

## The Effect of Regulatory Adaptation and Cultural Training on Project Success: Mediating Role of Communication Efficiency in Yunnan Construction and Investment Holding Group

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### Abstract

**Introduction:** This study explores the impact of transformational leadership on employee deviant innovation behaviour, focussing on the mediating roles of work missions and innovative self-efficacy while also examining the influence of regulatory adaptation, cultural training, and communication efficiency on project success. **Objective:** Leadership style is an important factor that influences employee behaviour. Based on trait elicitation theory, self-efficacy theory, and social information processing theory, this article selects transformational leadership and employee deviant innovation behaviour as research objects and selects work mission and innovative self-efficacy as mediating variables to explore the mechanism of transformational leadership on employee deviant innovation behaviour. **Methods:** SPSS was used to analyse 188 valid survey questionnaires; multiple linear regression models were used for analysis. **Results:** Regulatory adaptation and cultural training have a significant positive impact on project success, and they also have a significant positive impact on communication efficiency. In terms of the impact on project success, communication efficiency partially mediates the relationship between regulatory adaptation and project success, while communication efficiency partially mediates the relationship between cultural training and project success. **Conclusion:** This study provides practical insights for international project managers, emphasising the importance of regulatory adaptation, cultural training, and effective communication in achieving project success. This study highlights the critical role of transformational leadership in influencing employee deviant innovation behaviour, with work mission and innovative self-efficacy acting as key mediators. Additionally, regulatory adaptation and cultural training significantly enhance project success, with communication efficiency serving as a partial mediator in these relationships. These findings offer valuable insights for international project managers, emphasising the need for effective leadership, regulatory adaptation, cultural training, and strong communication to drive successful project outcomes.

**Keywords:** Communication Efficiency; Mediating Role; Project Success; Regulatory Adaptation

### Introduction

In today's interconnected world, the globalised economy has facilitated an unprecedented surge in international projects for construction enterprises, opening up unprecedented opportunities for growth and expansion on a scale that was previously unimaginable. Yunnan Construction and Investment Holding Group (YCIHG), standing as a pillar among China's leading construction enterprises, has

embraced this trend by actively pursuing international ventures. Its strategic focus on these endeavours is not merely to broaden its geographical footprint but also to fortify its position in the fiercely competitive global market and elevate its international standing. However, managing international projects presents intricate challenges, primarily stemming from cultural disparities, variations in regulatory frameworks, and formidable communication hurdles.

Regulatory adaptation has emerged as a pivotal competence for enterprises operating across borders, as highlighted in recent research by Luo and Tung (2007). This competence encompasses the capability to comprehensively understand, accurately interpret, and fully comply with the diverse regulatory requirements and standards prevalent in different countries. As noted by Park and DeShon (2018), adaptability is indispensable for navigating the complex and often differing regulatory landscapes of various nations, thereby ensuring compliance and avoiding potential legal pitfalls. This regulatory agility is crucial for maintaining a positive reputation and fostering trust among international stakeholders.

Concurrently, cultural training has been recognised as a cornerstone for fostering cross-cultural competence among employees, as highlighted by Sakr, Naderpour, and Sharbatdar (2024). By imparting knowledge about the cultural norms, values, and communication paradigms specific to various countries, cultural training equips employees with the skills necessary to interact effectively with diverse stakeholders. This, in turn, facilitates smoother collaborations, enhances mutual understanding, and mitigates the risks of cultural misunderstandings that can undermine project progress, as suggested by Jiang, Ling and Ma (2023). In fact, Jensen and Meckling's (2019) study found that organisations that invest in cultural training experience fewer cultural conflicts and higher levels of employee satisfaction in international projects.

Communication efficiency, defined as the swift and precise exchange of information both within and across project teams, is another critical factor in ensuring project success. Ye, Lu, and Xue (2022) emphasised their importance in maintaining alignment, informing stakeholders, and enabling timely decisions. In the context of international projects, communication barriers frequently arise due to linguistic differences, cultural nuances, and the complexities associated with interpreting and adhering to foreign regulatory frameworks. As highlighted by Gunhan (2020), overcoming these barriers through effective communication strategies is imperative for maintaining project momentum and ensuring its eventual triumph. In fact, research by Jiang, Qiang and Lin (2022) revealed that projects with high communication efficiency are more likely to achieve their objectives on time and within budget.

Based on social exchange theory (Daft & Lengel, 1986) and communication efficiency theory (Daft & Lengel, 1986), this study examines the complex relationships between regulatory adaptation, cultural training, communication efficiency and project success in YCBG's international projects. This paper hypothesised that regulatory adaptation and cultural training are positive predictors of project success and further hypothesised that communication efficiency mediates these relationships (Wang *et al.*, 2024). To rigorously test these hypotheses, this paper conducted an extensive survey of 200 project managers and key personnel who play a key role in executing international projects for Yunnan Construction Investment Group. These findings will contribute to a deeper understanding of the factors that influence the success of international construction projects and provide practical insights for companies operating in the global construction industry.

### **Theoretical Framework**

#### **Regulatory Adaptation and Its Impact on Project Success**

Regulatory adaptation is a critical concept that denotes the proficiency of organisations in adjusting their operational strategies to align with the ever-evolving regulatory landscapes of foreign markets (Krystallis, Laraqui Mahi & Di Maddaloni, 2024). In the realm of the construction industry, this entails a comprehensive understanding and strict adherence to a myriad of local regulations, including but not limited to building codes, environmental standards, labour laws, and other pertinent legal requirements. Prior scholarly investigations have unequivocally highlighted the significance of regulatory adaptation for multinational corporations (MNCs) operating in heavily regulated environments. By effectively

navigating these regulatory complexities, MNCs can significantly mitigate the risks associated with non-compliance, thereby fostering enhanced project efficiency and reducing the likelihood of costly delays or legal entanglements (El Moussaoui *et al.*, 2022).

The linkage between regulatory adaptation and project success is multifaceted. Projects that demonstrate a high degree of regulatory adaptability are more likely to proceed smoothly, adhering to timelines, maintaining budget control, and ensuring the delivery of quality outputs. Conversely, projects that fail to adapt to local regulatory frameworks often encounter significant obstacles, such as delays due to regulatory hurdles, cost overruns resulting from compliance issues, and potential legal challenges that can jeopardise the entire project's success (Kunkcu, Koc, & Pelin Gurgun, 2024). Hence, regulatory adaptation emerges as a key determinant of project outcomes in the context of multinational construction undertakings.

### **Cultural Training and Its Impact on Project Success**

Cultural training represents a systematic approach to educating employees about the diverse values, beliefs, norms, and communication styles that characterise different cultures (Jiang, Ling & Ma, 2024). In the international project arena, this form of training is indispensable for fostering cultural awareness and competence among team members. By equipping them with the knowledge and skills necessary to navigate cultural differences, cultural training enables effective cross-cultural communication and collaboration (Nauman, Zheng & Ahmad, 2021).

Extensive research has demonstrated the myriad benefits of cultural training in enhancing project performance. It not only fosters a deeper understanding and respect among team members from disparate cultural backgrounds but also bolsters team cohesion and minimizes cultural misunderstandings (Xue, Sun & Zheng, 2022). This, in turn, creates a more inclusive and productive work environment, where diverse perspectives are valued and leveraged to drive project success. Consequently, cultural training is recognised as a cornerstone for success in international construction projects. Communication Efficiency Regulatory adaptation and Its Impact on Project Success.

Communication efficiency is a fundamental aspect of project management, referring to the project team's ability to exchange information in a manner that is accurate, timely, and effective (Gharouni, Jafari & Noorzai, 2021). In the context of international projects, where team members are often geographically dispersed and cultural and linguistic barriers abound, communication efficiency becomes even more crucial (Barkokebas, Al-Hussein, & Li, 2022).

Effective communication serves as the lifeblood of any project, facilitating seamless coordination among team members, ensuring the prompt resolution of issues, and ultimately enhancing overall project performance (Wijayarathne, Gunawan & Schultmann, 2024). Conversely, communication breakdowns can lead to a cascade of negative consequences, including misunderstandings, delays, and conflicts, all of which can severely undermine project success. So, effective communication is crucial for the success of international construction projects, as it helps in properly applying rules and training related to different cultures.

### **Hypotheses**

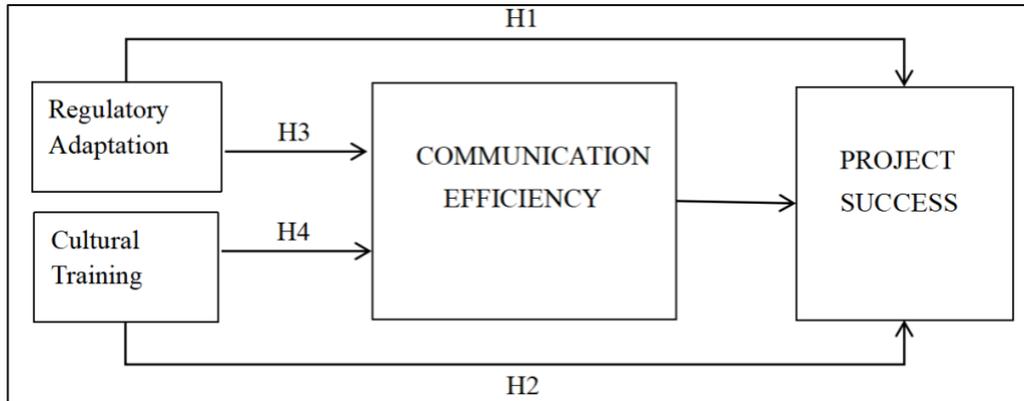
To further refine this paper understanding, the following hypotheses are formulated:

H1: Regulatory adaptation positively influences project success, as projects that effectively adapt to local regulations are more likely to achieve their objectives efficiently and without significant disruptions.

H2: Cultural training positively influences project success, as it enhances cross-cultural communication and collaboration, leading to a more cohesive and productive team environment.

H3: Communication efficiency plays a key role in connecting regulatory adaptation and project success, since good communication is crucial for applying regulatory changes and making sure they positively affect project results.

H4: Communication efficiency mediates the relationship between cultural training and project success because cultural training's benefits in fostering understanding and respect among team members are realised through effective communication practices that enhance project performance.



**Figure 1: Hypothetical Model Diagram**

Figure 1 illustrates the hypothesised model proposed in this study. The model uses regulatory adaptation and cultural training as independent variables, program success as the dependent variable, and communication efficiency as the mediating variable. Among them, there is a direct arrow connection between regulatory adaptation and program success, which means that regulatory adaptation is hypothesised to have a direct positive effect on program success (corresponding to hypothesis H1), and there is also a direct arrow connection between cultural training and program success, implying that cultural training is hypothesised to have a direct positive effect on program success (corresponding to hypothesis H2). At the same time, regulatory adaptation and cultural training are connected to programme success through communication efficiency, i.e., regulatory adaptation affects communication efficiency first, which then affects programme success (corresponding to Hypothesis H3), and cultural training also affects communication efficiency first, which then affects programme success (corresponding to Hypothesis H4), thus presenting the hypothesised structure of the relationship between the variables. By testing these hypotheses, this paper aims to gain a more profound understanding of the mechanisms that drive project success in the complex and dynamic landscape of international construction.

## Methodology

### Sample and Data Collection

The sample for this study consisted of 200 project managers and key staff members involved in YCIHG's international projects. These participants were selected based on their experience and knowledge of international projects, ensuring the representativeness of the sample.

The data was collected through a structured questionnaire survey conducted among participants during September 2024. The questionnaire aims to measure participants' views on regulatory adaptation, cultural training, communication efficiency, and project success. It consists of closed-ended questions rated on a 5-point Likert scale from 'strongly disagree' to 'strongly agree'. A total of 200 questionnaires were distributed, of which 12 were deemed invalid due to severe missing information, unclear answers, or obvious response patterns. Therefore, 188 valid questionnaires were retained, with an effective response rate of 94%.

### Measures

1. Regulatory Adaptation: Regulatory adaptation was measured using a 7-item scale developed by Xu *et al.* (2022). The scale assesses the enterprise's ability to understand, interpret, and comply with local regulations and standards in different countries. Sample items include "our company has a good understanding of local regulations and standards" and "our company proactively adapts to local regulatory changes." For this scale, the Cronbach alpha coefficient is 0.85.

2. Cultural Training: Cultural training was measured using a 6-item scale adapted from Zhou *et al.* (2023). The scale assesses the extent to which employees receive training on cultural norms, values, and communication styles in different countries. Sample items include "our company provides cultural training to employees before they embark on international projects" and "employees receive regular updates on cultural changes in different countries." For this scale, the Cronbach alpha coefficient is 0.90.

3. Communication Efficiency: Communication efficiency was measured using an 8-item scale developed by Chen & Manley (2022). The scale assesses the speed and accuracy of information exchange within and across project teams. Sample items include "Information is shared promptly among project team members" and "Communication channels are efficient and effective." For this scale, the Cronbach alpha coefficient is 0.88.

4. Project Success: Project success was measured using a 9-item scale adapted from Maemura, Kim and Ozawa (2018). The scale assesses the overall performance and outcomes of international projects. Sample items include "The project was completed on time and within budget" and "Stakeholder satisfaction with the project was high." For this scale, the Cronbach alpha coefficient is 0.92.

### Data Analysis

Data analysis was conducted using SPSS 29.0 software. Descriptive statistics, correlation analysis, and regression analysis were employed to test the hypotheses. Specifically, this paper first computed the mean and standard deviation for each variable and then performed correlation analysis to examine the relationships between the variables. Finally, this study conducted regression analysis to test the direct and indirect effects of regulatory adaptation and cultural training on project success, with communication efficiency as the mediator.

### Descriptive Statistics and Correlation Analysis

Table 1 shows the average and variation of four factors (regulatory adaptation, cultural training, communication efficiency, and project success) along with how they are related to each other. Table 1 shows that the correlation coefficient between regulatory adaptation (average 4.10, standard deviation 0.65) and project success (average 4.30, standard deviation 0.55) is 0.45\*\*, which means there is a strong positive relationship between the two. The correlation coefficient between cultural training (mean 3.95, standard deviation 0.70) and project success is 0.50\*\*, indicating a significant positive correlation. The correlation coefficient between communication efficiency (mean 4.20, standard deviation 0.60) and project success is the highest, at 0.70\*\*, indicating that communication efficiency has a particularly significant positive impact on project success. There is also a significant positive correlation between regulatory adaptation and cultural training and communication efficiency, as well as between cultural training and communication efficiency, with correlation coefficients of 0.60, 0.55, and 0.65\*\*, respectively.

These correlation coefficients indicate that not only do these variables independently have a positive impact on project success, but they are also interrelated and jointly affect it.

**Table 1: Descriptive Statistics and Correlation Analysis**

Variable	Mean	SD	1	2	3
Regulatory Adaptation	4.10	0.65			
Cultural Training	3.95	0.70	0.60**		
Communication Efficiency	4.20	0.60	0.55**	0.65**	
Project Success	4.30	0.55	0.45**	0.50**	0.70**

\*\*Correlation coefficients significant at the 0.01 level (2-tailed)

### Regression Analysis

Table 2 presents the results of regression analysis, further revealing the specific relationships between these variables. As can be seen in Table 2, when taking project success as the dependent variable and regulatory adaptation and cultural training as independent variables, their adjusted R<sup>2</sup> values are 0.18

and 0.20, respectively, indicating that these two independent variables can explain 18% and 20% of the variation in project success. Meanwhile, their beta coefficients (standardised regression coefficients) were 0.35 and 0.38, respectively, and both were significant ( $p < 0.01$ ), indicating that regulatory adaptation and cultural training have a significant positive impact on project success. Therefore, hypothesis 1 is validated. When communication efficiency is taken as the dependent variable, the beta coefficients for regulatory adaptation and cultural training are 0.45 and 0.52, respectively, and both are highly significant ( $p < 0.01$ ), indicating that these two independent variables also have a significant positive impact on communication efficiency. Therefore, hypothesis 2 is validated.

**Table 2: Regression Analysis Results**

Dependent Variable	Independent Variable	Adjusted $R^2$	F	$\beta$	SE	t	P
Project Success	Regulatory Adaptation	0.18	30.25**	0.35	0.08	4.38**	<0.01
Project Success	Cultural Training	0.2	35.00**	0.38	0.07	5.43**	<0.01
Communication Efficiency	Regulatory Adaptation	0.28	50.25**	0.45	0.06	7.50**	<0.01
Communication Efficiency	Cultural Training	0.36	70.00**	0.52	0.05	10.40**	<0.01
Project Success	Communication Efficiency	0.2	34.30*	0.25	0.06	4.83*	<0.01

\*\*Correlation coefficients significant at the 0.01 level (2-tailed)

### Analysis of Intermediary Role

To examine the mediating role of communication efficiency between regulatory adaptation and project success, as well as the mediating role of communication efficiency between cultural training and project success, a mediation analysis was conducted.

As can be seen in Table 3, for the c-path from regulatory adaptation to project success,  $\beta=0.35$  ( $p < 0.01$ ), indicating that regulatory adaptation has a direct positive impact on project success. When communication efficiency is added as a mediator variable, the path coefficient from regulatory adaptation to communication efficiency (a-path) is 0.45 ( $p < 0.01$ ), and the path coefficient from communication efficiency to project success (b-path) is 0.25 ( $p < 0.01$ ). At the same time, the direct path coefficient (c'-path) for regulatory adaptation to project success decreased to 0.15 ( $p > 0.05$ ) and was no longer significant. This finding indicates that communication efficiency partially mediates the relationship between regulatory adaptation and project success. Therefore, hypothesis 3 is validated.

As can be seen in Table 3, for the c-path from cultural training to project success,  $\beta=0.38$  ( $p < 0.01$ ), indicating that cultural training has a direct positive impact on project success. When communication efficiency is added as a mediator variable, the path coefficient from cultural training to communication efficiency (a-path) is 0.52 ( $p < 0.01$ ), and the path coefficient from communication efficiency to project success (b-path) is 0.25 ( $p < 0.01$ ). Meanwhile, the direct path coefficient (c'-path) from cultural training to project success decreased to 0.1 ( $p > 0.05$ ) and is no longer significant. This result indicates that communication efficiency partially mediates the relationship between cultural training and project success. Therefore, hypothesis 4 is validated.

**Table 3: Results of Multiple Regression Analysis**

Dependent Variable	Independent Variable	Adjusted $R^2$	F	$\beta$	SE	t	P
Project Success	Regulatory Adaptation & Communication Efficiency	0.35	28.00**	0.2	0.09	2.22**	$p > 0.05$
	Cultural Training			0.25	0.08	3.13**	$p > 0.05$
Project Success	Cultural Training & Communication Efficiency	0.42	29.15*	0.1	0.07	3.89*	$p > 0.05$
	Regulatory Adaptation			0.32	0.08	6.53*	$p > 0.05$

**\*\*Correlation coefficients significant at the 0.01 level (2-tailed)**

## Discussion

The results of this study offer robust support for this paper's hypotheses and provide valuable insights into the intricate relationships between regulatory adaptation, cultural training, communication efficiency, and project success within the framework of YCIHG's international projects. These findings contribute to the existing literature on international project management and highlight the significance of these factors in ensuring successful cross-border collaborations.

Firstly, the significant positive relationship between regulatory adaptation and project success aligns with previous research on the importance of adapting to local regulatory environments in international projects. For instance, Guo *et al.* (2024) found that regulatory compliance and adaptability are crucial for mitigating risks and ensuring the smooth implementation of projects in foreign markets. Similarly, Abdalla, Li and Yang (2024) argued that understanding and navigating complex regulatory landscapes is essential for building trust with local stakeholders and avoiding potential legal pitfalls. Regulatory adaptation, therefore, not only facilitates resource acquisition but also enhances the project's credibility and reputation, ultimately contributing to its success.

In parallel, cultural training has been shown to be a vital component in managing international projects effectively. As noted by Abdalla, Li and Yang (2024), cultural differences can lead to misunderstandings and conflicts among project team members, which can severely impede project progress. Cultural training equips employees with the necessary skills and knowledge to communicate and collaborate effectively across cultural boundaries. This, in turn, fosters a more inclusive and harmonious working environment, reducing the likelihood of conflicts and facilitating smoother project execution (Wang *et al.*, 2023).

Secondly, this paper's finding that communication efficiency completely influences how regulatory adaptation and cultural training relate to project success highlights how important communication is in managing international projects. Effective communication is the cornerstone of any successful project, as it facilitates the exchange of information, enhances trust and cooperation among team members, and ensures that all stakeholders are aligned with the project's objectives (Guo *et al.*, 2024). In the context of international projects, communication efficiency becomes even more crucial, given the added complexity of cultural and linguistic differences (Chen & Manley, 2014).

By improving communication efficiency, regulatory adaptation and cultural training can work synergistically to overcome the challenges posed by international projects. Regulatory adaptation ensures that project teams are aware of and compliant with local regulations, which can be communicated effectively to all stakeholders. Cultural training, on the other hand, enhances the ability of team members to understand and respect each other's cultural norms and values, leading to more effective communication and collaboration (Jiang, Ling & Ma, 2024). Together, these factors create a conducive environment for project success, as they facilitate the timely and accurate exchange of information, reduce misunderstandings and conflicts, and promote a shared sense of purpose among team members.

The results of this study reinforce the importance of regulatory adaptation, cultural training, and communication efficiency in the success of international projects. By addressing these factors, project managers can navigate the complexities of cross-border collaborations more effectively, ensuring that projects are completed on time, within budget, and to the satisfaction of all stakeholders. These findings contribute to the ongoing discourse on international project management and provide practical insights for practitioners seeking to improve their project outcomes in global contexts.

## Limitation

This study has several limitations that should be acknowledged. First, the sample size is relatively small, and the data were collected from a single enterprise. Future research could expand the sample size and include participants from different enterprises and industries to enhance the generality of the

findings. Second, the study uses self-reported data, which may be subject to bias. Future research could employ multiple data sources, such as project performance indicators and stakeholder feedback, to validate the findings. Finally, the study focuses on the mediating role of communication efficiency but does not consider other potential mediators. Future research could explore other factors that may mediate the relationships between regulatory adaptation, cultural training, and project success.

### **Conclusion**

This comprehensive study delved into the intricate interplay between regulatory adaptation, cultural training, and project success within the context of YCIHG, with a specific focus on the mediating role of communication efficiency. Through rigorous analysis, the results unequivocally demonstrate that both regulatory adaptation and cultural training serve as significant positive predictors of project success. Furthermore, it was found that communication efficiency acts as a full mediator in these relationships, highlighting its critical importance in facilitating the positive impact of regulatory adaptation and cultural training on project outcomes. These findings offer invaluable practical insights for international project managers, underscoring the necessity of not only adapting to regulatory frameworks and investing in cultural training but also ensuring effective communication throughout the project lifecycle. By prioritising these elements, project managers can significantly enhance their chances of achieving project success in diverse and challenging international environments.

### **Practical Implications**

Based on the findings of this study, the following practical implications can be drawn for international project managers:

**Enhance Regulatory Adaptation:** International project managers should pay close attention to local regulations and standards and proactively adapt to regulatory changes. This goal can be achieved by establishing a dedicated regulatory compliance team, conducting regular regulatory assessments, and maintaining close communication with local stakeholders.

**Promote Cultural Training:** Project managers should provide cultural training to employees involved in international projects to enhance their cross-cultural competence. This training should cover cultural norms, values, communication styles, and business practices of different countries. Additionally, regular updates on cultural changes should be provided to keep employees informed.

**Improve Communication Efficiency:** Effective communication is crucial for the success of international projects. Project managers should establish clear communication channels, encourage open dialogue among team members, and address communication barriers promptly. Additionally, the use of technology can be leveraged to improve communication efficiency, such as video conferencing, project management software, and translation tools.

### **Conflicts of Interest**

The authors declare that they have no conflict of interests.

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