







# “Public-private partnership practices to transform textbook publishing and distribution: Nepal’s experience for quality education”

<b>AUTHORS</b>	Bisna Acharya  Khom Raj Kharel  Yadav Mani Upadhyaya  Achyut Gnawali  Gangaram Biswakarma 
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© Bisna Acharya, Khom Raj Kharel,  
Yadav Mani Upadhyaya, Achyut  
Gnawali, Gangaram Biswakarma, 2024

Bisna Acharya, Dr., Faculty Member  
of Education, Tribhuvan University,  
Mahendra Ratna Campus, Nepal.

Khom Raj Kharel, Dr., Associate  
Professor of Economics, Tribhuvan  
University, Saraswati Multiple Campus,  
Nepal. (Corresponding author)

Yadav Mani Upadhyaya, Dr., Assistant  
Professor of Economics, Tribhuvan  
University, Saraswati Multiple Campus,  
Nepal.

Achyut Gnawali, Dr., Professor of  
Management, Tribhuvan University,  
Central Department of Management,  
Nepal.

Gangaram Biswakarma, Dr., Assistant  
Professor of Management, Tribhuvan  
University, Central Department of  
Management, Nepal.



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Bisna Acharya (Nepal), Khom Raj Kharel (Nepal), Yadav Mani Upadhyaya (Nepal),  
Achyut Gnawali (Nepal), Gangaram Biswakarma (Nepal)

# PUBLIC-PRIVATE PARTNERSHIP PRACTICES TO TRANSFORM TEXTBOOK PUBLISHING AND DISTRIBUTION: NEPAL'S EXPERIENCE FOR QUALITY EDUCATION

## Abstract

Studying public-private partnership practices in textbook publishing and distribution in Nepal offers insights into effective strategies for improving education quality through collaboration between government and private sectors. The objective of the study is to assess the effectiveness of public-private partnerships (PPPs) in enhancing education quality through improved textbook publishing and distribution mechanisms. The methodology employed in this study integrates descriptive and explanatory research approaches. It utilizes a structured questionnaire comprising 40 items rated on a 5-point Likert scale to evaluate different dimensions of PPPs concerning school textbook publication and distribution in Nepal. In this study, representatives from private organizations involved in textbook publishing and distribution in Nepal were interviewed. Sampling is conducted through random selection from a pool of 390 private organizations, aiming to ensure representation across various sectors. The model developed from this analysis had a strong explanatory power, with the identified independent variables explaining up to 48% of the variability in improving education quality through PPPs. The study concludes that emphasizing transparency, accountability, and effective communication within public-private partnerships significantly contributes to enhancing education quality through improved textbook publishing and distribution mechanisms, supported by strong correlations between these factors and overall education quality, as revealed by advanced statistical methods.

## Keywords

public-private partnerships, school textbooks,  
publication and distribution, operational efficiency,  
inter-organizations, quality education, exploratory factor  
analysis, Nepalese education

**JEL Classification** I21, L33

## INTRODUCTION

In today's educational landscape, the concept of public-private partnerships (PPPs) has garnered increasing attention as a means to address systemic challenges and drive innovation in various sectors, including education. One critical area where PPPs have demonstrated significant potential for impact is in the realm of textbook publishing and distribution. With textbooks serving as foundational resources for learning, ensuring their accessibility, quality, and timely distribution is paramount for fostering an environment conducive to quality education. Against this backdrop, this paper delves into the exploration of PPP practices in transforming textbook publishing and distribution, drawing insights from the Nepalese experience.

Nepal, a country characterized by diverse geographical landscapes and socio-economic disparities, presents a compelling case study for examining the effectiveness of PPPs in addressing educational challenges. The Nepalese government, cognizant of the need to improve education quality and accessibility, has embarked on initiatives to leverage partnerships between public and private entities to revamp textbook publishing and distribution systems. By harnessing the expertise, resources, and innovation capabilities of both sectors, Nepal seeks to overcome obstacles such as limited infrastructure, logistical constraints, and disparities in educational access across different regions.

The main objective of this study is to evaluate the effectiveness of public-private partnerships (PPPs) in improving education quality through better textbook publishing and distribution. This study analyzes current processes in both sectors, compares various PPP models to traditional methods, and assesses the quality and efficiency of educational materials. It examines how well these models reach all students, including those in remote areas, and their impact on student performance. The study also identifies challenges in implementing PPPs and provides recommendations to optimize these partnerships for enhancing educational resources. By examining the strategies, successes, challenges, and lessons learned from Nepal's experience with PPPs in this domain, this paper endeavors to offer valuable insights and recommendations for policymakers, educators, and stakeholders seeking to harness the potential of collaborative partnerships to enhance education quality and promote equitable access to learning resources.

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## 1. LITERATURE REVIEW

The collaborative efforts between different sectors can effectively tackle the pressing issue of ensuring access to high-quality educational materials, particularly in less developed nations such as Nepal, where the availability and distribution of textbooks significantly impact overall educational standards. Nepal's emphasis on educational development positions it as an ideal location to explore the potential of collaborations in enhancing textbook publishing, distribution, and overall education quality. When public-private partnerships fail, they are quickly criticized as flaws in the idea (Grimsey & Lewis, 2007).

The main goal of a public-private partnership is to deliver public infrastructure and services by combining the strengths of both partners to efficiently meet defined public needs through resource allocation, risk sharing, and mutual benefits (Grimsey & Lewis, 2005). Collaborative enterprises aim to provide public amenities by converging public and private sector resources to achieve societal goals (Meligrana, 2003). PPPs are long-term public-private partnerships that develop products and services (Van Ham & Koppenjan, 2001).

Partnerships have evolved to focus on comprehensive problem-solving and enhancing the op-

erational efficiency, effectiveness, and adaptability of public institutions. Non-governmental organizations can impact government decisions by forming partnerships (Kernaghan, 1993). Public-private partnerships enhance public services by fostering collaboration between the public and private sectors (Hodge & Greve, 2005). These partnerships divide service delivery between both sectors to leverage their strengths, but there is a lack of a shared definition (Koontz & Thomas, 2012).

Emphasizing private sector involvement, Brinkerhoff and Brinkerhoff (2011) provide a comprehensive look at public-private partnerships. Bovaird (2004) defines a public-private partnership as a practical framework where the public sector and an external organization commit. Public-private partnerships have existed for centuries in the US and Europe, but their role in local economic development has only recently been recognized (Pierre, 1998). Vawda and Patrinos (1999) focused on public-private partnerships as having a structured framework, a purposeful and well-organized arrangement, long-lasting relationships, a focus on long-term commitment, prioritizing specific outcomes, highlighting their goal-oriented nature, and sharing risks.

Komura et al. (2021) stressed the importance of AMED-supported state-level drug discovery in-

formatics systems. Visconti and Morea (2020) examined the importance of healthcare PPPs, stressing the benefits of digital supply chains, pay-for-performance solutions, and digital technology for healthcare interventions, hospital congestion, and pandemic surveillance. Kumar (2022) proposes using MILP to improve government primary healthcare networks. This approach could significantly reduce out-of-pocket costs and financial burdens. Efficient risk-reward allocation may reduce translation errors and healthcare costs.

In the collaboration of improvement data sharing, Rosenberg et al. (2023) highlighted resource access and fair pricing. Wang et al. (2009) found that social marketing and mobilization improved community iron status and deficiency knowledge, attitudes, and practices. A comprehensive empirical study on partnership processes (Campos et al., 2011) provided evidence-based public health strategy, implementation, and administration recommendations. Zhang et al. (2023) found the above projects cheaper and greener. Senior home care and local government funding affect aging-in-place strategies.

Regarding low-resource private-public partnerships, Paltiel et al. (2020) investigated remote hemodialysis. Kielmann et al. (2014) examined the RNTCP Public-Private Mix-Directly Observed Treatment, Short-course in western Maharashtra. The study examined how tuberculosis health visitors (TB HVs) promote private healthcare providers, program staff, and patient collaboration. Regarding low- and middle-income countries, public-private collaboration to fight infectious diseases has increased (Johnston & Finegood, 2015). They examined public-private partnerships in affluent countries to combat obesity and non-communicable diseases. Professional partnerships must discuss goal alignment and conflicts of interest.

Argaw et al. (2019) examined accurate services, but only 20% of patients received the best treatment, which is a concern. Mueller et al. (2021) examined funding sources and the task force's commitment to conflict reduction. Davis et al. (2021) examined compelling case studies of drug discovery and development collaboration. Kruljac (2012) found that municipal solid waste management is crucial

to sustainable development. That study examined Brazilian waste management laws, focusing on informal garbage collection and internationally recognized sustainable development practices.

Regarding the public-private partnerships in psychiatric shared care, Looi et al. (2022) explored there was little research in this area. Bing et al. (2005) inspired Osborne (2000) to highlight the global trend of using public-private partnerships for policy and service delivery. Rosenau (1999) suggested that a well-organized framework before entering a public-private partnership can improve outcomes, especially in textbook production and distribution. Bovaird (2004) noted that public-private partnerships require good collaboration. How public and private entities allocate risks, responsibilities, resources, and incentives affects service delivery (Ferlie et al., 2005).

The principal component analysis was applied to conduct factor analysis on a dataset of forty questions, with subsequent Varimax rotation for improved interpretability and normalization for standardization. The aim was to uncover hidden aspects of public-private partnership by determining the number of components using eigenvalues greater than one criterion and considering loadings with absolute values of 0.500 or above in the factor model. For the aim of this study, the proposed study model basically focused on seven aspects of public-private partnership, namely: conceptualization, risk, responsibility and transparency, resource and communication, reward, accountability, and inter-organizational relationships.

In terms of research gaps in public-private partnerships (PPPs) in various sectors, including education, a significant gap remains in empirical research specifically focused on assessing the effectiveness of PPPs in enhancing education quality through improved textbook publishing and distribution mechanisms. Existing literature primarily emphasizes broader aspects of PPPs or focuses on specific elements of educational reform, neglecting a comprehensive analysis of the impact of PPPs on textbook quality, distribution efficiency, stakeholder perceptions, financial sustainability, and technological integration within the context of education. Therefore, there is a need for empirical studies that delve into these dimensions to pro-

vide valuable insights for policymakers, educators, and stakeholders aiming to leverage PPPs to improve education quality worldwide.

This study aims to evaluate the impact of public-private partnerships (PPPs) on textbook quality for educational institutions and investigate their efficiency in distributing textbooks to schools and students. It will assess stakeholders' perceptions and experiences within PPPs, including government bodies, private companies, educators, and students. Additionally, the research will analyze the financial sustainability and cost-effectiveness of PPPs compared to traditional methods. It will also identify key challenges in implementing PPPs for textbook publishing and distribution. Furthermore, the study will explore how technology and innovation can enhance PPPs to make textbooks more accessible, affordable, and relevant for students from diverse backgrounds. Finally, based on these findings, recommendations and strategies will be proposed to optimize PPP effectiveness in improving education quality through textbook publishing and distribution.

The effectiveness of PPPs in improving textbook publishing and distribution mechanisms is positively correlated with the conceptualization of PPP, the management of risk, the clarity of responsibility and transparency, the adequacy of resources and communication, the fairness of reward, the rigor of accountability, and the strength of inter-organizational relationships.

This hypothesis suggests that if PPPs are well-conceptualized and managed with clear responsibilities, transparent operations, adequate resources, effective communication, fair rewards, strict accountability, and strong inter-organizational relationships, then textbook publishing and distribution mechanisms will be more effective, which in turn will contribute to the overall quality of education. It is a testable statement that can be explored through empirical research to determine the strength and nature of these relationships.

## 2. RESEARCH METHODOLOGY

The research methodology employed in this study combines descriptive and explanatory research

approaches to delve into the challenges and considerations surrounding the publication and distribution of school textbooks in Nepal's education sector. Additionally, it seeks to elucidate the relationship between different facets of public-private partnerships (PPPs) and the overall quality of education. The research targeted representatives from 390 private organizations involved in textbook publication and distribution, specifically focusing on Nepal's context. To ensure unbiased representation, random sampling methods were utilized to select government representatives independently and impartially. This approach aimed to provide an equal opportunity for all relevant stakeholders to contribute to the study.

Data collection was facilitated by administering a structured questionnaire comprising 40 items. These items covered seven key aspects of PPP: conceptualization, risk, responsibility and transparency, resource and communication, reward, accountability, and inter-organizational relationships. The questionnaire was carefully crafted to gather comprehensive insights into the dynamics of PPPs in the context of textbook publishing and distribution in Nepal.

The questionnaire items were rated on a 5-point Likert scale, allowing respondents to express their level of agreement or disagreement with each statement. This method enabled a nuanced understanding of stakeholders' perspectives and experiences regarding PPPs in the education sector.

To maximize response rates and ensure robust data collection, the survey was distributed electronically via email. Two reminder emails were also sent to encourage participation and mitigate potential non-response bias. The goal was to achieve an 80% response rate, which is considered a high standard for survey research.

Ultimately, the efforts yielded a total of 264 responses, representing a respectable 68% response rate. This substantial sample size provided a rich dataset for analysis, allowing for meaningful insights into the dynamics of PPPs and their impact on education quality in Nepal. The data collected through this methodology form the basis for the subsequent analysis and recommendations proposed in the study.



### 3. RESULTS

The forty-question dataset was analyzed using principal component analysis for factor analysis, variance rotation for clarity, and Kaiser Normalization for standardization. These methods used correlation analysis and a regression model to uncover PPP-related hidden factors. Eigenvalues greater than one determined element count. To load variables appropriately for the sample size, the factor model considered loadings of 0.500 or higher. Cronbach’s alpha coefficient was calculated to identify the reliability of the instrument. Cronbach’s alpha was 0.956 for the 40 items in the questionnaire before the exploratory factor analysis; similarly, Cronbach’s alpha was 0.914 for the 30 items after the exploratory factor analysis.

This study collected data from private businesses involved in PPPs to improve textbook publishing and distribution for education quality. Participants rated 40 questionnaire items on a 5-point Likert scale. These items covered PPP conceptualization, risk assessment, responsibility allocation, transparency, resource management, communication strategies, reward systems, accountability, and inter-organizational relationships. Six latent components were created from 30 observed variables using advanced statistical methods like Principal Component Analysis, Varimax Rotation, and Kaiser Normalization.

Table 1 presents the relevant information regarding the test for sampling adequacy (KMO) and Bartlett’s test of sphericity. The KMO statistics

**Table 1.** Factor analysis-principal component analysis, Varimax component rotation

Source: Data analysis results.

Code	Opinion Statements (Keywords only)	Factor Loading	Communalities (h <sup>2</sup> )
<b>Factor 1: Risk and Transparency</b>			
RISK1	Clear understanding of the risks associated	0.580	0.657
RISK2	Aware of the process of selecting the right partner	0.631	0.539
RISK3	Aware of the regulatory and legal framework	0.701	0.615
RISK4	Traditional mindset regarding PPP, risks to the private sector	-0.646	0.555
RISK5	Traditional mindset regarding PPP, risks to the government	-0.640	0.505
TRANS1	Involved in assuring quality service	0.556	0.665
TRANS2	High level of transparency, private organizations	0.521	0.592
TRANS3	High level of transparency, government	0.570	0.598
TRANS4	Coordinated mechanisms among private organizations to reach the common goal	0.610	0.536
TRANS5	Clear work jurisdiction	0.692	0.694
TRANS6	Clear work division	0.658	0.553
Eigenvalues			11.87
Percentage of Variance			37.11
Cumulative Percentage			37.11
Cronbach's Alpha			–
<b>Factor 2: Accountability and Reward</b>			
ACC1	Clear understanding of the nature of accountability	0.571	0.695
ACC2	Accountable with private organizations	0.715	0.667
ACC3	Accountability with the government	0.556	0.537
REW3	Good return on investment	0.608	0.615
REW4	Sharing benefits with the government	0.664	0.609
REW5	Incentives and sanction given with appropriate performance measurement	0.620	0.552
Eigenvalues			2.315
Percentage of Variance			7.23
Cumulative Percentage			44.34
Cronbach's Alpha			–
<b>Factor 3: Compatibility in Inter-organizational Relationship</b>			
INT1	Compatible to work with the government	0.787	0.712
INT2	Compatible to work with other involved private organizations	0.714	0.66

**Table 1 (cont.).** Factor analysis-principal component analysis, Varimax component rotation

Code	Opinion Statements (Keywords only)	Factor Loading	Communalities (h <sup>2</sup> )
INT3	Capacity to enter into, develop and sustain inter-organizational relation	0.591	0.617
Eigenvalues			1.689
Percentage of Variance			5.27
Cumulative Percentage			49.61
Cronbach's Alpha			–
<b>Factor 4: Concept Clearance</b>			
CON1	Sound knowledge of the concept of partnership	0.787	0.699
CON2	Clear understanding of the PPP model	0.811	0.775
CON3	Clear understanding of the mechanism for partnership	0.697	0.646
CON4	Shared objectives of PPP	0.528	0.656
Eigenvalues			1.274
Percentage of Variance			3.98
Cumulative Percentage			53.59
Cronbach's Alpha			–
<b>Factor 5: Commitment to Inter-organizational Relationship</b>			
INT4	High commitment to working with the government	0.748	0.669
INT5	High commitment to working with other private organizations	0.628	0.597
INT6	Willingness to open boundaries to achieve common goals with the government	0.598	0.514
Eigenvalues			1.235
Percentage of Variance			3.86
Cumulative Percentage			57.46
Cronbach's Alpha			–
<b>Factor 6: Resource and Communication</b>			
RECO1	Delivering the expected level of expertise	0.53	0.608
RECO3	Smooth communication with the government	0.555	0.655
RECO4	Smooth communication with other private organizations	0.559	0.549
Eigenvalues			1.049
Percentage of Variance			3.27
Cumulative Percentage			60.73
Cronbach's Alpha			–
Kaiser-Meyer-Olkin (KMO) = 0.907			
Bartlett's Test of Sphericity (Approx. Chi-Square = 4547.332, df = 496, p = 0.001)			
Extraction Method: Principal Component Analysis, 6 components extracted. Rotation Method: Varimax with Kaiser Normalization.			
Rotation converged in 11 iterations			

indicate a high value of 0.907, suggesting that the dataset is suitable for conducting factor analysis with the given number of observations and variables. Similarly, Bartlett's test of sphericity indicates the overall statistical significance of the correlations among the observed variables, making it useful for factor analysis. The Chi-square value of 4547.332 was determined to be statistically significant with a p-value of 0.001.

Table 1 provides an overview of the communalities for all the variables used in the analysis. The overall variance explained by the various factors indicates the factors derived from the analysis, along with their corresponding eigenvalues (11.874, 2.315, 1.689, 1.274, 1.235, and 1.049 for the six factors).

The six factors account for the entirety of the variance, resulting in a cumulative variance of 60.73%. The first factor explains 37.10% of the total, while the second accounts for 7.23%. The third factor accounts for 5.27%, followed by the fourth at 3.98%, the fifth at 3.86%, and the sixth at 3.27%.

Factor loadings that did not meet the significant factor criterion of 0.5 were removed from the rotated component matrix. Risk, transparency, accountability, reward, inter-organizational compatibility, concept clearance, commitment, resource, and communication have all been identified. These classifications of independent variables and factors were used for descriptive and inferential analyses to better understand the phenomenon.

**Table 2.** Demographic characteristics of the respondents

Source: Data analysis results.

Age Group			Marital Status			Country of Origin		
Age Group	N	%	Education Qualification	N	%	Gender	N	%
20-30	66	25%	Under SLC	14	5.30%	Male	125	47.35
30-40	132	50%	Intermediate Level	66	25%	Female	139	52.65
40-50	51	19.32%	Bachelor Level	125	47.35%			
50 & above	11	5.68%	Master Level	59	22.35%	–		
Total	264	100%	Total	264	<b>100%</b>			

Table 2 lists respondents’ age, gender, and education. 50% (132) of respondents were 30-40 years old. In addition, 25% (66) were 20-30 years old, while 19.32% (51) were 40-50. The smallest group was 50 years and older, with 5.68% (15) respondents. Nearly equal gender distribution among respondents, where the male was 47.35% (125) and 52.65% (139) female. Most respondents, 47.35% (125), have bachelor’s degrees. Intermediate education was next at 25% (66), followed by master’s at 22.35% (59) where the lowest percentage was 5.30% (14) under SLC.

All 30 opinion statements’ public-private partnership dimension responses have been shown in Table 3. The 30 statements cover six latent factors such as risk and transparency, accountability and reward, inter-organizational compatibility, concept clearance, commitment, and resource and communication. To achieve the shared goal, the private organization should emphasize transparency among its members and with the government. The respondents agreed on risk and transparency, with a mean value of 4.08 (SD = 0.62). They seemed to understand the risk and support PPP transparency. Given the risks, it is now clear how important it is to choose the right partner and navigate the regulatory and legal aspects of public-private education partnerships. These factors had a significant impact, with mean scores of 4.14 (SD = 0.771 and 0.831).

An organization with a clear work division has the highest transparency. Those organizations know their roles, locations, and private organizations’ education standard responsibilities. The respondents clearly understand their school textbook printing and distribution duties. Additionally, they have successfully collaborated with the private sector to achieve shared goals. However, ex-

tensive government transparency raises concerns. The mean is 3.97, and the standard deviation is 0.961, indicating neutrality or agreeableness.

Private organizations must report their activities and results for accountability and transparency. The mean value is 4.12 (SD = 0.612), indicating respondents’ agreeability. They seem responsible and committed to being accountable now. According to the average score of 4.20 (SD = 0.612), respondents support government accountability under public-private partnerships. They report a positive return on investment and benefit sharing. Performance appraisals also involve incentives and sanctions. The responses were moderately agreeable, which was disappointing.

Regarding the dimension of compatibility in inter-organizational relationships, the results show a mean value of 4.13 (SD = 0.692). This indicates the agreeableness of the respondents towards their perceptions of their compatibility in inter-organizational relationships. The highest mean value was 4.17 (SD = 0.813), in which the respondent perceived it as compatible to work with other public-private partnerships that involved private organizations. On the dimension of conceptualization in the PPP model, the results show a mean value of 4.17 (SD = 0.643). The highest mean value was 4.31 (SD = 0.868), indicating that the respondent seems to have a clear understanding of the mechanism for the PPP model. Similarly, these private organizations are clear on the public-private partnership model, with an average score of 4.20 (SD = 0.750). However, the lowest mean value of 4.05 (SD = 0.839) can be seen, indicating that the organization has sound knowledge of the concept of partnership.

Likewise, on the dimension of commitment in inter-organizational relationships, the results show a



**Table 3.** Status of dimensions of public-private partnership

Source: Data analysis results.

Code	Opinion Statements (Keywords only)	Mean	SD
R&T	Risk and Transparency	4.08	0.62
A&R	Accountability and Reward	4.12	.612
CIR	Compatibility in Inter-organizational relationship	4.13	.692
CC	Concept clearance	4.17	.643
CoIR	Commitment to Inter-organizational relationship	4.18	.616
R&C	Resource and Communication	4.12	.665

Note: N = 264.

mean value of 4.18 (SD = 0.616). This indicates that these private organizations have a moderate level of agreeableness towards commitment in inter-organizational relationships. The highest mean value was 4.26 (SD = 0.741), indicating that these organizations look forward to opening their boundaries to achieve a common purpose in alignment with the government. The commitment to government is moderately agreeable by these private organizations; the mean value is 4.17 (SD = 0.764). Similarly, commitment towards other fellow private organizations is moderate in agreeableness by these private organizations.

Table 3 describes public-private partnership resources and communication. The mean is 4.12, and the standard deviation is 0.665. Effective communication with private organizations averaged 4.17 (SD = 0.844), while effective communication with government counterparts averaged 4.16 (SD = 0.810). Similar to public private partnership, these organizations provide the expected proficiency. The mean level of expertise and performance is 4.04 (SD = 0.934), which is not very agreeable.

The public-private partnership aims to improve textbook publishing and distribution to improve education. Table 5 shows a mean of 4.39 (0.812). This model’s successful implementation in educa-

tion could improve education quality. The respondents from these organizations also agreed that the public-private partnership model in education improves textbook publishing and distribution. The two variables average 4.41 (0.818 standard deviation) and 4.37 (0.922). However, implementing the public-private partnership model in education improves textbook publishing and distribution, which they value most.

The analysis was conducted based on the latent factors to determine correlations. The analysis proceeded with correlation analysis to examine the relationship in this research study. Table 5 displays the results of the correlation analysis. The correlation coefficient of six factors (independent variables) with the dependent variable improving the publishing and distribution mechanisms of textbooks towards the overall quality of education was found to be moderately correlated.

The Risk and Transparency variable has a moderate relationship with  $r = 0.569$  ( $p < 0.01$ ), Accountability and Reward has a moderate relationship with  $r = 0.594$  ( $p < 0.01$ ), Compatibility in Inter-organizational Relationship has a moderate relationship with  $r = 0.485$  ( $p < 0.01$ ), Concept Clearance has a moderate relationship with  $r = 0.515$  ( $p < 0.01$ ), Commitment to Inter-

**Table 4.** Descriptive statistics of respondents’ versions of public-private partnerships to improve textbook publishing and distribution mechanisms and the overall quality of education

Source: Data analysis results.

Code	Opinion Statements (Keywords only)	Mean	SD
QUAL1	Helps to improve textbook publishing and distribution mechanisms	4.41	.818
QUAL2	Helps to improve the quality of education in Nepal	4.37	.922
PDEQ	Improving textbook publishing and distribution mechanisms towards the overall quality of education	4.39	.812

Note: N = 264.

**Table 5.** Correlation analysis of public-private partnership dimensions

Source: Data analysis results.

Effectiveness of PPP in improving the textbook publishing and distribution mechanism for the overall quality of education		
Risk and Transparency	r	.569**
	p	.001
Accountability and Reward	r	.594**
	p	.001
Compatibility in Inter-organizational relationships	r	.485**
	p	.001
Concept clearance	r	.515**
	p	.001
Commitment to Inter-organizational relationships	r	.488**
	p	.001
Resource and Communication	r	.573**
	p	.001

Note: \*\* Correlation is significant at the 0.01 level (2-tailed).

organizational Relationship has a moderate relationship with  $r = 0.488$  ( $p < 0.01$ ), and Resource and Communication has a moderate relationship with  $r = 0.573$  ( $p < 0.01$ ).

Table 6 summarizes the model’s explanation power.  $R^2$  and adjusted  $R^2$  are 0.488 and 0.476, respectively. It shows that the model can explain well. The dependent variables are explained up to 48%, indicating strong explanatory power. The analysis of variance and F-test are summarized. The output shows that F is statistically significant. This suggests a strong correlation between the model’s dependent and independent variables.  $R^2$  usually measures statistical analysis’s explanatory power.

The result summarizes unstandardized coefficients for writing the estimated equation.

The data used are as follows (Table 6): Dependent variable “ $Y =$  Improving publishing and distribution mechanisms of textbooks towards overall quality of education” and independent variables: risk and transparency ( $X_1$ ), accountability and reward ( $X_2$ ), compatibility in inter-organizational relationships ( $X_3$ ), concept clearance ( $X_4$ ), commitment in inter-organizational relationships ( $X_5$ ), and resource and communication ( $X_6$ ). Using the values of unstandardized coefficients, the estimated equation can be written as follows:

**Table 6.** SPSS output of regression analysis:  $R^2$  of model and regression coefficient

Source: Data analysis results.

Model	Unstandardized Coefficients		t	Sig.	Collinearity Statistics	
	B	Std. error			Tolerance	VIF
(Constant)	.310	.309	1.003	.317	–	–
Risk and Transparency ( $X_1$ )	.184	.090	2.045	.042	.425	2.351
Accountability and Reward ( $X_2$ )	.290	.090	3.234	.001	.436	2.292
Compatibility in Inter-organizational relationships ( $X_3$ )	.005	.073	.075	.940	.516	1.937
Concept clearance ( $X_4$ )	.275	.069	4.014	.001	.674	1.484
Commitment to Inter-organizational relationship ( $X_5$ )	.152	.076	2.005	.046	.605	1.654
Resource & Communication ( $X_6$ )	.231	.083	2.779	.006	.432	2.316
<b>R</b>	<b>R square</b>		<b>Adjusted R square</b>	<b>Std. error of the estimate</b>	<b>F</b>	<b>Sig.</b>
.699 <sup>a</sup>	.488		.476	.588	40.870	.001

Note: Dependent Variable: Improving publishing and distribution mechanism of textbooks towards overall quality of education (Y). Independent Variables: Risk and Transparency ( $X_1$ ), Accountability and Reward ( $X_2$ ), Compatibility in Inter-organizational relationship ( $X_3$ ), Concept clearance ( $X_4$ ), Commitment to Inter-organizational relationship ( $X_5$ ), and Resource and Communication ( $X_6$ ).

Model Equation:

$$Y = 0.310 + 0.184 \cdot X_1 + 0.290 \cdot X_2 + 0.005 \cdot X_3 + 0.275 \cdot X_4 + 0.152 \cdot X_5 + 0.231 \cdot X_6 + e_i. \quad (1)$$

Table 6 includes the t-value of the coefficient and its significance levels. The t-values of risk and transparency ( $X_1$ ) and commitment in inter-organizational relationships ( $X_5$ ) are significant at the 0.05 significance level. Accountability and reward ( $X_2$ ), concept clearance ( $X_4$ ), and resource and communication ( $X_6$ ) are highly significant at the 0.01 significance level, while compatibility in inter-organizational relationships ( $X_3$ ) does not show any significant impact. These five variables play a crucial role in explaining the variability of the dependent variable. One of the noteworthy findings can be mentioned here: the variables of accountability and reward have a greater impact, followed by concept clearance ( $X_4$ ), resource and communication ( $X_6$ ), risk and transparency ( $X_1$ ), and commitment to inter-organizational relationships ( $X_5$ ).

Similarly, the category of risk and transparency ( $X_1$ ) shows an improvement of 18.4%, accountability and reward ( $X_2$ ) has a significant increase of 29.0%, concept clearance ( $X_4$ ) demonstrates a positive change of 27.5%, commitment in inter-organizational relationships ( $X_5$ ) has a notable improvement of 15.2%, resource & communication ( $X_6$ ) shows a substantial increase of 23.1%, and compatibility in inter-organizational relationships ( $X_3$ ) has a minimal change of 0.5% in enhancing the textbook publishing and distribution mechanisms for the overall quality of education.

The analysis revealed significant correlations between these factors and improved textbook publishing and distribution mechanisms for the overall education quality. Factors such as risk and transparency, accountability and reward, concept clearance, and resource and communication strongly correlated with the dependent variable.

## 4. DISCUSSION

Public-private partnerships successfully achieve their objectives by effectively managing resources, responsibilities, risks, and rewards (Meligrana, 2003). The Nepalese government has permitted commercial publishers to print and distribute educational textbooks. In 2014, the Ministry of Education authorized commercial companies to produce and distribute textbooks for primary education. The decision was prompted by a delay in production by the state-owned Janak Education Materials Centre (JEMC), which publishes school textbooks.

The model's strong explanatory power, with the independent variables of the variability in education quality improvements, underscores the importance of these factors. Interpreting these results, it appears that transparency, accountability, and effective communication are critical in enhancing the effectiveness of PPPs in the educational sector. Comparing these findings with the existing literature, the results align with prior research emphasizing the role of these factors in successful PPPs while also providing new insights into the specific mechanisms by which they impact education quality. The findings of this study are similar to the findings of Grismsey and Lewis (2007), Hodge and Grene (2005), Bing et al. (2005), and Kielmann et al. (2014), whereas the findings of this study are not similar to the findings of Koontz and Thomas (2012), Komura et al. (2021), Kumar (2022), and Rosenberg et al. (2023).

The practical implications for policymakers and practitioners are clear: to maximize the positive impact of PPPs, there is a need to focus on enhancing transparency, ensuring accountability, and improving communication. Policy recommendations include adopting measures that reinforce these elements, which could significantly enhance the quality of education through better textbook publishing and distribution.

## CONCLUSION

This study concludes that well-structured public-private partnerships (PPPs) significantly enhance the quality of textbook publishing and distribution, thereby improving education quality. The analysis identified six key factors, risk and transparency, accountability and reward, inter-organizational

compatibility, concept clearance, commitment, and resource and communication, which are crucial in understanding the dynamics and effectiveness of PPPs in this context. The high reliability of the questionnaire items and the strong suitability of the data for factor analysis support the robustness of the findings.

The identified factors collectively explain a substantial portion of the variance in the model, emphasizing their importance. Particularly, factors such as accountability and reward, resource and communication, and concept clearance have a significant impact, underscoring their critical roles in the success of PPPs. The positive perceptions of stakeholders towards these dimensions further highlight the recognized importance of clear roles, transparency, and accountability in achieving successful PPPs. The correlation and regression analyses reinforce the significant relationships between these factors and improved textbook publishing and distribution mechanisms.

## AUTHOR CONTRIBUTIONS

Conceptualization: Bisna Acharya, Gangaram Bishwakarma, Achyut Gnawali, Khom Raj Kharel.

Data curation: Gangaram Bishwakarma, Yadav Mani Upadhyaya, Bisna Acharya.

Formal analysis: Achyut Gnawali, Khom Raj Kharel, Gangaram Bishwakarma, Bisna Acharya.

Funding acquisition: Khom Raj Kharel, Bisna Acharya, Yadav Mani Upadhyaya.

Investigation: Khom Raj Kharel, Gangaram Bishwakarma, Achyut Gnawali, Bisna Acharya.

Methodology: Khom Raj Kharel, Yadav Mani Upadhyaya, Achyut Gnawali, Gangaram Bishwakarma.

Project administration: Khom Raj Kharel, Bisna Acharya, Yadav Mani Upadhyaya, Achyut Gnawali.

Resources: Khom Raj Kharel, Yadav Mani Upadhyaya.

Software: Gangaram Bishwakarma, Yadav Mani Upadhyaya, Achyut Gnawali.

Supervision: Achyut Gnawali, Khom Raj Kharel, Bisna Acharya.

Validation: Khom Raj Kharel, Achyut Gnawali.

Visualization: Yadav Mani Upadhyaya, Bisna Acharya.

Writing – original draft: Gangaram Bishwakarma, Khom Raj Kharel, Achyut Gnawali, Bisna Acharya.

Writing – review & editing: Achyut Gnawali, Yadav Mani Upadhyaya, Gangaram Bishwakarma, Khom Raj Kharel.

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