional survey to investigate the impact of team effectiveness on motivation factors, including Reward Mechanism (RM), Team Reward (TR), and Team Satisfaction (TS), in Sierra Leone's construction sector. The complex and hidden qualities of these constructs, such as PLS-SEM (Partial Least Squares Structural Equation Modeling) with SmartPLS 4.0, were explored through advanced testing purposes, beginning with fundamental descriptive analysis using SPSS 25.

Sampling strategy and data collection: The sampling was conducted using a stratified method to ensure equal representation among various roles in construction projects, including project managers, site supervisors, engineers, and skilled laborers, based on their role type, years of experience, and educational background. Within every category, individuals were selected using purposive convenience and careful consideration, based on the study's aims.

To gather information, 300 construction professionals were given a structured questionnaire, which produced 250 valid responses for analysis, resulting in an 83.3% response rate. All items in the questionnaire were closed-ended and measured on a 5-point Likert scale, ranging from "Strongly Disagree" (1) to "Strongly Agree" (5), similar to those used in previous studies (Aarthi & Sujatha, 2022).

Sample size justification**:** According to Hair et al. (2021), a sample size of at least 10 times the maximum number of paths leading to one construct is recommended as the minimum sample size for PLS-SEM. Given the many paths and constructs to consider, the minimum sample size selected was at least 60. Hence, selecting 250 participants provides sufficient statistical power and maintains model stability.

Reliability and validity measures: Cronbach's Alpha and Composite Reliability (CR) were calculated to assess internal consistency and reliability. The values exceeded 0.7 for all the constructs, a high enough threshold for reliability (as shown in Table 2). Convergent validity was assessed using Average Variance Extracted (AVE), and all constructs had AVE values greater than 0.5.

Both the HTMT and Fornell-Larcker Criterion were used to test for discriminant validity. Since HTMT values were not higher than 0.90, the study suggested that the measures used reflect separate concepts. No multicollinearity concerns were found since each variable's VIF was less than 2.5.

Statistical tests and analytical framework: The study employed PLS-SEM due to its suitability for theory-building and handling complex models with latent variables, as well as small to medium sample sizes (Hair et al., 2021; Sarstedt et al., 2023). The following analyses were performed:

Cronbach's Alpha, CR, AVE, HTMT, and VIF were used to assess the reliability and validity of the measurement model. The structural model was evaluated through path analysis, examining R^2 for the predictive power, F^2 for the effect size, and Q^2 for the model's predictive relevance. Additionally, five thousand subsamples were used in a bootstrapping test to determine if the hypotheses were significant at the 0.05 significance level. Supplementary descriptive statistics and cross-tabulations were conducted in SPSS to support demographic analysis and explore patterns in team composition.

Bias mitigation and ethical considerations: Steps were taken to minimize common method bias, including ensuring that responses were anonymous, presenting questions randomly, and pretesting the questionnaire. Including various roles, genders, and experience levels was essential to improve the sample's objectivity. Confidentiality and the right to decline participation were promised to the participants through written consent.

However, the research faces three key limitations due to its reliance on small datasets and questionnaire-based self-reporting. While a cross-sectional design limits causal inferences, it requires further research through extended observation periods. Nevertheless, the methodological

rigour, particularly the use of SEM and robust validity checks, enhances the credibility of the findings and provides comprehensive insights into workplace motivational patterns in the construction industry.

Results and discussion

Demographic characteristics of respondents

Table 1: Demographic Characteristics of Respondents

S/N	Respondent's Details	Category	Frequency	Percent
1	**Gender**	Male	170	68%
		Female	80	32%
			250	
2	**Age**	Below 25	20	8.0%
		25 - 34	102	40.8%
		35 - 44	78	31.2%
		Above 45	50	20.0%
			250	
3	**Education**	Bachelor's Degree	129	52%
		Master's Degree	42	17%
		Certificate	38	15%
		Diploma	36	14%
		PhD	5	2%
			250	
4	**Years of Experience**	1-4 yrs	43	17.2%
		13 yrs +	54	21.6%
		5-8 yrs	89	35.6%
		9-12 yrs	52	20.8%
		Less than a year	12	4.8%
			250	
5	**Role of Respondents**	Team Member	84	33.60%
		Engineer	75	30.00%
		Supervisor/Team Leader	39	15.60%
		Site Manager	30	12.00%
		Project Manager	22	8.80%

			250	

Source: Survey data (2025)

Table 1 presents the demographic distribution of the 250 respondents. Findings show that males, 68%, dominate the construction society in Sierra Leone, while females comprise 32%. This tendency in a male-dominated industry may lead to biased perspectives regarding teamwork and motivation. Regarding the age distribution, 40.8% of the respondents fall within the 25-34 year age range, while 31.2% are in the 35-44 year age range. Another 20.0% is comprised of individuals aged 45 years and above, while the least represented age bracket is under 25. From this, we can infer that they are likely to be relatively young and experienced in technical skills, while simultaneously gaining management experience.

Additionally, most respondents hold a bachelor's degree, with 52% of the respondents; a few have a Master's degree, 17%; a certificate, 15%; and 14% hold diplomas. A tiny percentage has a PhD level (2%). The result suggests that the workforce is well-educated, which may influence the notion of the team's experience and skill level. We also examined the years of experience. The largest share (35.6%) comprises individuals with 5-8 years of experience, followed by those with 9-12 years of experience, which takes second place with 20.8%, and those with 13+ years of experience come third with 21.6%. A smaller portion of the respondents has less than one year of experience (4.8%). In this distribution scenario, it can be observed that most respondents have practical experience, and such ideas may help in understanding team dynamics. The research examined respondents' roles. The distribution was further divided as follows: Team Members (33.6%), Engineers (30%), Supervisors/Team Leaders (15.6%), Site Managers (12%), and Project Managers (8.8%). Such roles provide a wider view of how and to what extent the efficiencies and motivation of the integrated teams might differ depending on the type of work being performed in the construction industry. The demographic profile supports the assumption that project teams in Sierra Leone primarily comprise technically competent and field-experienced individuals, making them suitable for investigating the influence of team dynamics on motivation outcomes.

Measurement model assessment

Validity and reliability testing

Table 2: Validity and Reliability Testing

Constructs	Cronbach's Alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	AVE
RM	0.805	0.823	0.863	0.559
TR	0.826	0.830	0.877	0.589
TS	0.816	0.828	0.870	0.572

TmE	0.769	0.773	0.844	0.520
TmS	0.752	0.788	0.832	0.501

Source: Author's output (2025)

Discriminant validity

Table 3: Discriminant Validity

	HTMT				Fornell-Larcker criterion				
Construct	**RM**	**TR**	**TS**	**TmE**	**RM**	**TR**	**TS**	**TmE**	**TmS**
RM					0.748				
TR	0.739				0.591	0.768			
TS	0.706	0.857			0.574	0.703	0.756		
TmE	0.519	0.612	0.586		0.428	0.500	0.479	0.721	
TmS	0.424	0.631	0.521	0.824	0.330	0.524	0.434	0.627	0.708

Source: Author's output (2025)

In Table 2, the measurement model yields reliable and valid results, as indicated by Cronbach's Alpha values above 0.7 and composite reliability within acceptable ranges (Sarstedt et al., 2023). The Average Variance Extracted results exceed the necessary thresholds.

Table 3 confirms discriminant validity using the HTMT ratio and the Fornell-Larcker criterion. All HTMT values except TR to TS are acceptable; however, their values indicate that they are bordering cutoff limits, suggesting construct overlap. Scholars have agreed that if constructs are similar, their HTMT ratios above 0.85 to 09.0 are acceptable (Henseler et al., 2015; Sarstedt et al., 2023). Additional investigation was needed to assess the discriminant validity between these constructs. The author also looked at the Fornell-Larcker criterion, which confirms that the square roots of AVE for each construct were greater than their respective correlations, indicating model robustness. We further tested for multicollinearity and found no severe issues, as the VIF values remain below 2.5. According to Hair et al. (2021), if a VIF value remains below 5, the measurement items demonstrate proper separation, thus model stability. Therefore, the assessment results indicate that neither the outer nor the inner models exhibits severe multicollinearity problems.

Overall, the measurement model shows strong reliability and convergent validity, with minor concerns regarding the discriminant validity between TR, TS, TmE, and TmS. Future research should address these issues by refining construct definitions or adding more indicators. These findings validate the measurement instruments, ensuring that constructs like Team Experience and Team Skills reliably capture distinct facets of team effectiveness relevant to Sierra Leone's construction context.

Structural model assessment

Predictive power and effect sizes

The model's R^2 values provide insight into the explanatory power of the independent variables. The R^2 value for Team Reward (TR) was 0.323, indicating that the independent variables in the model explained 32.3% of the Variance in TR. Similarly, Team Satisfaction (TS) had an R^2 value of 0.259, suggesting that TmE and TmS can account for 25.9% of the Variance in TS. The Reward Mechanism (RM) explained the least Variance (R^2 = 0.190), suggesting that other unmeasured factors—such as organizational culture or external rewards—may play a significant role in shaping reward systems within construction teams.

Q^2predict values, which assess the predictive relevance of the model, showed that the model's predictive power was moderate for TR (Q^2predict = 0.299), suitable for TS (Q^2predict = 0.235), and moderate for RM (Q^2predict = 0.169). These values suggest that the model holds reasonable predictive accuracy, particularly for team reward and satisfaction, and moderate accuracy for reward mechanisms. In line with the research by Hair et al. (2021), a Q^2 value above 0.15 is considered acceptable, with TR showing powerful predictive relevance, indicating that experience and skills play a key role in shaping how rewards and satisfaction are perceived within construction teams.

The F^2 values, which measure the effect size of each path, further illustrate the relative strength of the relationships between the independent variables and the motivational outcomes. The effect size from TmE to RM (f^2 = 0.100) was moderate, suggesting that team experience has a meaningful impact on reward mechanisms. Similarly, the effect of TmE on Team Satisfaction (TS) (f^2 = 0.095) and Team Reward (TR) (f^2 = 0.072) also showed moderate effects, consistent with prior studies (Kark et al., 2021). In contrast, TmS had smaller effect sizes, indicating weaker relationships with the motivational variables, particularly with RM (f^2 = 0.017), which may suggest that skills alone are less critical in influencing formal reward mechanisms compared to experience. This finding supports the notion that while skills are essential for effective team performance, collective expertise significantly enhances motivation through stronger interpersonal dynamics and knowledge sharing within teams (Gu et al., 2022). According to Hair et al. (2022), using Q^2 and F^2 values in structural equation modeling as indicators of predictive power and effect size emphasizes that these metrics help validate SEM models.

Hypothesis testing and validation

Table 4: Hypothesis Testing and Validation

Hypothesis	***Structural Relationship***	***β***	***T statistics***	***P values***	***Decision***
H1	TmE -> RM	0.365	5.204	0.000	Accepted
H2	TmE -> TR	0.282	3.589	0.000	Accepted
H3	TmE -> TS	0.340	3.925	0.000	Accepted
H4	TmS -> RM	0.101	1.419	0.078	Rejected
H5	TmS -> TR	0.347	4.623	0.000	Accepted
H6	TmS -> TS	0.221	2.749	0.003	Accepted

Source: Author's output (2025)

Table 4 presents the hypothesis postulated by the researcher. The first hypothesis (H1: TmE → RM) states that Team Experience (TmE) has a positive relation to the Reward Mechanism (RM). The result was accepted with a β value of 0.365, a T-statistic of 5.204, and a p-value of 0.000. Thus, the result is statistically significant and indicates that team experience has a moderately substantial positive impact on reward mechanisms. This aligns with previous studies showing that experienced teams are favourably disposed towards reward systems (Sayyam et al., 2021).

H2 (TmE → TR): Similarly, the second hypothesis posits that experience has a significant impact on team rewards. The results indicate that Team Experience (TmE) has a strong positive predictive relationship with Team Reward ($\beta = 0.282$, $T = 3.589$, $p = 0.000$), meaning that as team experience increases, the reward that team members feel they deserve also increases in the same direction. This result suggests that senior teams perceive their rewards as more closely aligned with their contributions.

The third hypothesis (H3: TmE → TS) was tested, and the results revealed that Team Experience (TmE) is also a positive predictor of Team Satisfaction (TS) ($\beta = 0.340$, $t = 3.925$, $p < 0.001$). This outcome suggests that experienced teams are satisfied due to improved teamwork, communication, and the fulfilment they obtain from tasks, which is typically achieved over time (González et al., 2021).

The fourth hypothesis (H4: TmS → RM), which states that Team Skills (TmS) have an impact on the Reward Mechanism (RM), was dismissed. With a β value of 0.101, $T = 1.419$, and a p-value of 0.078, the test was not statistically significant at the 0.05 level. This implies a relatively low impact on team skills concerning formal reward systems relative to team experience (Egemen, 2024).

The fifth hypothesis (H5: TmS → TR), which postulates that Team Skills (TmS) has a strong relationship with Team Reward, was accepted with $\beta = 0.347$, $T = 4.623$, $p = 0.000$. This means that teams that outperform and accomplish tasks perceive their reward as better matching their contributions. It supports the necessity of knowledgeable teams who receive enough rewards for their technical competencies in construction projects (Gu et al., 2022).

The final hypothesis (H6: TmS → TS), which suggests that Team Skills (TmS) and Team Satisfaction (TS) have a positive and significant relationship, was also accepted with $\beta = 0.221$, $T = 2.749$, $p = 0.003$. This finding suggests that highly skilled teams experience greater levels of satisfaction. Perhaps such satisfaction results from the perceived ability to work without so much struggle, seeing that they can work and accomplish their goals satisfactorily.

In summary, the results suggest that Team Experience (TmE) is a crucial element in promoting the Reward Mechanism (RM) as well as Team Motivation (TR and TS), as previous studies have highlighted the primary role that experience plays in team motivation. Nonetheless, Team Skills

(TmS) was revealed to have a comparatively weak effect on RM; yet, it still positively affected Team Reward and Team Satisfaction, which is especially important for skill improvement to keep the team motivated. Thus, the SEM model depicted in Figure 1 examines the influence of team experience and team skills on reward mechanisms, team rewards, and team satisfaction within construction teams. It reveals that team experience significantly influences all motivational constructs, while team skills have a significant impact on only two of them.

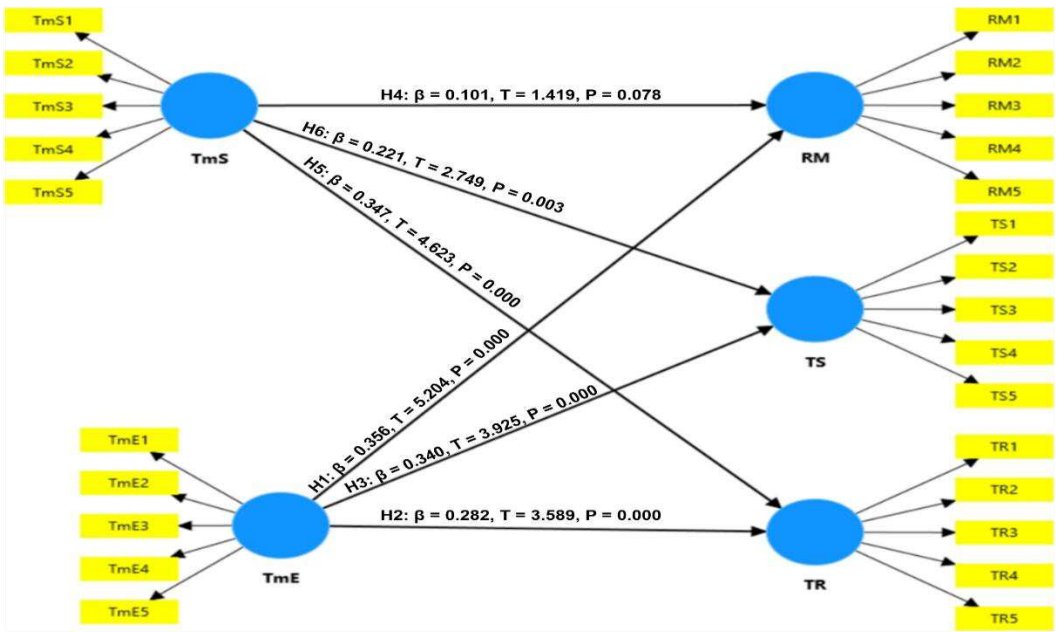

Figure 2: Final Model for Team Motivation

Source: SmartPLS Data Analysis Output (2025)

Discussion

The findings reinforce the theoretical foundation that team experience exerts a more substantial influence on motivation-related constructs than technical skills. Additionally, the more significant effect of TmE on RM suggests that experienced teams are better aligned with formal reward systems, validating observations made by Alharbi (2022) and González et al. (2021). TmS, while contributing to TR and TS, does not significantly predict RM, indicating that skill alone may not translate into perceived fairness or clarity in reward distribution. These dynamics are particularly relevant in fragile construction ecosystems where motivation heavily relies on peer influence and shared experiences rather than formal structures. The study further provides crucial insights into the impact of Team Experience (TmE) and Team Skills (TmS) on Team Motivation, specifically through Reward Mechanism (RM), Team Reward (TR), and Team Satisfaction (TS) in the context of Sierra Leone's construction industry. Therefore, this study aims to fill this gap by examining the impact of TmE and TmS on RM, TR, and TS in Sierra Leone's construction industry.

TmE was also found to have a significant relationship with the three motivation variables, which include RM, TSM, and TR, indicating the importance of the experience in motivating teams. This aligns with Wang et al. (2024), who suggested that experience enhances perceived competence and intrinsic motivation, leading to higher satisfaction and a better alignment with the reward system. The findings from Hypothesis 1, Hypothesis 2, and Hypothesis 3 in this study indicate that teams that have worked extensively on executing plans within the enterprise are more likely to perceive the reward structures accurately and are more often satisfied with their work. These findings are consistent with the work of González et al. (2021), who also note that more experienced teams are more motivated. As such, the positive effects of effective communication within construction teams are consistently achieved through high teamwork (Hassan et al., 2022).

On the other hand, the results showed that TmS had a relatively weak relationship with the RM compared to the findings that supported H4. As a result, we can conclude that, although team skills are an undeniably important antecedent of task performance, the weaker path coefficient of TmS and RM, as postulated in H4, implies that rewards are more connected with team expertise in general than individual ability. Egemen (2024) similarly explained that, although skills impact the team's effectiveness, they are not necessarily directly related to reward systems; the latter depends on the team's and the leaders' overall characteristics. Egemen further stated that skilled labor workers had the least job satisfaction and performance. In contrast, engineers and architects had the highest job satisfaction, and there was a robust positive link between job satisfaction and performance.

The significant effects of TmS on Team Reward (TR) and Team Satisfaction (TS), as shown in H5 and H6, suggest that teams with higher technical competencies feel their contributions are more adequately rewarded and report higher satisfaction. These findings support Gu et al. (2022), who stated that technical skill influences reward perception, as team members expect consideration based on their displayed skills. Likewise, Sayyam et al. (2021) posit that team satisfaction is maximized when people perceive themselves as competent in their roles, which partly supports the relationship between team experience and greater satisfaction.

The model's R^2 values show that the TmE and TmS account for a reasonable variation in TR and TS. The independent variables can be said to provide a reasonable explanation for the variation in the motivation outcomes, as indicated by the higher values of R^2 for TR = 0.323 and TS = 0.259. Nevertheless, the obtained R^2 for the model with predictors is 0.190 for RM, indicating that other factors, such as organizational culture or another reward system not captured in this study, may be influencing the teams' reward mechanisms. Wang et al. (2024) and Xu et al. (2023) suggested that cultural and organizational factors may also play a role in the reward systems, which could explain why RM has lower explanatory power in this model.

In sum, this study advocates for the importance of TmE as a crucial factor that drives team motivation, especially among teams in the construction industry, where experienced team members have a better understanding of the reward distribution systems and are found to be more satisfied

with the existing rewards as they consider them as fairly received. However, while Team Skills (TmS) impact both Team Reward and Team Satisfaction, their impact is not as strong in Reward Mechanisms, suggesting that other factors motivate workers beyond formal compensation. Thus, inadequate rewards may lead to low motivation, which in turn affects project success. Further studies could compare the cross-cultural and within-organization effects of the organizational environment on rewards and the constructs of TmS and TmE to identify the subtleties of team motivation in construction environments.

Conclusion

Empirically, this study advances our understanding of how Team Effectiveness, through experience and skills, shapes motivation dynamics and provides new insights into Sierra Leone's building construction sector. By applying PLS-SEM to analyze data from 250 professionals, it is revealed that Team Experience (TmE) exerts a robust influence on both intrinsic (satisfaction) and extrinsic (reward mechanisms) motivational constructs. While impactful, team Skills (TmS) lack a strong connection to formal reward systems, indicating a misalignment between technical competency and institutional recognition. This gap necessitates a more in-depth examination of how teams perceive and interact with reward structures in low-resource settings.

Theoretically, the study refines our understanding of motivation models by demonstrating that classical theories, such as Herzberg's and Vroom's, must be contextually recalibrated for low-resource construction environments. Practically, it indicates the need for experience-based reward systems and greater transparency in skill recognition mechanisms, which are critical in ensuring better team performance and satisfaction.

The study further highlights gaps in reward systems in Sierra Leone, suggesting that future research should explore organizational culture, leadership styles, and compensation systems to understand variations in team motivation.

Practically, the findings underscore the importance of team experience in boosting motivation and improving overall project performance, which aligns with the positive correlation between experience and motivation reported by González et al. (2021). On the contrary, the impact of TmS on RM turned out to be weak, implying that technical skills are somewhat critical but not directly linked to the reward systems, which are more affected by team dynamics and experience.

Moreover, the study provides frameworks and practical tools for explaining the extent to which team effectiveness affects team motivation in the construction sector. Such findings are significant as they highlight the need to promote experience-based motivating factors, especially in complex and resource-limited environments like Sierra Leone. The more insignificant effect of TmS on RM and the smaller R^2 for RM indicate that additional factors are involved in reward mechanisms that should be studied in future research; these factors may include organizational culture, leadership styles, or compensation outside the organization.

The implications of this study can be applied to the construction sector in other developing nations, although it draws from experience-based teams from Sierra Leone. The importance of experience over technical ability cannot be ruled out in any sphere of the world, particularly in other developing countries.

The study has several limitations, including a cross-sectional design, potential bias, context specificity, the omission of organizational and cultural variables, minor issues with discriminant validity, and a gender imbalance in the sample. These limitations were addressed through transparent reporting, methodological rigor, and recommendations for future longitudinal, cross-cultural, and mixed-methods research to enhance construct validity and explanatory power. Hence, this research has paved the way for further studies that will help recognize various aspects of motivation, thereby fostering better team effectiveness in the construction industry through improved reward systems, team management, and training, ultimately enhancing construction project outcomes in similar contexts globally.

Recommendations

The study has found that team experience and skills have a significant impact on team motivation. Therefore, to ensure compelling team motivation, the study proposed the following:

For Construction Managers: Prioritize retaining experienced teams over short-term replacements or restructuring to improve satisfaction, continuity across projects, align reward systems, and maintain procedural memory and cohesion across projects.

Policymakers and project owners should implement structured, experience-sensitive reward frameworks in public and donor-funded projects, and encourage training programs that combine technical skill development with experiential learning (e.g., coaching or mentorship, site rotations).

For HR Professionals: Redesign performance appraisal systems to reflect team-based contributions rather than individual KPIs. Additionally, HR should implement transparent and participatory reward systems, enabling workers to understand how rewards are earned and distributed.

Future Research: Researchers should consider organizational environment and cultural factors in team motivation models. Future studies should investigate cross-organizational and cross-cultural contexts to understand how these factors impact project performance and inform the design of more effective approaches. Cross-country comparisons within Sub-Saharan Africa can help clarify the generalizability or context-bound nature of findings.

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