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REGULATORY ADAPTATION AND CULTURAL TRAINING AS DRIVERS OF PROJECT SUCCESS: THE MEDIATING ROLE OF COMMUNICATION EFFICIENCY IN YCIH OVERSEAS PROJECT DELIVERY NETWORKS

Abstract

Drawing on institutional and communication theories, this study tests whether regulatory adaptation and cultural training drive project success and whether communication efficiency mediates these relationships. A mixed-method design was adopted. Quantitatively, a structured questionnaire was administered to project personnel involved in Yunnan Construction and Investment Holding Group (YCIH) overseas delivery in Southeast Asia, yielding 412 valid responses. Partial least squares structural equation modeling (PLS-SEM) with bootstrapping was used to assess the measurement model, direct effects, and mediation. Qualitatively, 18 semi-structured interviews were used to triangulate the interpretation of coordination frictions and improvement levers. The interview evidence indicated that regulatory translation gaps, bilingual document control, culturally different feedback norms, and delayed closure of site issues were recurrent communication bottlenecks. Regulatory adaptation and cultural training positively affect communication efficiency ($\beta = 0.347$ and $\beta = 0.359$, $p < 0.001$). Communication efficiency positively affects project success ($\beta = 0.406$, $p < 0.001$). Regulatory adaptation and cultural training also show positive direct effects ($\beta = 0.245$ and $\beta = 0.160$, $p < 0.001$). Communication efficiency partially mediated the relationship between regulatory adaptation and project success, and cultural training and project success through significant indirect effects ($\beta = 0.141$ and $\beta = 0.146$, $p < 0.001$). The model explains 33.9% of the variance in communication efficiency and 43.6% of the variance in project success. The study integrates regulatory and cultural capability-building into a communication-based mechanism for international project success, providing actionable guidance for contractors operating across institutional and cultural boundaries.

Keywords

regulatory adaptation, cultural training, communication efficiency, project success, mediation, international construction, YCIH, Southeast Asia

JEL Classification

F23, D23, L74, D83, O22

INTRODUCTION

International construction is increasingly delivered through cross-border networks in which contractors must comply with host-country regulatory systems while coordinating culturally diverse teams and supply chains. These environments are characterized by institutional (laws, permits, enforcement styles, and contract governance) and cultural distance (language, work norms, power distance, and risk attitudes), both of which can impair schedule, cost, and quality outcomes (Lin et al., 2021; Lovrenčić Butković, 2021). Contemporary project standards, therefore, define project success as multi-dimensional, including scope, time, cost, quality, safety, and stakeholder outcomes.

Yunnan Construction and Investment Holding Group (YCIH) serves as an adequate contextualization because it encompasses construction investment, infrastructure construction, international engineering investment and construction, design, research, consultation, and related services with its operations not only in China, but also in South Asia, Southeast Asia, the Middle East, and Africa (Yunnan Commercial Representative Office in Manila, n.d.). In Laos, the public project record shows that YCIH is a key player in the construction of the expressway from China to Laos, including the section from Vientiane to Vang Vieng, which was constructed under the Laos–China project arrangement and a Build-Operate-Transfer structure (Xinhua, 2018; AidData, 2024). This context is of theoretical relevance as in such projects the contractors need to navigate host-country regulation while adapting the project routines and coordinating the multilingual and multicultural project participants in engineering, procurement, compliance, quality, safety, and subcontractor interfaces (Li et al., 2022; Liu et al., 2016; Meng et al., 2025). The Vientiane to Vang Vieng expressway is mentioned in this paper as a contextual example of where YCIH has delivered overseas, instead of being the only project site from which all survey and interview data were gathered. The unit of analysis is not a case of one project, but the broader YCIH overseas project delivery network, which includes transport and other development projects.

The project management literature recognizes that regulatory complexity and cultural diversity influence performance (Abdalla et al., 2024; Borges et al., 2025). Compliance risk reviews identify regulatory non-conformance as a frequent root cause of disputes, delays, and rework. Meanwhile, cross-cultural research indicates that multicultural teams can either amplify performance through diverse knowledge or undermine performance through misunderstanding and conflict.

However, less is known about the organizational mechanisms that translate these pressures into project success (Banihashemi et al., 2017; Viswanathan et al., 2020; Ye et al., 2022). This study proposes that communication efficiency (the speed, clarity, completeness, and closure of information exchange) mediates the effects of regulatory adaptation and cultural training on project success. Communication is repeatedly linked to construction outcomes through reduced conflict, clearer accountability, and faster decision-making (Al Nahyan et al., 2019).

Accordingly, the question is: To what extent do regulatory adaptation and cultural training drive project success in YCIH overseas delivery contexts, and does communication efficiency mediate these relationships? The paper contributes by operationalizing regulatory adaptation and cultural training as measurable capabilities, testing mediation using SEM-style analysis, and providing a context-sensitive discussion for Chinese contractors operating in Southeast Asia.

1. LITERATURE REVIEW AND HYPOTHESES

Recent research on project success has gone beyond the iron triangle and now incorporates outcome-based and stakeholder-sensitive measures such as cost, schedule, quality, safety, learning, and stakeholder value. This extended perspective holds significance especially in international construction, where, in addition to technical delivery, the contractor must be able to resonate with the institutions of the host country and with culturally diverse project networks (Ika & Pinto, 2022; Weng et al., 2021; Wang et al., 2024).

Regulatory adaptation is the organizational capacity to recognize host-country requirements, understand what is required, implement the required project routines, and maintain evidence of compliance. Previous research on international construction risks suggests that institutional distance, technical standards, compliance requirements, and host country regulatory environments all have an effect on project performance through the mechanisms of approval cycles, claims exposure, rework, and stakeholder legitimacy (Lei et al., 2017; Li et al., 2022; Liu et al., 2024; Wang et al., 2024; Ye et al., 2022). However, much of this literature assumes regulation as an external restriction.

Here, we view regulatory adaptation as a project capability that can be built and increase project success if the regulatory knowledge is translated into project decision routines, document control practices, and authority liaison processes.

Cultural training is structured to build cultural awareness, competence in cultural interaction, and competence in task-relevant behavioral adjustment of project personnel. Expatriate construction professionals and international construction teams have been found to be associated with cross-cultural adjustment (Abdalla et al., 2024; Cui et al., 2019; Eyiah et al., 2025), cultural intelligence (Lin et al., 2021; Liu et al., 2020), and effective diversity management with better cooperation and performance. Conversely, poorly managed cultural differences are associated with increased misunderstanding, conflict, and loss of coordination. Other research on multicultural teams more generally warns that cultural diversity can have both good and bad effects if not addressed with suitable team processes and styles of leadership (Minbaeva et al., 2021; Stahl & Maznevski, 2021). This implies that culturally competent training should impact the success of a project, not just because there are multicultural team members, but because the training allows the team members to navigate the language, feedback, hierarchy, and safety and conflict resolution challenges of a multicultural team.

In this study, communication efficiency is defined as the clarity, speed, accessibility, completeness, and closure of the exchange of information within the project. Poor communication is repeatedly cited as a factor leading to conflict, delays, rework, and poor-quality decision-making in construction. Better communication, specifically structured communication and knowledge sharing, is highlighted as a way to improve project coordination and performance (Al Nahyan et al., 2019; Ding et al., 2024; Gamil & Abd Rahman, 2023; Malik et al., 2021; Suleiman, 2022; Yap et al., 2018). The efficiency of communication is of particular relevance in cross-border construction, where not only regulatory meaning, but also technical meaning needs to be conveyed across organizational, linguistic, and cultural barriers.

Regulatory adaptation should also make communication more efficient, since project teams will

need to document what to communicate, to whom, when, and how, in order to adhere to the regulations. Abstract regulatory requirements become operational communication routines in the form of permit registers, inspection records, approval workflows, escalation protocols, and evidence packages. These routines mitigate uncertainty and provide faster feedback loops among contractors, authorities, consultants, and subcontractors (Feng et al., 2025; Liu et al., 2024; Meng et al., 2025; Viswanathan & Jha, 2020).

It is also believed that cultural training will enhance the efficiency of communication, as many instances of project communication failure are not just technical. They are typical of discrepancies between language, hierarchy, meeting dynamics, indirect feedback, perception of risk, and conflict management. Training can establish shared expectations regarding the manner in which instructions are given, clarified, challenged, and closed, thus promoting common mental models and helping to minimize unnecessary misunderstandings in multicultural project situations (Borges et al., 2025; Cui et al., 2019; Eyiah et al., 2025; Liu et al., 2020).

In line with this, the mediation logic is that regulatory adaptation and cultural training improve project success through improved communication efficiency. Regulatory adaptation involves making the formal aspects of communication more explicit, such as compliance routines and decision trails, and cultural training involves establishing interaction norms and minimizing semantic mismatch in the social aspects of communication. When communication is efficient, it enhances project success at a faster pace of identifying issues, greater accountability, and reduced rework and conflict (Al Nahyan et al., 2019; Malik et al., 2021; Yap et al., 2018). This makes the efficiency of communication the instrument of the translation of institutional and cultural capacities to project outcomes. Therefore, the following theoretical model (Figure 1) and hypotheses are proposed:

- H1: Regulatory adaptation positively influences project success.*
- H2: Cultural training positively influences project success.*

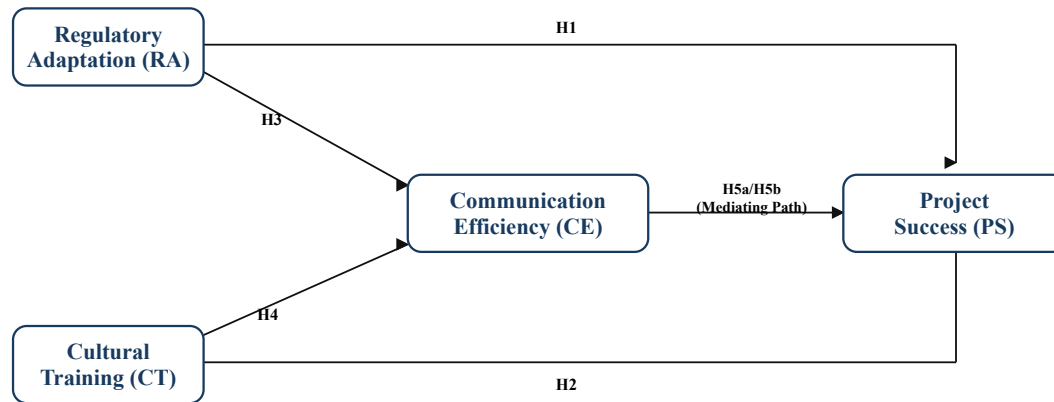


Figure 1. Theoretical model

- H3: Regulatory adaptation positively influences communication efficiency.*
- H4: Cultural training positively influences communication efficiency.*
- H5: Communication efficiency mediates the relationships between (a) regulatory adaptation and project success and (b) cultural training and project success.*

seas projects. This meant that project management, engineering and technical, procurement, compliance and legal coordination, HSE, quality, and related partner or subcontractor interfaces were all included. The survey employed a purposive, project-based sampling logic, as the study required a group of individuals with practical experience in regulatory adaptation, cultural training, and communication processes in cross-border project scenarios. Thus, 412 valid responses were retained after screening for overseas project exposure and completeness of questionnaires.

2. METHODOLOGY

A mixed-method design was used. The quantitative part was a cross-sectional survey in which the hypotheses were tested for the relationships between regulatory adaptation, cultural training, communication efficiency, and project success. The qualitative part of the study was used to triangulate the interpretation of the survey and to clarify the process of communication efficiency in daily project control, especially in the interpretation and dissemination of regulatory documents, bilingual coordination, and issue closing (Suleiman, 2022; Zeng et al., 2021).

The sampling frame was all project staff of the YCIH overseas project delivery networks in Southeast Asia. The sample included more than just people at the YCIH offices or people working for YCIH. Eligible respondents were personnel who had had first-hand experience of overseas project delivery, host-country regulatory coordination, multicultural project communication, project control, and partner and subcontractor coordination related to YCIH over-

Items were adapted from recent international projects and construction communication literature (Ding et al., 2024; Liu et al., 2016; Malik et al., 2021). Regulatory adaptation items capture compliance scanning, regulatory liaison, and documentation routines. Cultural training items capture the extent and usefulness of cultural preparation and capability gains (Abdalla et al., 2024; Borges et al., 2025). Communication efficiency items capture clarity, speed, accessibility, and closure of communication loops. Project success items capture multi-dimensional success consistent with modern project standards.

Reliability and validity were assessed using Cronbach's alpha, composite reliability (ρ_c), and average variance extracted (AVE). Discriminant validity was assessed using HTMT and Fornell-Larcker criteria (Durdiev et al., 2018; Li et al., 2022; Xiong et al., 2015). The structural model was estimated with bootstrapped coefficients and indirect effects, alongside R^2 , Q^2 predict, and effect sizes (f^2).

Table 1. Questionnaire profile

Variable	Items	Scale/source (examples)
Regulatory Adaptation (RA)	6	Compliance and regulatory-risk routines
Cultural Training (CT)	6	Cross-cultural training and cultural intelligence
Communication Efficiency (CE)	6	Project communication efficiency and coordination
Project Success (PS)	5	Multi-dimensional success criteria

Table 1 presents the questionnaire profile used to measure the key constructs in this study. Four primary variables were operationalized: regulatory adaptation, cultural training, communication efficiency, and project success. Regulatory adaptation, cultural training, and communication efficiency were each measured using six items, reflecting their multidimensional nature and ensuring adequate coverage of compliance routines, cross-cultural competence, and coordination effectiveness. Project success was measured using five items, capturing multi-dimensional performance outcomes. The balanced distribution of items across constructs enhances measurement reliability and content validity by ensuring that each variable is sufficiently represented. This questionnaire design demonstrates structural consistency and conceptual alignment with the theoretical framework of the study, thereby supporting robust empirical testing in subsequent analyses.

Table 2 presents the demographic and professional characteristics of the respondents included in the study. A total of 412 valid responses were analyzed. The sample was predominantly male (70.4%), with females representing 29.6%. In terms of age distribution, the largest group fell within the 30–39 years category (44.9%), followed by 40–49 (26.5%) and 20–29 (20.4%), indicating that most participants were in their mid-career stage.

Regarding nationality, the majority of respondents were from China (68.7%), followed by Laos (23.3%) and other ASEAN countries (8.0%), reflecting the regional composition of cross-border or international project contexts. In terms of professional roles, engineering/technical personnel constituted the largest group (33.5%), followed by project management (24.8%), procurement (19.4%), compliance/legal (12.4%), and HSE/quality (10.0%). This distribution suggests representation across key functional domains involved in project implementation.

With respect to tenure, most respondents had 3–5 years of experience (31.8%) or 6–10 (26.2%), indicating moderate to substantial professional exposure. A smaller proportion reported less than 3 (24.3%) or more than 10 years (17.7%) of experience. Finally, respondents were involved in diverse project types, including expressway/transport (35.9%), industrial zone/real estate (28.6%), energy/utility (20.1%), and public buildings (15.3%). The diversity across project categories enhances the generalizability of the findings across different infrastructure and construction sectors.

Table 2. Respondent profile

Category	Group	n	%
Gender	Male	290	70.4
	Female	122	29.6
Age	30–39 years old	185	44.9
	40–49 years old	109	26.5
	20–29 years old	84	20.4
	50+ years old	34	8.3
Nationality	China	283	68.7
	Laos	96	23.3
	Other ASEAN	33	8.0
Role	Engineering/technical	138	33.5
	Project management	102	24.8
	Procurement	80	19.4
	Compliance/legal	51	12.4
	HSE/quality	41	10.0
Tenure	3–5 years	131	31.8
	6–10 years	108	26.2
	<3 years	100	24.3
	>10 years	73	17.7
Project type	Expressway/transport	148	35.9
	Industrial zone/real estate	118	28.6
	Energy/utility	83	20.1
	Public buildings	63	15.3

The interview is conducted in a semi-structured style, with samples of $n = 18$ (Appendix A). The qualitative phase comprised 18 semi-structured interviews with respondents who had practical exposure to host-country approvals, bilingual coordination, subcontractor communication, or

project control. Interviews were used to identify recurring operational explanations for the quantitative relationships rather than to generate a separate grounded theory. Interview notes were coded thematically around four categories derived from the conceptual model: regulatory translation, cultural interpretation, communication bottlenecks, and project control outcomes. The interview synthesis was then used to interpret the mediation results and to identify concrete communication routines that explained how regulatory adaptation and cultural training affected project success.

3. RESULTS

3.1. Reliability and validity

All constructs demonstrated strong internal reliability, as shown in Table 3. The values of ρ_A ranged from 0.89 to 0.912, exceeding the recommended threshold of 0.70, indicating satisfactory construct reliability. Similarly, Jöreskog's ρ_c values ranged from 0.906 to 0.923, confirming high composite reliability across all variables. Cronbach's alpha coefficients ranged from 0.875 to 0.900, further verifying internal consistency and measurement stability.

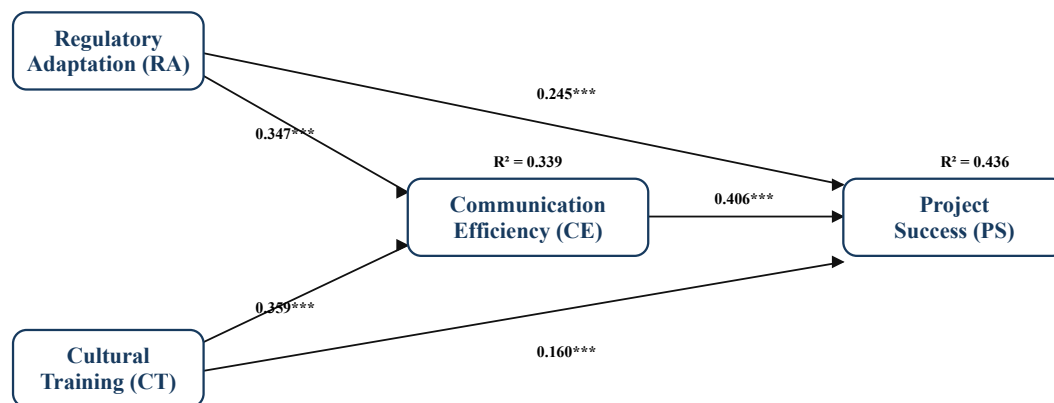
Convergent validity was assessed using the Average Variance Extracted (AVE). All AVE values exceeded the minimum criterion of 0.50, ranging from 0.616 to 0.695. This indicates that each construct accounts for more than half of the variance in its indicators, thereby confirming adequate convergent validity. The results demonstrate that the measurement model exhibits strong reliability and satisfactory convergent validity, supporting the suitability of the constructs for subsequent structural model analysis and hypothesis testing.

3.2. Estimated model

Figure 2 presents the structural model with standardized path coefficients and explanatory power values. Regulatory adaptation positively predicts communication efficiency ($\beta = 0.347$, $p < 0.001$) and project success ($\beta = 0.245$, $p < 0.001$). Cultural training also positively predicts communication efficiency ($\beta = 0.359$, $p < 0.001$) and project success ($\beta = 0.160$, $p < 0.001$). Communication efficiency positively affects project success ($\beta = 0.406$, $p < 0.001$). The model explains 33.9% of the variance in communication efficiency and 43.6% of the variance in project success. These results indicate that communication efficiency partially mediates the relationship between regulatory or cultural capabilities and project success.

Table 3. Reliability and validity

Construct	Dijkstra-Henseler's rho (ρ_A)	Jöreskog's rho (ρ_c)	Cronbach's alpha (α)	AVE
Regulatory Adaptation (RA)	0.89	0.906	0.875	0.616
Cultural Training (CT)	0.912	0.923	0.9	0.667
Communication Efficiency (CE)	0.903	0.916	0.89	0.646
Project Success (PS)	0.905	0.919	0.89	0.695



Note: RA = regulatory adaptation; CT = cultural training; CE = communication efficiency; PS = project success. *** $p < 0.001$.

Figure 2. Structural model with standardized path coefficients

3.3. Measurement items fitness statistics

Outer loadings were examined to assess indicator reliability and confirm that each item adequately represents its respective construct, as shown in Table 4. All indicator loadings exceeded the commonly recommended threshold of 0.70, ranging from 0.736 to 0.862. Specifically, the loadings for communication efficiency (CE1–CE6) ranged from 0.772 to 0.826, while cultural training (CT1–CT6) ranged from 0.774 to 0.846. Project success (PS1–PS5) demonstrated strong loadings between 0.777 and 0.862. Similarly, regulatory adaptation (RA1–RA6) showed satisfactory loadings ranging from 0.736 to 0.831. These results indicate that all items exhibit strong individual reliability and contribute meaningfully to their respective latent constructs. The consistently high outer loadings further support the convergent validity of the measurement model and confirm that no indicator removal was necessary. The current findings demonstrate that the measurement items possess adequate statistical fitness, thereby reinforcing the robustness of the reflective measurement model prior to structural model evaluation.

Table 4. Measurement items fitness statistics (Outer loadings)

Indicator	RA	CT	CE	PS
CE1			0.826	
CE2			0.824	
CE3			0.788	
CE4			0.818	
CE5			0.772	
CE6			0.794	
CT1		0.846		
CT2		0.821		
CT3		0.81		
CT4		0.834		
CT5		0.774		
CT6		0.814		
PS1				0.862
PS2				0.842
PS3				0.83
PS4				0.855
PS5				0.777
RA1	0.831			
RA2	0.802			
RA3	0.798			
RA4	0.747			
RA5	0.736			
RA6	0.79			

Note: RA = regulatory adaptation; CT = cultural training; CE = communication efficiency; PS = project success.

3.4. Discriminant validity

Table 5 shows that all HTMT values ranged between 0.407 and 0.674, which are well below the conservative threshold of 0.85 (and the more liberal threshold of 0.90) recommended in the literature. The highest HTMT value was observed between communication efficiency and project success (0.674), while the lowest value was between regulatory adaptation and cultural training (0.407). These results indicate that the correlations between constructs do not threaten discriminant validity and that each construct captures a unique conceptual domain. Therefore, the findings confirm satisfactory discriminant validity of the measurement model, supporting its adequacy for subsequent structural model analysis.

Table 5. Discriminant validity (HTMT)

Construct	RA	CT	CE	PS
RA		0.407	0.54	0.562
CT	0.407		0.541	0.497
CE	0.54	0.541		0.674
PS	0.562	0.497	0.674	

Note: RA = regulatory adaptation; CT = cultural training; CE = communication efficiency; PS = project success.

As shown in Table 6, the diagonal values for regulatory adaptation (RA = 0.785), cultural training (CT = 0.817), communication efficiency (CE = 0.804), and project success (PS = 0.834) are all greater than the corresponding inter-construct correlations in their respective rows and columns. For instance, the $\sqrt{\text{AVE}}$ of project success (0.834) exceeds its highest correlation with communication efficiency (0.600). Similarly, cultural training (0.817) has a higher correlation than regulatory adaptation (0.361), communication efficiency (0.484), and project success (0.445).

These results confirm that each construct shares more variance with its own indicators than with other constructs, thereby satisfying the Fornell–Larcker criterion. Together with the HTMT results presented earlier, the findings provide robust evidence of discriminant validity within the measurement model.

Table 6. Discriminant validity (Fornell–Larcker; diagonal = VAVE)

Construct	RA	CT	CE	PS
RA	0.785	0.361	0.476	0.496
CT	0.361	0.817	0.484	0.445
CE	0.476	0.484	0.804	0.6
PS	0.496	0.445	0.6	0.834

Note: RA = regulatory adaptation; CT = cultural training; CE = communication efficiency; PS = project success.

3.5. Effects overview

Table 7 shows that communication efficiency has a strong direct effect on project success ($\beta = 0.406$, $f^2 = 0.193$), indicating its critical role in driving project outcomes. Additionally, regulatory adaptation and cultural training demonstrate indirect effects on project success through communication efficiency ($\beta = 0.141$ and $\beta = 0.146$, respectively), resulting in strengthened total effects (regulatory adaptation: $\beta = 0.386$; cultural training: $\beta = 0.306$). The results highlight communication efficiency as a key mediating mechanism linking regulatory and cultural competencies to project success.

Table 7. Effects overview

Effect	Direct β	Indirect β	Total β	Cohen's f^2
RA $\rightarrow$ CE	0.347		0.347	0.158
CT $\rightarrow$ CE	0.359		0.359	0.17
CE $\rightarrow$ PS	0.406		0.406	0.193
RA $\rightarrow$ PS	0.245	0.141	0.386	0.08
CT $\rightarrow$ PS	0.16	0.146	0.306	0.034

Note: RA = regulatory adaptation; CT = cultural training; CE = communication efficiency; PS = project success.

3.6. Goodness-of-fit statistics

Table 8 presents the explanatory power and predictive relevance of the structural model. The R^2 value for communication efficiency is 0.339 (adjusted $R^2 = 0.336$), indicating that approximately 33.9% of its variance is explained by the predictor variables. For project success, the R^2 value is 0.436 (adjusted $R^2 = 0.432$), suggesting moderate explanatory power. The Q^2 predict values for communication efficiency (0.329) and project success (0.428) are both greater than zero, confirming the model's predictive relevance. Additionally, the RMSE and

MAE values are within acceptable ranges, further supporting the model's out-of-sample predictive accuracy. The results indicate that the structural model demonstrates satisfactory explanatory capability and predictive performance.

As shown in Figure 2, the standardized path coefficients indicate that both regulatory adaptation and cultural training predict communication efficiency, while communication efficiency predicts project success. The direct effects of regulatory adaptation and cultural training on project success remain significant, indicating partial mediation. Direct effects of regulatory adaptation and cultural training on project success remain significant, indicating partial mediation (Durdyev et al., 2018).

3.7. Path analysis

Table 9 presents the bootstrapping results of the structural model. All hypothesized paths are statistically significant ($p < 0.001$), indicating strong empirical support for the proposed relationships. Both regulatory adaptation ($\beta = 0.347$) and cultural training ($\beta = 0.359$) significantly influence communication efficiency. In turn, communication efficiency has a strong positive effect on project success ($\beta = 0.406$). Direct effects of regulatory adaptation ($\beta = 0.245$) and cultural training ($\beta = 0.160$) on project success are also significant.

Furthermore, the indirect effects of regulatory adaptation ($\beta = 0.141$) and cultural training ($\beta = 0.146$) on project success through communication efficiency are significant, confirming the mediating role of communication efficiency.

The hypothesis testing results show that all proposed hypotheses were accepted, as shown in Table 10 above. Regulatory adaptation and cultural training both had significant positive effects on communication efficiency and project success. Communication efficiency also significantly mediated the relationships between regulatory adaptation and project success, as well as between cultural training and project success.

Table 8. R-squared statistics and predictive relevance

Construct	R^2	Adjusted R^2	Q^2 predict	RMSE	MAE
Communication Efficiency (CE)	0.339	0.336	0.329	0.819	0.675
Project Success (PS)	0.436	0.432	0.428	0.756	0.62

Table 9. Path analysis (Bootstrapping results)

Path/Hypothesis	B	STDEV	t	p
H3: RA → CE	0.347	0.04	8.563	<0.001
H4: CT → CE	0.359	0.042	8.532	<0.001
H1: RA → PS	0.245	0.042	5.772	<0.001
H2: CT → PS	0.16	0.043	3.745	<0.001
CE → PS	0.406	0.045	9.125	<0.001
H5a: RA → CE → PS	0.141	0.024	5.954	<0.001
H5b: CT → CE → PS	0.146	0.024	6.034	<0.001

Note: Bootstrapped 95% confidence intervals for indirect effects: RA→CE→PS [0.096, 0.184] and CT→CE→PS [0.098, 0.194] (Li et al., 2022; Liu et al., 2016). RA = regulatory adaptation; CT = cultural training; CE = communication efficiency; PS = project success.

Table 10. Hypotheses testing summary

Hypothesis	Relationship	Result	Decision
H1	Regulatory adaptation positively influences project success.	$\beta = 0.245, p < 0.001$	Accepted
H2	Cultural training positively influences project success.	$\beta = 0.160, p < 0.001$	Accepted
H3	Regulatory adaptation positively influences communication efficiency.	$\beta = 0.347, p < 0.001$	Accepted
H4	Cultural training positively influences communication efficiency.	$\beta = 0.359, p < 0.001$	Accepted
H5a	Communication efficiency mediates the relationship between regulatory adaptation and project success.	Indirect $\beta = 0.141, p < 0.001$	Accepted
H5b	Communication efficiency mediates the relationship between cultural training and project success.	Indirect $\beta = 0.146, p < 0.001$	Accepted

4. DISCUSSION

The findings lend weight to the suggestion that the levers of capability-building in international construction are regulatory adaptation and cultural training, and that a mechanism that enables capability to be translated into project success is communication efficiency. The direct effects of regulatory adaptation and cultural training were both significant, and communication efficiency had the strongest direct effect of the predictors. This aligns with research indicating that construction performance has been influenced by communication quality, regulatory risk management, and coordination among the various actors of a project (Al Nahyan et al., 2019; Malik et al., 2021; Viswanathan et al., 2020; Wang et al., 2024).

The results show that regulatory adaptation positively impacts project success, suggesting that compliance in the host country is not only a legal obligation or external factor. In the YCIH overseas delivery context, regulatory adaptation is more aptly described as a project capability to convert institutional needs into permit tracking, approvals workflow, inspection evidence, document control, and authority liaison. This aligns with previous evidence, which has demonstrated that institutional differences, technical stan-

dards, and compliance risks can negatively impact international construction performance via delays, rework, claims, and stakeholder conflicts (Lei et al., 2017; Li et al., 2022; Liu et al., 2024; Ye et al., 2022). The present finding adds to the literature by demonstrating that regulatory adaptation also takes place on the level of communication efficiency.

The positive influence of cultural training on project success corroborates cross-cultural construction studies suggesting that culturally diverse teams need to be coordinated to avoid misunderstandings and conflict. This result is consistent with the evidence that cultural intelligence, cross-cultural adjustment, and effective diversity management contribute to increased cooperation in international construction contexts (Abdalla et al., 2024; Cui et al., 2019; Eyiah et al., 2025; Lin et al., 2021; Liu et al., 2020). It also overcomes a weakness in other multicultural team studies, which warn that diversity is only of benefit when complemented with the right team processes (Minbaeva et al., 2021; Stahl & Maznevski, 2021). In this study, cultural training helped explain how the teams turned cultural diversity into interaction norms that were more clearly understood, rather than cultural diversity causing a loss of coordination.

Our main contribution is the mediation results. Both regulatory adaptation and cultural training affected project success and were partially mediated by communication efficiency. This implies that regulatory and cultural capacities are not always directly linked to project results, in terms of compliance or behavior. They also achieve this by speeding up, clarifying, completing, and closing information exchange. This interpretation is backed up by evidence from the interviews. The respondents repeatedly pointed out that regulatory translation gaps, bilingual document control, version ownership, delayed approvals, unclear responsibility for closing site issues, and different feedback styles are practical reasons for the communication delay. This aligns with the construction communication research, indicating that communication breakdowns lead to conflicts and rework, while clear and structured communication helps to enhance the quality of decisions and project performance (Ding et al., 2024; Gamil & Abd Rahman, 2023; Malik et al., 2021; Yap et al., 2018).

Another important aspect of the partial mediation pattern is that it suggests that communication efficiency is not the only path between regulatory adaptation, cultural training, and project success. Regulatory adaptation can have a direct positive impact on stakeholder legitimacy and decrease the risk of compliance sanctions; by contrast, cultural training can have a direct positive impact on trust, psychological security, and willingness to cooperate in multicultural teams. However, the substantial indirect impacts indicate that if the investments are not transferred to communication routines, contractors lose part of the value of these investments. For YCIH and similar international contractors, it is important to recognize that compliance systems are not only developed in parallel with cultural training and communication systems, but that the communication and cultural training systems should be developed alongside compliance systems.

The managerial implication is that the efficiency of communication can be tracked as a first measure of the health of an overseas project. Examples are approval cycle time, requests for information response time, non-conformance closure time, bilingual meeting actions completed, document revision turnaround, and escalation response time. These indicators can be helpful as they show regulatory and cultural conflict dynamics in the early stages, before they are evident in schedule, cost, or quality. Projects can build on these indicators by developing country-specific regulatory playbooks, bilingual templates, role-specific cultural training, single-source document control, regulatory approval matrices, and regulatory authority liaison routines.

The study was conducted using a mixed-method design with a relatively large survey sample, but there are some limitations that need to be recognized. First, the nationality of the respondent was taken, not the contractual employer category, function, tenure, or type of project. As such, the conclusions should be understood as information from YCIH delivery networks abroad and not just from direct YCIH workers. Future research should document the employment affiliation and project identifiers to enable a multi-group analysis of direct employees, joint venture partners, and subcontractor personnel. Second, the cross-sectional design allows for the testing of association and mediation between variables, and it is based on theory rather than forensics. Future research could be carried out longitudinally and focus on the development of regulatory adaptation, cultural training, and communication efficiency throughout the stages of the project. Third, the qualitative interviews were not meant to collect a qualitative theory in their own right, but rather to help triangulate the interpretation of the communication mechanisms; further development of this aspect could be achieved by conducting project-specific case studies.

CONCLUSION

The aim of this study was to examine how regulatory adaptation and cultural training contribute to project success in YCIH overseas project delivery networks, and to determine whether communication efficiency serves as a mediating mechanism in these relationships. The empirical results show that regulatory adaptation and cultural training both have positive effects on communication efficiency and

project success. Communication efficiency also positively affects project success and partially mediates the relationships between regulatory adaptation and cultural training and project success. The model explains 33.9% of the variance in communication efficiency and 43.6% of the variance in project success, indicating moderate explanatory power for a cross-border project management context.

The broader conclusion is that international construction success depends not only on technical delivery capability but also on the contractor's ability to convert regulatory and cultural complexity into efficient project communication. Theoretically, the study contributes by integrating institutional adaptation, cultural capability-building, and communication efficiency into a single mediation model. Managerially, the findings suggest that contractors should co-design compliance routines, cultural training, and communication infrastructure so that approvals, site instructions, document revisions, and issue closure are handled quickly and consistently across organizational and cultural boundaries. For YCIH and similar contractors, country-specific regulatory playbooks, bilingual document control, role-specific cultural training, and explicit escalation routines can strengthen project reliability and stakeholder outcomes in overseas delivery.

AUTHOR CONTRIBUTIONS

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APPENDIX A

Interview Questions

- How do host-country permits, standards, and inspections affect your planning and daily site coordination?
- What regulatory changes created the most rework or schedule disruption, and how were they handled?
- What cultural misunderstandings occur most often in meetings, site instructions, or safety briefings (Abdalla et al., 2024)?
- Which cultural training modules were most useful (language, negotiation, safety norms, community engagement) and why (Eyiah et al., 2025; Lin et al., 2021; Liu et al., 2020)?
- How is communication organized (platforms, document control, approvals, escalation), and where do delays occur?
- How do you ensure clarity and accountability in bilingual or multi-tier subcontractor communication chains (Al Nahyan et al., 2019; Lovrenčić Butković, 2021)?
- Describe a case where improved communication efficiency prevented a compliance, quality, or schedule issue (Yap et al., 2018).
- What organizational changes would most improve project success in future overseas delivery?