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Molung Educational Frontier is a scholarly journal that incorporates articles, book reviews, and research reports that can contribute to good governance, development, prosperity, and social change through education. This is a multidisciplinary journal that accepts manuscripts from scholars from around the world based on the original study of different themes and issues in various disciplines that can be connected to the broad rubric of education.

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Towards Quality Education

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Editor-in-Chief

Quality education is a global agenda that crosses the border of a community and nation. Regarding quality education, the United Nations has set educational targets in the fourth order of priority among 17 sustainable goals. Regarding education, the UN document states, among others, a significant target that by 2030, ensure equal access for all women and men to affordable and quality technical, vocational, and tertiary education, including university. This target assumes that every citizen of a country, or more broadly, each human being of the entire globe, has a fundamental right to quality education at all levels, from primary to secondary to tertiary level.

As a member country of the United Nations, Nepal also has to ensure quality education. Education authorities have fixed their targets to make all people literate. But literacy alone is not quality education. It can be guaranteed only through quality teaching and research. As teaching is the responsibility of educational institutions, research has been undertaken by universities and government bodies. Despite its small scale and inadequate budget, this initiative has added to the value of research, which gradually evolved into the research culture among scholars.

One effective means of ensuring quality education is the publication of scholarly journals. To meet these requirements, the Molung Foundation has been engaged in various research activities, one of which is the publication of *Molung Educational Frontier*. In this context, we are publishing the 15th volume of our journal, which we assume will add to the wealth of knowledge in the field of research.

The 15th volume of *Molung Educational Frontier* contains 15 research-based articles from various disciplines under different areas of study from natural sciences to social sciences. Some of these articles are interdisciplinary in nature. The articles contributed to this volume of the journal are the outcome of the rigorous works of researchers. The Editorial Board extends sincere gratitude to all researchers and article contributors.

Factors Affecting Youth Unemployment in Nepal

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Abstract

Youth unemployment remains a critical socio-economic challenge in Nepal, despite notable economic growth and substantial remittance inflows. This study examines the determinants of youth unemployment, focusing on economic, demographic, and policy-related factors such as GDP growth, remittances, foreign direct investment (FDI), population growth, and trade openness. Utilizing secondary time series data from 1993 to 2023, the research applies the Autoregressive Distributed Lag (ARDL) model, complemented by unit root tests and co-integration analysis, to evaluate short- and long-term relationships. The findings indicate that while GDP growth positively influences youth labor force participation, remittances and FDI contribute to higher unemployment by failing to create sustainable domestic job opportunities. Population growth and urbanization further exacerbate unemployment challenges, and the impact of trade openness is mixed, with short-term benefits overshadowed by potential long-term job losses. These results underscore structural inefficiencies in Nepal's labor market. The study concludes that policy interventions are essential to ensure that economic growth translates into inclusive employment opportunities for the youth. Emphasizing targeted investment in labor-intensive industries and addressing demographic pressures are vital for mitigating youth unemployment. This research provides novel insights by integrating FDI and trade openness into the analysis, offering a comprehensive understanding of youth unemployment dynamics in Nepal. Future research should focus on the sectoral distribution of FDI, the role of technology in employment, and the effectiveness of government programs in reducing youth unemployment.

Keywords: youth unemployment, GDP growth, remittances, foreign direct investment, ARDL model

Factors Affecting Youth Unemployment in Nepal

Youth unemployment has emerged as a critical socio-economic challenge in Nepal, hindering the potential of the country's most dynamic demographic. The National Statistics Office [NSO] (2023) defines youth unemployment as individuals aged 15–24 actively seeking work but cannot find employment. Youth employment, in contrast, encompasses both formal and informal sectors, where many young individuals are engaged in low-skill, low-wage jobs that often fail to match their qualifications or aspirations. With approximately 40% of Nepal's population under 25 (NSO, 2023), the labor market faces mounting pressure to absorb the influx of young job seekers.

Despite economic progress and high remittance inflows, the persistence of youth unemployment in Nepal highlights significant structural issues within the labor market. Existing studies, such as those by Sharma et al. (2019) and Dhakal (2015), have underscored the influence of remittances and GDP growth on employment trends. However, a notable gap exists in understanding how foreign direct investment (FDI) and trade openness shape youth unemployment. While remittances have boosted consumption and economic stability, they have failed to create sustainable job opportunities within the country. Similarly, the limited inflows of FDI have often been directed toward capital-intensive rather than labor-intensive industries, further exacerbating youth unemployment (Pandey, 2022).

Nepal's demographic and economic realities amplify these challenges. Rapid urbanization, driven by population growth and rural-to-urban migration, has increased the demand for employment in urban centers (Nepali et al., 2014). However, job creation has not kept pace, leading to a rise in informal sector employment, which offers minimal job security and limited opportunities for advancement. Furthermore, Nepal's education system struggles to equip youth with market-relevant skills, resulting in a mismatch between the supply of

graduates and labor market demands (Dhakal, 2015). These mismatches contribute to underemployment, where youth often accept jobs that do not utilize their skills and qualifications.

Compounding these structural issues, the reliance on remittances as a significant component of Nepal's GDP has created a paradoxical dynamic. While remittances reduce immediate economic pressures for many families, they inadvertently discourage labor market participation among youth and exacerbate dependency on external income (Sharma et al., 2019). Similarly, trade openness, although a driver of economic growth, has produced mixed outcomes for employment. In the short term, it creates opportunities in export-oriented industries, but in the long term, it can lead to job losses in less competitive domestic sectors (Nepali et al., 2014).

Against this backdrop, this study adopts an econometric approach to analyze the factors influencing youth unemployment in Nepal. By integrating underexplored variables such as FDI and trade openness alongside established determinants like GDP growth and remittances, the research provides a comprehensive framework for understanding youth labor market dynamics. Using time-series data from 1993 to 2023 and the ARDL model, this study captures both short- and long-term relationships, contributing to the growing body of literature on youth unemployment. The findings aim to guide policymakers in developing targeted strategies to create sustainable and inclusive employment opportunities for Nepal's youth.

Literature Review

Youth unemployment is a significant socio-economic issue, particularly in developing economies, where structural barriers and labor market inefficiencies hinder employment creation. Numerous studies have examined the factors influencing youth unemployment, focusing on variables such as economic growth, remittances, education, population dynamics, and trade openness. While global

research provides valuable insights, the context-specific challenges faced by Nepal remain underexplored, creating a critical gap in the literature that this study seeks to address.

Globally, economic growth is often associated with job creation, as outlined by Magrini and Rocco (2013) and Roodman (2009), who emphasize that robust GDP growth can reduce unemployment by stimulating labor demand. However, Sharma et al. (2019) argue that in Nepal, economic growth has not translated into proportional employment gains, primarily due to structural inefficiencies and reliance on low-productivity sectors. Okun's Law, which posits an inverse relationship between GDP growth and unemployment, underpins this analysis and highlights the complexity of addressing youth unemployment in developing economies.

Remittances, a key driver of economic stability in Nepal, present a paradoxical relationship with youth unemployment. Studies by Sharma et al. (2019) and Dhakal (2015) demonstrate that while remittances alleviate immediate financial pressures for households, they reduce labor force participation by creating dependency on external income. Globally, Giuliano and Ruiz-Arranz (2009) and Lefresne (2003) observe similar trends, noting that remittances often fail to spur domestic job creation. This phenomenon is particularly relevant in Nepal, where remittances constitute a significant share of GDP yet do not contribute to sustainable employment opportunities.

Education and skill mismatches significantly affect youth employment outcomes. Nepali et al. (2014) emphasize that Nepal's education system is misaligned with labor market demands, producing graduates whose skills are not adequately matched to available jobs. This challenge is mirrored in global studies, with Sianesi and Van Reenen (2003) and McGuinness (2006) identifying over-education as a driver of unemployment in developing economies. Kluve (2010)

underscores the importance of vocational training in addressing these mismatches, a solution that has shown promise in neighboring India.

Demographic factors such as population growth and urbanization exacerbate youth unemployment in Nepal. Dumont and Lemaître (2005) note that rapid population growth often outpaces job creation, a finding supported by Dhakal et al. (2007) and Rahman et al. (2018) in the context of Nepal and Bangladesh, respectively. Urbanization adds another layer of complexity, as highlighted by Sharma et al. (2019), who observes that while urban areas offer better job opportunities, the influx of labor often exceeds demand, leading to underemployment in informal sectors.

Trade openness and foreign direct investment (FDI) have mixed implications for youth employment (Bleaney & Greenaway, 2001). Nepali et al. (2014) suggest that while trade liberalization in Nepal has created short-term job opportunities, it has also led to long-term job losses in non-competitive domestic industries. Similarly, Sharma et al. (2019) and Pandey (2022) argue that FDI inflows in Nepal are concentrated in capital-intensive sectors, limiting their impact on employment generation. These findings align with global research by McMillan and Rodrik (2011) and Rodriguez and Rodrik (2001), who cautions that trade and investment policy must be balanced to maximize employment benefits.

Globally, youth unemployment is influenced by broader labor market dynamics, as explored by Nickell (1997) and O'Higgins (2012), who link youth unemployment to structural rigidities and inadequate policy interventions. Assaad and Roudi (2005) identify similar patterns in the Middle East and North Africa (MENA) region, where demographic pressures compound unemployment challenges. Kucera and Roncolato (2008) further highlight the role of informal employment in shaping labor market outcomes, an issue that is particularly relevant in the context of Nepal.

The theoretical framework guiding this study draws on Okun's Law and dual-sector theory. Okun's Law provides a foundation for analyzing the relationship between economic growth and unemployment, while dual-sector theory captures the transition of labor from informal to formal sectors. This framework integrates key variables, including GDP growth, remittances, trade openness, FDI inflows, population growth, and urbanization, enabling a comprehensive analysis of both short- and long-term determinants of youth unemployment in Nepal.

In conclusion, the existing literature underscores the multifaceted nature of youth unemployment, shaped by economic, demographic, and policy-related factors. By incorporating insights from global, regional, and country-specific studies, this review establishes the relevance of the variables under investigation and positions the study to address critical gaps in understanding youth unemployment dynamics in Nepal.

Materials and Methods

Scientific knowledge advances through scholarly research design (Khatri, 2020). This quantitative study utilizes analytical and descriptive research designs to investigate the factors affecting youth unemployment in Nepal. The secondary data were employed to evaluate the impact of various independent variables on the dependent variable, which is the labor force participation rate (LFPR) for individuals aged 15-24.

The research encompasses 31 sets of time series data collected from 1993 to 2023, focusing on the relationships between youth unemployment and several economic indicators. The independent variables analyzed include GDP growth rate (GDPGR), inflation rate (CPIGR), population growth rate (PGR), urban population growth rate (UPGR), personal remittances as a percentage of GDP (REMGR), foreign direct investment net inflows as a percentage of GDP (FDIGR), and trade openness index (TOI).

Data analysis and interpretation were conducted using EViews version 12, which provides a comprehensive framework for understanding the dynamics among these variables. This study relies on secondary and time series data to yield valuable insights into the factors influencing youth unemployment in Nepal.

Model Formulation and Study Variables

The relationship between youth unemployment in Nepal and its contributing factors is modelled as follows:

$$LFPR_t = f(GDPGR_t, CPIGR_t, PGR_t, UPGR_t, REMGR_t, FDIGR_t, TOI_t) \quad (1)$$

Logarithmic transformations are applied to both sides of the equation to establish a linear relationship among the variables. This transformation facilitates the calculation of elasticities, enabling a clearer understanding of how changes in independent variables affect the dependent variable, the labor force participation rate (LFPR) for ages 15-24.

$$LFPR_t = \alpha + \beta_1 GDPGR_t + \beta_2 CPIGR_t + \beta_3 PGR_t + \beta_4 UPGR_t + \beta_5 REMGR_t + \beta_6 FDIGR_t + \beta_7 TOI_t + \epsilon_t \quad (2)$$

Where, LFPR = Labor Force Participation Rate (ages 15-24, total %)

GDPGR = GDP Growth Rate (annual %)

CPIGR = Inflation Rate (annual %)

PGR = Population Growth Rate (annual %)

UPGR = Urban Population Growth Rate (annual %)

REMGR = Personal Remittances received (% of GDP)

FDIGR = Foreign Direct Investment, net inflows (% of GDP)

TOI = Trade Openness Index

e_t = error term

β_i = constant coefficients

This model captures the complex interplay between youth unemployment and various economic indicators, facilitating an empirical investigation into the

significant factors that influence labor force participation among the youth in Nepal.

Sources of Data

This study relies on secondary time-series data spanning from 1993 to 2023, sourced from the World Bank's World Development Indicators (2024), to ensure data accuracy and consistency, which are critical for robust econometric analysis. The data extraction process involved systematic screening to ensure completeness and alignment with the study's objectives. Key variables such as GDP growth, inflation, population growth, urbanization, remittances, foreign direct investment (FDI), and trade openness were selected based on their theoretical relevance and empirical significance in explaining youth unemployment, as highlighted in prior literature (Sharma et al., 2019; Nepali et al., 2014).

Table 1

Variables, Abbreviations, Units, and Data Sources Used in Research

Variable Names	Symbols	Units
Labor Force Participation Rate	LFPR	Total % (ages 15-24)
GDP Growth Rate	GDPGR	Annual %
Inflation Rate	CPIGR	Annual %
Population Growth Rate	PGR	Annual %
Urban Population Growth Rate	UPGR	Annual %
Personal Remittances Received	REMGR	% of GDP
Foreign Direct Investment	FDIGR	% of GDP
Trade Openness Index	TOI	Index

The rationale for choosing these variables stems from their critical role in labor market dynamics, particularly in developing economies like Nepal. GDP growth, for instance, is tied to job creation through Okun's Law, while remittances and FDI influence labor market participation and employment opportunities. Trade openness reflects Nepal's increasing integration into the global economy, and demographic factors such as population growth and urbanization capture the pressures on the labor market. The variable selection criteria were informed by a review of global and regional studies, ensuring both theoretical grounding and contextual relevance.

Econometric Method

This study employs a comprehensive econometric methodology to analyze the factors affecting youth unemployment in Nepal using time series data. To ensure the validity of the econometric results, this study employed model diagnostic tests, including unit root tests (ADF and PP) to examine stationarity (Dickey & Fuller, 1979; Poudel, 2023; Khatri et al., 2024), the ARDL bounds test for co-integration, Granger causality test and the error correction model to capture short-run dynamics (Granger, 1969; Johansen, 1988; Pesaran & Shin, 1995). Additional diagnostics, such as the Breusch-Godfrey test for serial correlation, the Breusch-Pagan test for heteroscedasticity, and the Ramsey RESET test for model specification, were conducted to verify the reliability and robustness of the findings (Pesaran et al., 2001; Pesaran, 2004). These diagnostics are crucial to minimize biases and ensure the results accurately reflect the relationships between the variables under investigation.

Results

The study presented data in tables and figures and analyzed it using econometric methods, as described earlier.

Nepalese Labor Force Participation Rate, GDP Growth, Inflation, and Other Economic Factors over 31 years

The figure illustrates the trends of critical economic variables affecting youth unemployment in Nepal from 1993 to 2023. The variables analyzed include the labor force participation rate (LFPR) for ages 15-24, GDP growth rate (GDPGR), inflation rate (CPI), population growth rate (PGR), urban population growth rate (UPGR), personal remittances (% of GDP) (REMGR), foreign direct investment (% of GDP) (FDIGR), and the trade openness index (TOI).

Figure 2

Trends in Key Economic Indicators for Nepal

Figure 2 illustrates the key economic indicators trends influencing Nepal's youth unemployment from 1993 to 2023. The data highlights fluctuations in the labor force participation rate (LFPR), GDP growth rate (GDPGR), inflation (CPI), population growth rate (PGR), urban population growth rate (UPGR), remittance inflows (REMGR), foreign direct investment (FDIGR), and trade openness index (TOI). The LFPR for youth (ages 15-24) displays significant volatility, reflecting Nepal's labor market struggles to absorb young workers. Periods of higher GDP growth, while reducing unemployment, do not show a consistent correlation with youth employment due to structural issues like limited formal job creation and dependency on the informal sector. Inflation trends further exacerbate employment challenges by eroding purchasing power and discouraging investment.

Meanwhile, rising remittance inflows and urbanization have paradoxically contributed to underemployment, as remittances promote consumption without stimulating domestic job creation, and rapid urban population growth outpaces employment opportunities. The trend in FDI remains relatively low, limiting industrial expansion needed to absorb the growing labor force. This analysis demonstrates how the interplay of these economic variables complicates youth unemployment reduction efforts, calling for comprehensive policy responses that target structural weaknesses in the labor market.

Unit Root Testing

To implement the bounds testing approach, the time series data must be integrated at either order zero [I(0)] or order one [I(1)]. Consequently, unit root tests are conducted to ascertain the order of integration. This study employs the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests to evaluate the stationarity of the following variables: Labor Force Participation Rate (LFPR), GDP growth rate (GDPGR), inflation rate (CPI), population growth rate (PGR), urban population growth rate (UPGR), personal remittances (% of GDP)

(REMGR), foreign direct investment (% of GDP) (FDIGR), and the trade openness index (TOI).

Table 2

Unit Root Test Results

Unit Root Test Table (PP)									
At Level		LFPR	GDPGR	CPIGR	PGR	UPGR	REMGR	FDIGR	TOI
With Const.	t-Stat.	-1.1386	-10.2945***	-3.7868***	-2.0559	-1.9738	-0.9450	-3.4848**	-1.9580
With C & T.	t-Stat.	-0.5902	-10.7381***	-3.7194**	-1.4740	-1.1078	-1.4650	-3.4999*	-3.0758
None	t-Stat.	-2.0872**	-1.8043*	-0.8669	-1.9930**	-2.0561**	1.0175	-1.7738*	-0.4792
First Diff.		d(LFPR)	d(GDPGR)	d(CPIGR)	d(PGR)	d(UPGR)	d(REMGR)	d(FDIGR)	d(TOI)
With Const.	t-Stat.	-2.1424	-15.1561***	-8.0321***	-2.3733	-4.1144***	-4.7539***	-10.8162***	-7.7374***
With C.& T.	t-Stat.	-2.4732	-15.0340***	-7.9022***	-1.5390	-4.2066**	-4.6554***	-10.3805***	-6.1785***
None	t-Stat.	-1.7488*	-15.1409***	-8.1788***	-2.3660**	-3.9471***	-4.2278***	-11.0780***	-6.1913***
Unit Root Test Table (ADF)									
At Level		LFPR	GDPGR	CPIGR	PGR	UPGR	REMGR	FDIGR	TOI
With Const.	t-Stat.	-1.7958	-5.8015***	-3.7239***	-1.4664	-1.9738	-0.9450	-3.4848**	-1.4894
With C.& T.	t-Stat.	-0.8961	-5.6863***	-3.6540**	-0.8059	-1.0367	-1.3856	-3.5634*	-1.8466
None	t-Stat.	-1.2914	-0.9894	-1.1961	0.1870	-2.1847**	1.0680	-1.2014	-1.0292
First Diff.		d(LFPR)	d(GDPGR)	d(CPIGR)	d(PGR)	d(UPGR)	d(REMGR)	d(FDIGR)	d(TOI)
With Const.	t-Stat.	-2.1149	-7.3690***	-8.0321***	-1.0345	-4.1144***	-4.7504***	-8.8109***	-5.8457***
With C & T.	t-Stat.	-2.4991	-7.2192***	-7.9022***	-1.5775	-4.3433***	-4.3181**	-8.6565***	-5.7338***
None	t-Stat.	-1.7488*	-7.4315***	-6.2317***	-1.3226	-3.9471***	-4.2748***	-8.9701***	-5.8512***

Note. * Significant at the 10%; **Significant at the 5%; ***Significant at the 1%.

Table 2 presents the results of the unit root tests (PP and ADF) conducted to evaluate the stationarity of key economic variables influencing youth unemployment in Nepal. The tests are crucial for determining whether the variables are integrated at levels or first differences, which is necessary for selecting appropriate econometric models like ARDL. At level, variables such as GDP growth rate (GDPGR) and inflation rate (CPIGR) are found to be stationary with significant t-statistics at the 1% level, while others like labor force

participation rate (LFPR), population growth rate (PGR), and remittances (REMGR) are non-stationary.

However, after first differencing, all variables become stationary, with significant t-statistics at the 1% or 5% level. This indicates that most variables are integrated of order I (1), confirming the appropriateness of using ARDL for co-integration analysis. These findings suggest that short-term fluctuations in key economic indicators are largely transitory, with long-run equilibrium relationships potentially existing between the variables. Ensuring stationarity is essential to avoid spurious regression results and to accurately capture the dynamics between youth unemployment and the economic factors analyzed.

VAR Lag Order Selection Criteria

The selection of the appropriate lag length is critical in ensuring the accuracy and stability of the VAR model. An inadequate lag length could lead to model misspecification, resulting in biased parameter estimates or omitted variable bias (Acharya et al., 2024). In contrast, selecting too many lags may over fit the model, reducing its predictive power.

Table 3

VAR Lag Order Selection Criteria Results

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-197.9569	NA	0.000204	14.20392	14.58111	14.32205
1	-28.73129	233.4146	1.70e-07	6.946985	10.34165	8.010152
2	103.0961	109.0985*	5.26e-09*	2.269233*	8.681379*	4.277437*

Table 3 presents the results of the VAR lag order selection criteria used to determine the optimal lag length for the Vector Autoregression (VAR) model analyzing the factors influencing youth unemployment in Nepal. The criteria considered include the Likelihood Ratio (LR), Final Prediction Error (FPE), Akaike Information Criterion (AIC), Schwarz Criterion (SC), and Hannan-Quinn

Criterion (HQ). Among these, the second lag is chosen as optimal based on the lowest values for FPE, AIC, SC, and HQ, with significant LR statistics (Poudel, 2022).

The selection of two lags balances the need to capture the dynamics of the variables without over fitting. This ensures that the relationships between youth unemployment and other economic indicators, such as GDP growth, inflation, and remittances, are adequately modeled, providing a robust framework for further econometric analysis.

ARDL Long-run Form and Bounds Test

Within the ARDL framework, the co-integrating equation outlines the long-term relationship among the variables being studied. This equation is established when co-integration is detected, signifying that the variables share a common stochastic trend (Stock & Watson, 1993). The hypotheses for the co-integration test are as follows: H0, stating that there is no co-integrating equation, and H1, asserting the existence of a co-integrating equation. To further investigate these long-term relationships, the ARDL Long Run Form and Bounds Test are performed in Table 4.

Table 4

ARDL Long-run Form and Bounds Test

F-Bounds Test		Null hypothesis: No levels relationship			
Test Statistic		Value	Signif.	I(0)	I(1)
Asymptotic: n=1000					
F-statistic		7.742502			
K		7	5%	2.17	3.21
Actual Sample Size	29	Finite Sample: n=35			
			5%	2.597	3.907
Finite Sample: n=30					
			5%	2.73	4.163

Table 4 presents the results of the ARDL Long Run Form and Bounds Test, which examines the long-run relationships between youth unemployment

(measured by Labor Force Participation Rate, LFPR) and key economic variables in Nepal. The F-statistic value of 7.7425 exceeds the critical upper bound values at the 5% significance levels, confirming the presence of co-integration among the variables. This indicates that there is a long-run equilibrium relationship between LFPR and factors like GDP growth rate (GDPGR), inflation rate (CPIGR), population growth rate (PGR), urban population growth rate (UPGR), remittances (REMGR), foreign direct investment (FDIGR), and trade openness (TOI).

The presence of co-integration suggests that although short-term fluctuations in these variables may occur, they move together in the long run, influencing youth unemployment in Nepal. For example, while remittances and foreign direct investment may temporarily reduce unemployment or increase labor market participation, their long-term effects may reflect deeper structural imbalances in the economy. The ARDL model's ability to capture both short-term dynamics and long-run relationships makes it ideal for analyzing the persistent unemployment challenges faced by Nepalese youth, driven by economic, demographic, and policy factors. This finding underlines the importance of stable economic policies to foster sustainable employment growth over time.

Table 5

Long-run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDPGR	0.236272	0.085909	2.750261	0.0250
CPIGR	-0.121444	0.079971	-1.518595	0.1673
PGR	-0.182002	0.554129	-0.328446	0.7510
UPGR	0.367427	0.569300	0.645402	0.5367
REMGR	-0.153553	0.034557	-4.443520	0.0022
FDIGR	-1.705020	0.446826	-3.815847	0.0051
TOI	-2.982853	4.178601	-0.713840	0.4956
C	33.86463	0.998924	33.90110	0.0000

Table 5 presents the long-run coefficients derived from the ARDL model, analyzing the relationship between the labor force participation rate (LFPR) for youth (ages 15-24) in Nepal and various economic factors. The results highlight that the GDP growth rate (GDPGR) has a positive and statistically significant impact on LFPR, with a coefficient of 0.236, indicating that higher GDP growth leads to an increase in youth labor participation, potentially due to greater job creation during periods of economic expansion.

In contrast, remittances (REMGR) and foreign direct investment (FDIGR) exhibit significant negative effects on LFPR, with coefficients of -0.153 and -1.705, respectively. This implies that higher remittances may reduce the need for young people to seek employment domestically, as families can rely on external income sources. Similarly, the negative impact of FDI suggests that foreign investments might not be translating into sufficient job opportunities for the youth, possibly due to capital-intensive rather than labor-intensive projects.

The inflation rate (CPIGR), population growth rate (PGR), urban population growth rate (UPGR), and trade openness index (TOI) show mixed and statistically insignificant results, suggesting that these factors may not have a consistent or long-term influence on youth labor participation. Overall, the long-run coefficients point to the importance of GDP growth for employment generation while highlighting the potential distortions caused by remittances and foreign investments. These findings stress the need for policies that not only promote economic growth but also ensure that the benefits of growth translate into sustainable job creation for Nepalese youth.

Short-run Coefficients

Table 6 presents the short-run coefficients from the ARDL model, revealing how changes in key economic variables impact youth labor force participation (LFPR) in Nepal over the short term. The results show that lagged LFPR has a positive and significant coefficient (1.135), indicating strong

persistence in youth employment trends, meaning that past labor force participation influences current levels.

Table 6

Short Run Coefficients

Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LFPR(-1))	1.135412	0.053961	21.04148	0.0000
D(CPIGR)	0.026120	0.003445	7.582432	0.0001
D(CPIGR(-1))	-0.043780	0.005009	-8.740898	0.0000
D(PGR)	-0.393595	0.064485	-6.103697	0.0003
D(UPGR)	-0.307570	0.040957	-7.509636	0.0001
D(UPGR(-1))	0.503075	0.039894	12.61032	0.0000
D(REMGR)	-0.023709	0.005892	-4.024152	0.0038
D(REMGR(-1))	0.039587	0.006970	5.679333	0.0005
D(FDIGR)	-0.063286	0.050512	-1.252904	0.2456
D(FDIGR(-1))	-0.573423	0.063383	-9.046949	0.0000
D(TOI)	2.757953	0.288014	9.575766	0.0000
D(TOI(-1))	-3.974444	0.313939	-12.65995	0.0000
CointEq(-1)*	0.357591	0.030291	11.80530	0.0000
R-squared	0.977744	Mean dependent var		-0.136138
Adjusted R-squared	0.961053	S.D. dependent var		0.205800
S.E. of regression	0.040615	Akaike info criterion		-3.267527
Sum squared resid	0.026393	Schwarz criterion		-2.654601
Log likelihood	60.37914	Hannan-Quinn criter.		-3.075566
Durbin-Watson stat	2.994257			

The short-run impact of inflation (CPIGR) is mixed: the current period coefficient is positive and significant (0.026), suggesting that moderate inflation could stimulate labor market participation by increasing nominal wages. However, the lagged coefficient is negative and highly significant (-0.043), indicating that inflationary pressures can dampen labor participation in the subsequent period, likely due to eroded purchasing power or economic instability.

Population growth rate (PGR) has a significant negative coefficient (-0.394), indicating that higher population growth exacerbates youth unemployment in the short run by increasing the supply of labor faster than the economy can create jobs. Similarly, the urban population growth rate (UPGR) shows both negative and positive coefficients, with the first lag being positive (0.503), suggesting that while rapid urbanization initially reduces unemployment, it may later lead to underemployment as urban job markets become saturated.

Remittances (REMGR) also display mixed effects, with a negative contemporaneous impact (-0.024) but a positive lagged effect (0.040), highlighting the complex role of remittances. In the short term, remittances might discourage job-seeking behavior, but in the long term, they can improve human capital investments, enhancing employability. Foreign direct investment (FDIGR) shows a significant negative lagged effect (-0.573), suggesting that short-term FDI inflows may not immediately create jobs for the youth.

Trade openness (TOI) exhibits a significant positive coefficient (2.758) in the short run, indicating that increasing trade boosts youth labor force participation by creating job opportunities in trade-related sectors. However, the negative lagged coefficient (-3.974) suggests that over-reliance on trade could lead to job losses in the following period, perhaps due to the displacement of local industries or competition from imports.

The short-run coefficients highlight the immediate and lagged effects of key economic variables, emphasizing that while certain factors like GDP growth and trade openness may initially boost youth employment, others like inflation and FDI can have delayed adverse effects. This underscores the need for balanced economic policies.

The Wald Test

Table 7 in the Annex presents the results of the Wald Test, which assesses the joint significance of multiple coefficients in the ARDL model explaining

youth unemployment in Nepal. The null hypothesis for the test assumes that all the coefficients of the included variables—GDP growth rate (GDPGR), inflation rate (CPIGR), population growth rate (PGR), urban population growth rate (UPGR), remittances (REMGR), foreign direct investment (FDIGR), and trade openness (TOI) are jointly equal to zero.

The test results show a highly significant F-statistic value of 8.3219 with a corresponding p-value of 0.0024, which leads to the rejection of the null hypothesis. This indicates that the independent variables collectively have a significant impact on youth unemployment. The Wald Test's chi-square statistic (149.7947, with a p-value of 0.0000) further supports the joint significance of the coefficients, implying that the variables significantly influence labor force participation among youth in Nepal.

This finding underscores the importance of considering multiple economic indicators simultaneously when formulating policies to address youth unemployment. It suggests that addressing issues like GDP growth, inflation, remittances, and FDI in isolation may not be sufficient, and a comprehensive, multi-faceted policy approach is necessary to improve youth employment outcomes in the long run.

Granger Causality Test

Table 8 from the Granger Causality Test results reveals significant predictive relationships between key economic variables and youth labor force participation (LFPR) in Nepal. Population growth (PGR) and urban population growth (UPGR) are both Granger-cause changes in LFPR, with F-statistics of 4.5924 (p = 0.0205) and 5.1538 (p = 0.0137), respectively. This indicates that shifts in demographic factors, particularly population and urbanization, are significant predictors of youth employment trends. Additionally, LFPR Granger-causes changes in the Trade Openness Index (TOI), as shown by an F-statistic of

7.1171 (p = 0.0037), suggesting that youth labor force dynamics influence trade activities.

Table 8

Granger Causality Test Results

Null Hypothesis:	Obs	F-Statistic	Prob.
PGR →LFPR	29	4.59237	0.0205
LFPR →PGR		1.79603	0.1876
UPGR →LFPR	29	5.15381	0.0137
LFPR →UPGR		1.12080	0.3425
REMGR →LFPR	29	1.85558	0.1781
LFPR →REMGR		3.36241	0.0516
TOI →LFPR	29	0.80254	0.4599
LFPR →TOI		7.11712	0.0037
PGR →GDPGR	29	0.37482	0.6914
GDPGR →PGR		7.96841	0.0022
FDIGR →GDPGR	29	1.19261	0.3208
GDPGR →FDIGR		2.91154	0.0738
TOI →PGR	29	2.78995	0.0814
PGR →TOI		3.24550	0.0566
TOI →UPGR	29	0.36316	0.6992
UPGR →TOI		8.93119	0.0013
TOI → REMGR	29	1.36671	0.2741
REMGR →TOI		3.42461	0.0492

The test also shows that GDP growth Granger-causes population growth, highlighting the interconnection between economic development and demographic changes. Other variables, such as remittances and foreign direct investment, show less predictive power in this context. Overall, these findings emphasize the importance of population dynamics, urbanization, and labor market participation in shaping Nepal's economic and trade environment.

Diagnostics and Stability Tests

Diagnostics and stability tests are essential for validating model assumptions, detecting issues, assessing parameter stability, ensuring robustness, improving model specification, and avoiding invalid inferences. They are integral to credible and accurate econometric analysis, ensuring that findings and recommendations are based on sound and reliable models.

Table 9

Diagnostics and Stability Tests

Diagnostics	Statistics	p-value
Normality(J-B)	0.390586	0.822594
Serial Correlation $\chi^2(2)$	12.51173	0.0019
B-P-G Test (Scaled explained SS)	1.12595	1.0000
Ramsey RESET(F_{STAT})	0.158104	0.7028
CUSUM Test	Stable	
CUSUM of Square Test	Stable	

The diagnostic tests conducted for the regression model yield important findings. The Jarque-Bera test suggests that the residuals follow a normal distribution, with a p-value of 0.822594, supporting the use of inferential statistics (see Figure 3). The Breusch-Godfrey test for serial correlation presents evidence of autocorrelation (p-value = 0.0019), confirming the dependence of residuals, as seen in Table 10. Furthermore, the Breusch-Pagan-Godfrey test for heteroscedasticity reports a p-value of 1.0000, indicating that the residuals exhibit constant variance, as shown in Table 11.

Additionally, the Ramsey RESET test, with a p-value of 0.7028, suggests that the model is correctly specified. The CUSUM and CUSUMQ tests, which assess model stability, involve plotting the cumulative sum of recursive residuals within the 95% confidence bounds. The plots, illustrated in Figures 4 and Figure 5 (see Annex), confirm that the model remains stable over time. Together, these diagnostic results demonstrate the model's robustness and reliability.

Discussion

This research builds on existing literature regarding youth unemployment in Nepal by expanding the scope of variables and applying a robust econometric framework. Past studies, such as Sharma et al. (2019) and Nepali et al. (2014), emphasized the role of structural unemployment, migration, and the informal sector as key determinants. Dhakal (2015) highlighted remittances, while boosting consumption, often exacerbate youth unemployment by failing to create sustainable job opportunities. These studies align with the current research's findings, which indicate that remittance inflows negatively impact youth employment. However, unlike previous works, this research integrates foreign direct investment (FDI) and trade openness, revealing that FDI may not lead to job creation due to its capital-intensive nature, a nuance not previously explored.

Further comparisons can be drawn with international studies like those of Assaad (2013) and Meyer and Meyer (2015), which suggest that GDP growth positively correlates with job creation but highlight demographic pressures as challenges. In line with these findings, this research shows that while GDP growth supports employment, population growth strains labor market absorption. Additionally, the research extends the analysis of urbanization, supporting Nepali et al. (2014) and Pandey (2022) by showing that rapid urban population growth worsens youth unemployment. This study's comprehensive model, incorporating inflation, trade, and remittances, provides a broader perspective on youth unemployment determinants, filling gaps left by earlier research.

Conclusion and Implications

This research provides a comprehensive analysis of the factors influencing youth unemployment in Nepal, focusing on key economic, demographic, and policy-related variables such as GDP growth, remittances, population growth, and foreign direct investment (FDI). The findings reveal that while GDP growth plays a crucial role in boosting labor force participation, remittances and FDI have

adverse effects, reflecting structural inefficiencies in the labor market. The negative impact of remittances on youth employment suggests that families may rely more on external income rather than local employment opportunities, while FDI has failed to create labor-intensive jobs necessary to absorb the growing workforce. Additionally, population and urbanization pressures further complicate job creation efforts. The study highlights important policy implications for addressing youth unemployment in Nepal. First, there is a need for policies that not only stimulate economic growth but also ensure that the benefits translate into employment opportunities for young people. Secondly, the reliance on remittances for economic stability must be balanced with domestic job creation strategies. Lastly, attracting FDI in labor-intensive sectors could help alleviate youth unemployment by generating more employment opportunities in industries that require significant workforce involvement.

The novelty of this research lies in its integration of variables such as FDI and trade openness, which have not been extensively explored about youth unemployment in previous studies on Nepal. Unlike existing literature that focuses on remittances and economic growth, this study provides a more nuanced understanding of how FDI, trade, and inflation influence youth labor force participation. Additionally, the use of a robust econometric approach, including the ARDL model and co-integration analysis, offers a deeper insight into both the short-run and long-run dynamics affecting youth unemployment. Future research could further explore the sectoral distribution of FDI and its impact on employment generation, particularly focusing on labor-intensive versus capital-intensive investments.

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Appendix

Table 7

Wald Test

Test Statistic	Value	Df	Probability
F-statistic	8.321927	(18, 8)	0.0024
Chi-square	149.7947	18	0.0000

Null hypothesis: C(3)=C(4)=C(5)=C(6)=C(7)=C(8)=C(9)=C(10)=C(11)=C(12)=C(13)=C(14)=C(15)= C(16)=C(17)=C(18)=C(19)=C(20)=0

Null hypothesis summary:

Normalized restriction (= 0)	Value	Std. Err.
C(3) = GDPGR	-0.084489	0.014001
C(4)= CPIGR	0.026120	0.009248
C(5) = CPIGR(-1)	-0.026474	0.008421
C(6)= CPIGR(-2)	0.043780	0.009027
C(7) = PGR	-0.393595	0.238946
C(8) = PGR(-1)	0.458677	0.152715
C(9) = UPGR	-0.307570	0.129093
C(10) = UPGR(-1)	0.679256	0.114469
C(11) = UPGR(-2)	-0.503075	0.102601
C(12) = REMGR	-0.023709	0.019503
C(13) = REMGR(-1)	0.118205	0.023517
C(14) = REMGR(-2)	-0.039587	0.014386
C(15) = FDIGR	-0.063286	0.109770
C(16) = FDIGR(-1)	0.099563	0.127363
C(17) = FDIGR(-2)	0.573423	0.138686
C(18) = TOI	2.757953	0.784391
C(19) = TOI(-1)	-5.665755	0.827510
C(20) = TOI(-2)	3.974444	0.622386

Restrictions are linear in coefficients.

Figure 2

Akaike Information Criteria (Top 20 Models)
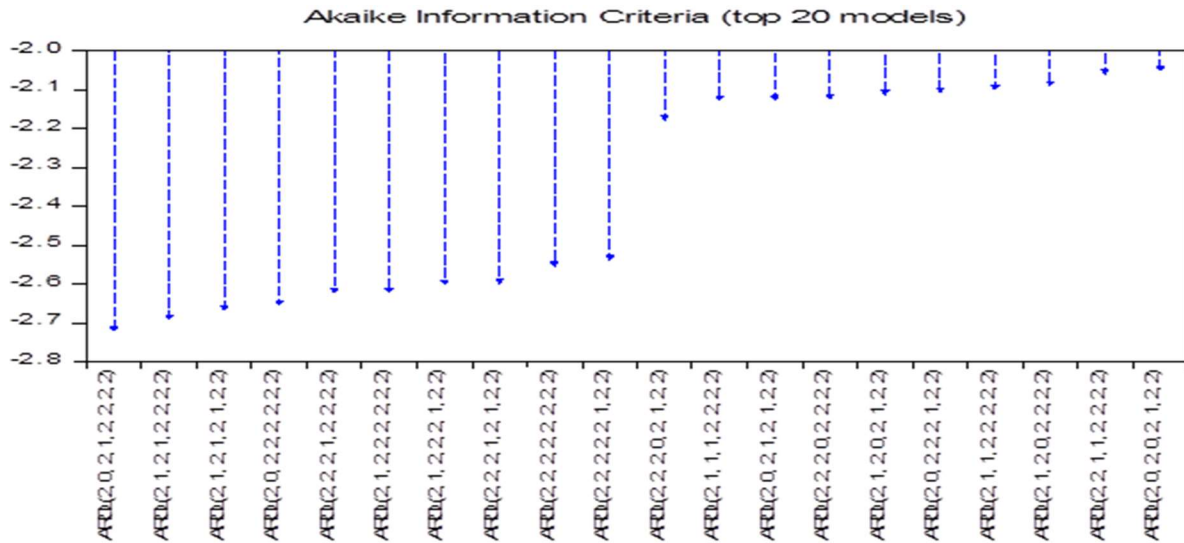
Figure 3

Normality Test
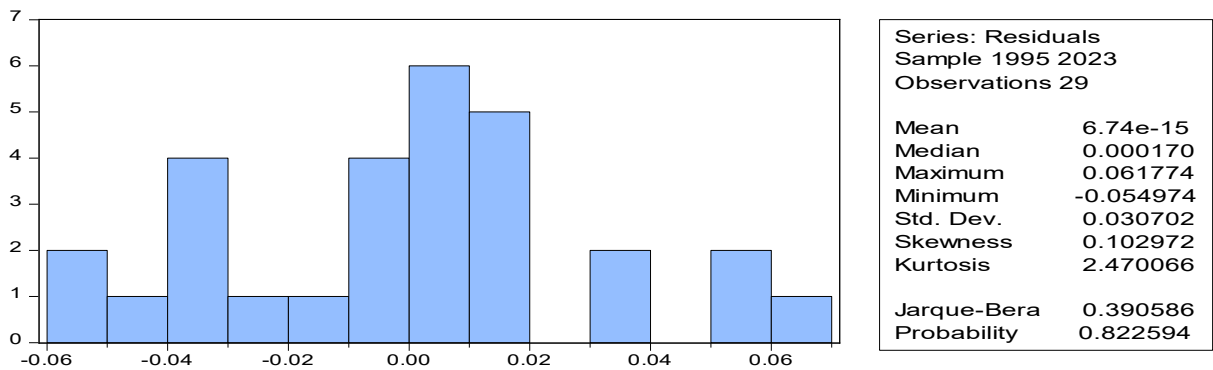
Table 10

Breusch-Godfrey Serial Correlation LM Test

F-statistic	2.276478	Prob. F(2,6)	0.1838
Obs*R-squared	12.51173	Prob. Chi-Square(2)	0.0019

Table 11

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.907678	Prob. F(20,8)	0.5976
Obs*R-squared	20.12931	Prob. Chi-Square(20)	0.4499
Scaled explained SS	1.125952	Prob. Chi-Square(20)	1.0000

Table 12

Ramsey RESET Test

Specification: LFPR   LFPR(-1) LFPR(-2) GDPGR CPIGR CPIGR(-1) CPIGR(-2) PGR PGR(-1) UPGR UPGR(-1) UPGR(-2) REMGR REMGR(-1) REMGR(-2) FDIGR FDIGR(-1) FDIGR(-2) TOI TOI(-1) TOI(-2) C

Statistics	Value	df	Probability
t-statistic	0.397623	7	0.7028
F-statistic	0.158104	(1, 7)	0.7028

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	0.000583	1	0.000583
Restricted SSR	0.026393	8	0.003299
Unrestricted SSR	0.025810	7	0.003687

Figure 4

CUSUM Test
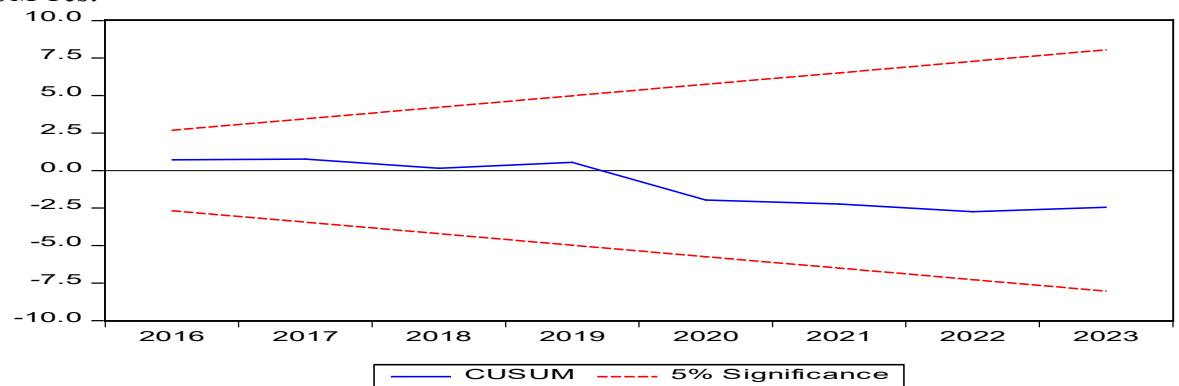
Figure 5

CUSUM of Square Test
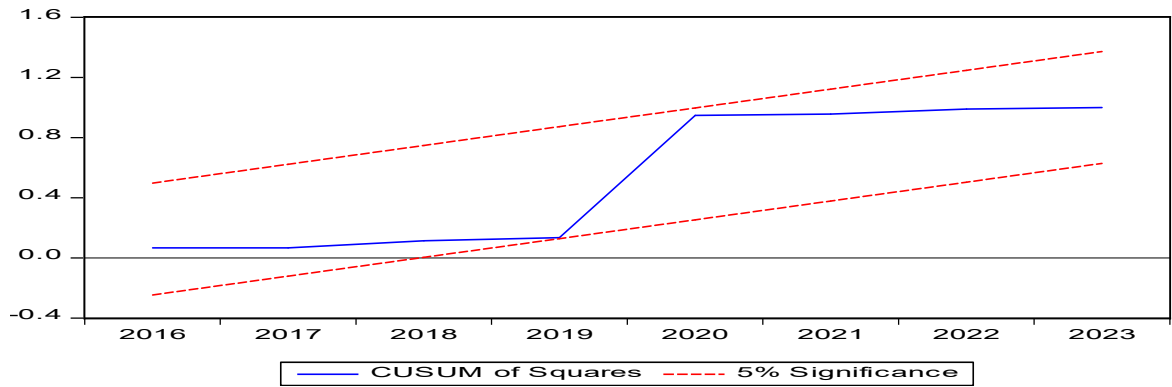
Motivational Access to the Use of Information and Communication Technology (ICT) in Teaching Economics

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Abstract

This paper focuses on motivational access to information and communication technology (ICT) in teaching economics at Tribhuvan University of Nepal. ICT integration has become an integral part of the contemporary educational landscape. It is emerging as a transformative force in teaching and learning activities. Motivational access refers to the individual's interest, desire, and intention to engage with ICTs**.** The use of ICTs by educators to increase their sense of achievement and success in teaching and learning is known as motivation**.** The theoretical lens of this study is Van Dijk's resource and appropriation theory. For this purpose, a cross-sectional research design and structured Google Form questionnaires were administered to 404 economics teachers. The methods involve a rigorous statistical analysis, including descriptive statistics, one-sample t-tests, and ANOVA, to explore differences in motivational access based on socio-demographic characteristics. This paper develops some key indicators to analyze teachers' perceptions of the usefulness of ICT, such as ICT as an effective teaching tool, its support for diverse teaching and learning styles, and its ability to solve educational problems. The findings reveal that most economics teachers perceived a higher level of usefulness of ICT in their teaching. They believed that ICT support would enhance creativity, facilitate communication, and increase access to knowledge. However, motivation is determined by additional income, gender, teaching faculty, teaching level, qualification, job nature, and computer availability for using ICT. To bridge gaps in motivational access and enhance ICT integration, this study recommends targeted professional development programs, equitable access to ICT resources, and the inclusion of motivational incentives in educational policies to encourage sustained use of ICT in teaching.

Keywords: motivational access, perceived usefulness, educational opportunities, integrating ICT tools, economics teachers

Motivational Access to the Use of Information and Communication Technology (ICT) in Teaching Economics

Information and communication technology (ICT) has recently become a disruptive force that could completely change education. Educators all around the world to improve the teaching and learning process and provide students with more interactive, engaging, and accessible learning possibilities (Irrinki, 2021; Pombo et al., 2016; Shoraevna et al., 2021; Stein et al., 2020) are using it. ICT has revolutionized education by providing cutting-edge resources and platforms that greatly improve teaching and learning (Athawale, 2023; Chandra & Mills, 2014). However, for ICT integration to be successful, instructors must be motivated and willing to use these tools in their instructional practices in addition to having access to technology (Guzman Mena, 2020; Raygan & Moradkhani, 2020; Singhavi & Basargekar, 2019).

Modern teaching methods rely heavily on integrating information and communication technology (ICT), which turns conventional classrooms into dynamic, interactive learning spaces (Daniela, 2019). ICT integration in economics can improve students' understanding of complex concepts and accelerate their skill development in an area where real-world applications are crucial. To maximize ICT's potential benefits in economics education, it is critical to comprehend teachers' motivational access to it (Işik et al., 2012; Nji & Idika, 2018). Motivation is the characteristic that pushes an individual toward acting, performing actions, and achieving.

The effective use of information and communication technologies (ICTs) can be broadly categorized into four main areas: infrastructure, skills, usage, and motivation. Motivation is one of four forms of digital access, the others being material access (possessing the required tools and connectivity), skills access (knowing how to utilize ICTs), and usage access (having the chance and drive to use ICTs for worthwhile endeavours). Motivational access is the desire and

willingness to use information and communication technologies (ICTs) for personal, educational, or social purposes (Grošelj et al., 2019). Motivational access refers to the individual's interest, desire, and intention to engage with ICTs (Van Dijk & AGM, 2017; Van Dijk, 2014). This means having a desire and willingness to learn how to use ICTs and to use them for their own personal or professional purposes.

The theoretical literature on teachers' motivational access to ICT is scarce. On the other hand, an analysis of pertinent psychological theories provides valuable perspectives on the motivation of educators. Before teachers may be inspired to satisfy their higher-order wants of self-actualization and professional goal accomplishment, their basic needs must be addressed. Second, more intrinsic (or internal) variables eventually inspire teacher effort, performance, and professional conduct more effectively than extrinsic (or external) basic needs and environmental factors. These conclusions are based on eight interrelated categories of influences: workload and challenges, remuneration and incentives, recognition and prestige, accountability, career development, institutional environment, voice, and learning materials and facilities. They are further supported by a review of empirical studies on teachers' motivation (Guajardo, 2011). The literature revealed several factors that could influence motivational access to ICTs, including individual characteristics, social influences, and contextual factors (Huang, 2016; Padilla-Meléndez et al., 2013). Motivational access is influenced by perceived relevance (needs and interests), perceived benefits (improved learning, increased productivity, or enhanced communication), perceived ease of use, self-efficacy, attitudes towards ICTs, and social norms (Grošelj et al., 2019; Van Dijk & AGM, 2017).

ICT is the key to success in many domains, such as education, health, and infrastructure. The IT Policy 2000 was the first official government policy in Nepal and aimed to incorporate IT in educational institutions for various

purposes, including distance learning. However, there were few clear ICT education policies. As a tool in the National Curriculum Framework, ICT must be taught separately and integrated into the school curriculum (2005; 2007). The integration of ICT into teaching and learning activities has also been stressed in the School Sector Reformed Plan 2009–2015. The first uniform policy declaration for ICT use in teaching and learning in K–12 and higher education was produced by the ICT in Education Master Plan 2013. None of these policies, meanwhile, have made it apparent how money will be allocated for teacher-educator training and ICT infrastructure. The assessment of the use of ICT in the field of education indicates that the country falls behind both developed and developing nations in terms of ICT infrastructure and services. Nepal's digital gap is evident (Sharma & Seon, 2016).

The University Grants Commission, Tribhuvan University, and other various institutions have been facilitating and supporting ICT development in Nepal's higher education. The use of ICT in the Faculty of Education began through the Open and Distance Education Center (ODEC) before COVID-19, and it was accelerated after the pandemic. However, there is an absence of specific strategies to implement ICT in education policy, a lack of funding for the resources and ICT infrastructure, and a lack of teachers' professional development. It may take decades to realize the minimum level of ICT resources in educational organizations (Gautam, 2023; Gautam, 2021; Hart & Laher, 2015; Rana & Rana, 2020; Sharma & Kim, 2016). However, most educators used ICT resources, including mobile phones, laptops, computers, multimedia, social media, and social networking, to support teaching and learning. ICT tools for teacher education appear to be less effectively utilized by teachers due to their limited ICT knowledge and skills. Most teachers in Nepal struggle to incorporate new technologies into their lessons even though their students are already familiar with them, especially in urban areas. This is reflected in their limited use of ICT

resources in the classroom. Most teachers in Nepal are from older generations and are less familiar with web technologies (Gautam, 2023; Rana & Rana, 2020).

The existing literature focused on ICT status, ICT infrastructure, teacher training, and professional development for using ICT resources in the classroom. However, much attention has not been given to addressing motivational access in higher education in general and economics teaching at Tribhuvan University. The use of ICT by economics teachers for motivational purposes is a complex subject with many facets. In this context, this paper focuses on teachers' perceptions of the use of ICT, including how successful it is as a teaching tool, how it supports a variety of teaching and learning methods, and how it affects meeting the needs of individual students in teaching economics at Tribhuvan University of Nepal.

Methods and Material of the Study

This study adopts a quantitative research approach, utilizing a cross-sectional study design. This design allows us to collect data simultaneously, offering a snapshot of the teachers' motivation towards ICT integration. The study population comprises economics teachers at Tribhuvan University, representing a diverse and vital segment of the academic community. A stratified random sampling technique is employed to ensure the selection of a representative sample. In total, 404 respondents were meticulously chosen to participate in the study, ensuring that each stratum is adequately represented.

A structured questionnaire is administered to the participants through a Google Form to gather data. The questionnaire is thoughtfully designed, with items presented in a five-point Likert scale format, encompassing responses ranging from 'Strongly Disagree' to 'Strongly Agree.' These items are meticulously crafted to assess the motivational factors that influence economics teachers and to uncover their attitudes toward integrating ICT into their teaching-learning process. Data collection occurs during a specific time frame, spanning from 2079 Jestha to Ashoj. This temporal selection is strategic, aiming to capture

a holistic and representative snapshot of the economics teachers' perspectives regarding adopting ICT in their teaching. Collected data undergoes a rigorous statistical analysis using the Statistical Package for the Social Sciences (SPSS). The analysis comprises several key components:

Descriptive statistics are used to give a summary of the information gathered. This involves computing means, standard deviations, and frequencies to accurately portray the essential features of the responses to the Likert scale items understandably and concisely. The sample means of the Likert scale responses are compared to a theoretical population mean using a one-sample t-test. With statistical testing, it is possible to ascertain if there is a clear consensus or divergence of views about the attitudes of economics professors toward integrating ICT compared to a neutral position. The ANOVA is employed to investigate any disparities in motivational access across economics instructors with different socio-demographic attributes.

Result and Discussion

Information and communication technology (ICT) has been considered a tool to assist teachers and students in the classroom in developing countries like Nepal. Technology has also changed the way we view teachers and the traditional paradigm of teaching, and this paradigm was at its peak in popularity during the 1960s and 1970s in developed countries like Australia. Indeed, it increased after the COVID-19 pandemic at an accelerating rate in Nepal. According to Howell (2012), simply placing a computer in a classroom does not mean learning is more effective. Instead, teachers must know how to utilize technology effectively, comprehend the theories underlying the practice, and choose the appropriate technology to meet the needs of their students. To learn how to teach with digital technology, educators require a digital pedagogy. Prensky's (2001) findings state that most instructors are like digital immigrants—they fall on a continuum between those who have embraced ICT use in the classroom and those who have

not tried to use information and communication technology (ICT). The majority of educators are often self-taught or peer-taught. Their knowledge of technology is typically restricted to what they may use at home and at work. Although most instructors utilize technology on a daily basis, their usage of it may not be as current as what their pupils or even their teaching standards require. An effective digital pedagogy does not require technological proficiency (cited in Howell, 2012, p. 6). However, it would be irresponsible to overlook their allure given that learning environments in schools are becoming more and more tech-rich and that students are using digital devices outside of the classroom. This is an approach to teaching and learning that takes advantage of a user's inclination: pupils find that learning exercises involving technology are more engaging and motivating, and they appreciate using it. In conclusion, the use of technology across subject areas like economics is important for engaging and motivating students' learning in a traditional classroom.

Perceived Usefulness of ICT

Motivation is a crucial component of education. Students' dedication to the learning task, satisfaction, and self-esteem all rise when they are motivated to complete it. Teachers are encouraged, and student participation has increased thanks to innovative and creative technologies. Additionally, it raises instructor and student motivation, which modifies the dynamic between the two groups of people with the information. Zhou & Teo (2017) defined four dimensions of motivation, such as perceived usefulness, student facilitation, better performance, and external motivation (Fig. 1). However, this paper only attempts to assess the perceived usefulness of the economics teachers at Tribhuvan University in Nepal.

Figure 1

Perceived Usefulness of ICT for Teaching Learning Purposes

Status of Perceived Motivational Access of Economic Teachers

The economic teacher perceived the importance of ICT integration in teaching. They have given high value with average ratings for ICT as a teaching tool, as support for the selection and use of instructional strategies, and to provide individual feedback. Economics teachers also believed that ICT could support students' access to information collection, creativity, communication, and the revolutionary use of ICT in education. However, the perceived utility of ICT is not exclusively determined by its capabilities. Their foundation lies in the self-realization used for enhancing teaching methods, involving learners, and addressing specific learning requirements. There were also a lot of external factors, such as peer pressure, institutional backing, and changing world environments like the COVID-19 epidemic inspired by the accelarting use of ICT in economic teaching at Tribhuvan University.

In conclusion, the advancement of technology integration in education is contingent upon the motivating access that economics teachers have towards employing ICT for perceived utility. For creating a more inventive and productive learning environment in economics education can be achieved by utilizing strategies for professional development, curriculum design, and institutional support that are informed by an understanding of the elements that shape instructors' perspectives.

Table 1

Status of motivational access for perceived usefulness of economics teachers in using ICT

	Mean	SD	t-value	p-value
Effective teaching tool	4.19	0.61	39.18	0.00*
Help to adopt various teaching-learning styles	4.20	0.57	42.37	0.00*
Can solve any teaching-learning problem	3.75	0.83	18.16	0.00*
Entertaining	3.98	0.68	28.87	0.00*
Exchanging ideas with seniors and colleagues	4.15	0.53	43.93	0.00*
Supports in self-learning	4.08	0.62	35.35	0.00*

Note. *P< 0.05(i.e. Significant). The data was obtained from Field survey, 2079. Table 1 shows that participants have a generally good opinion of and acceptance of information and communication technology (ICT) as a useful teaching tool.

The mean score for the "Effective teaching tool "statement was 4.19, with a standard deviation of 0.61. The t-value of 39.18 and a p-value of 0.00 suggest a significant positive perception regarding the effectiveness of ICT in teaching. This finding aligns with numerous studies in the literature highlighting the positive impact of ICT on teaching and learning outcomes (Mahdum et al., 2019).

Similarly, participants expressed a strong belief in the versatility of ICT in facilitating various teaching-learning styles. The mean score for "Help to adopt various teaching-learning styles "was 4.20, with a standard deviation of 0.57. The

high t-value of 42.37 and a p-value of 0.00 further support the participants' conviction in the adaptability of ICT in education. This finding resonates with research by Lawrence and Tar (2018), who emphasized the diverse pedagogical approaches that technology integration can support.

The participants also demonstrated a positive attitude towards technology's problem-solving capabilities in the teaching-learning process. The mean "Can solve any teaching-learning problem "score was 3.75, with a standard deviation of 0.83. The t-value of 18.16 and a p-value of 0.00 indicate a statistically significant belief in technology's efficacy for addressing educational challenges. This aligns with the views of Sharma and Srivastava (2020), who discussed the problem-solving potential of technology in education.

Moreover, participants indicated that using the internet and computers is an entertaining experience for them. The mean score for the statement "Entertaining "was 3.98, with a standard deviation of 0.68. The t-value of 28.87 and a p-value of 0.00 underscore the participants' positive perception of the enjoyment of incorporating technology into their educational practices. This finding is in line with studies that emphasize the engagement and motivation that technology can bring to the learning process (Huang, 2016; Padilla-Meléndez et al., 2013)

Furthermore, the participants expressed a strong agreement with the statement that ICT provides an opportunity to exchange ideas with seniors and colleagues. The mean score for "Exchanging ideas with seniors and colleagues " was 4.15, with a standard deviation of 0.53. The t-value of 43.93 and a p-value of 0.00 highlight the participants' recognition of ICT's collaborative and communicative potential in an educational setting. This finding resonates with research by Mota et al. (2011), emphasizing the importance of technology in fostering collaboration among educators.

Lastly, participants indicated that they use ICT because it supports them in self-learning. The mean score for "Supports in self-learning "was 4.08, with a standard deviation of 0.62. The t-value of 35.35 and a p-value of 0.00 suggest a significant acknowledgement of the role of ICT in facilitating self-directed learning. This finding aligns with the literature on the benefits of technology in promoting personalized and independent learning experiences (Azukas, 2019; Chaipidech et al., 2022).

Teachers' Perception of ICT Use

This table reveals a highly positive perception of ICT among the participants, highlighting its effectiveness as a teaching tool, its versatility in supporting various teaching-learning styles, and its potential for solving educational problems. The findings of this study, presented in Table 2, align with existing literature, emphasizing the positive impact of ICT on education across various dimensions.

Table 2

A Significant Result of Motivational Access ICT for Perceived Usefulness of Economics Teachers in Using Socio-Demographic Variables

Variables	Categories	Frequency	Mean	SD	p-value
Gender	Female	55	4.10	0.44	0.41
	Male	349	4.05	0.40	
Faculty	Humanities	67	4.04	0.44	0.75
	Management	170	4.05	0.39	
	Education	46	4.02	0.40	
	Others	121	4.09	0.41	
	Total	404	4.06	0.40	
Teaching level	Bachelor	231	4.06	0.36	0.97
	Master	65	4.05	0.44	
Additional income	Both level and MPhil	108	4.06	0.46	
Qualification	Masters	326	4.04	0.39	0.18

	MPhil	41	4.11	0.46	
	PhD and post-doc	37	4.16	0.47	
	Total	404	4.06	0.40	
	No	204	4.01	0.40	0.02*
	Yes	200	4.11	0.40	
Job Nature	Permanent	192	4.06	0.42	0.10
	Contract	99	4.06	0.33	
	Part-time	113	4.06	0.44	
	Total	404	4.06	0.40	
Computer at home	No	18	4.03	0.38	0.74
	Yes	386	4.06	0.40	

Note. *P< 0.05 (i.e., significant). The results are based on field survey, 2079 carried out by the authors.

Table 2 provides insights into the motivational access of Economics teachers at Tribhuvan University concerning the perceived usefulness of ICT in teaching economics. The mean scores across various demographic variables suggest a generally positive perception of the importance of ICT in teaching economics.

Examining the influence of gender on motivational access, the data illustrates that both female (n=55, Mean=4.10, SD=0.44) and male (n=349, Mean=4.05, SD=0.40) teachers express high motivation. Importantly, the absence of a statistically significant difference between the two groups (p=0.41) suggests that gender does not play a significant role in determining motivational access to ICT among Economics teachers. However, this finding disagrees with existing literature emphasizing the diverse and inclusive nature of ICT adoption irrespective of gender (Ali et al., 2021; Vanitha & Alathur, 2020).

The teaching faculty variable, encompassing Humanities, Management, Education, and Others, demonstrates uniformly high motivation levels across all categories. No significant differences in mean scores are observed (Humanities:

Mean=4.04, SD=0.44; Management: Mean=4.05, SD=0.39; Education: Mean=4.02, SD=0.40; others: Mean=4.09, SD=0.41), contributing to an overall mean of 4.06 (p=0.75). This suggests that motivational access to ICT is consistent across diverse academic disciplines, reflecting the universality of positive attitudes towards technology adoption in the teaching profession.

Analyzing the impact of teaching level on motivational access, the study considers Bachelor, Master, and both level and MPhil categories. The results indicate consistently high motivation across all levels, with no significant differences in mean scores (Bachelor: Mean=4.06, SD=0.36; Master: Mean=4.05, SD=0.44; both level and MPhil: Mean=4.06, SD=0.46). The lack of statistically significant differences (p=0.97) suggests that teaching level does not significantly influence the motivational access of Economics teachers towards using ICT. This observation supports the idea that motivation is not contingent on the academic level but is a shared characteristic among Economics teachers at Tribhuvan University.

The impact of qualification on motivational access is explored, categorizing teachers into Masters, MPhil, and PhD/Post Doc groups. The findings reveal consistently high motivation across all qualification levels, with no significant differences in mean scores (Masters: Mean=4.04, SD=0.39; MPhil: Mean=4.11, SD=0.46; PhD and Post Doc: Mean=4.16, SD=0.47). The overall mean for qualification is 4.06, indicating that teachers' motivation remains consistent irrespective of academic qualifications (p=0.18).

Considering additional income as a potential influencing factor, teachers with no additional income (n=204, Mean=4.01, SD=0.40) exhibit slightly lower motivation than those with additional income (n=200, Mean=4.11, SD=0.40). The observed statistically significant difference (p=0.02*) implies that having additional income may positively influence Economics teachers' motivation to use ICT. This finding resonates with studies emphasizing the impact of

economic factors on teachers' attitudes towards technology adoption in education.

The study also categorizes job nature into Permanent, Contract, and Part-time. The results indicate similar levels of motivation across all job natures, with no statistically significant differences in mean scores (Permanent: Mean=4.06, SD=0.42; Contract: Mean=4.06, SD=0.33; Part-time: Mean=4.06, SD=0.44). The overall mean for job nature is 4.06, suggesting that the nature of employment does not significantly impact motivational access (p=0.10).

Examining the impact of the availability of a computer at home on motivational access, results indicate no significant difference in mean scores between teachers with (n=386, Mean=4.06, SD=0.40) and without (n=18, Mean=4.03, SD=0.38) a computer at home (p=0.70). This suggests that the availability of a computer at home does not significantly affect Economics teachers' motivation to use ICT in teaching.

These results provide a comprehensive understanding of the motivational access of Economics teachers at Tribhuvan University, emphasizing their uniformly positive perception of the importance of ICT in teaching economics. The findings contribute to the ongoing discourse on integrating ICT in education and underscore the need for nuanced strategies that consider diverse demographic variables influencing teachers' engagement with technology.

Conclusion

This paper examines Tribhuvan University teachers' perceived motivation for integrating ICT into their economics classes. The findings indicate a highly positive perception towards the acceptance of ICT in economics teaching. It can be potentially used to transform traditional modes of instruction. However, the effective use of ICT is determined by socio-demographic variables like gender, teaching level, and qualification. These do not significantly impact motivation but add income for the teacher educators. In addition, employment status or computer

availability at home motivates ICT use. This paper underscores the importance of understanding motivational factors for effective technology integration in education. The positive attitudes observed suggest opportunities for further development of ICT in economics teaching at Tribhuvan University, with implications for policy, curriculum, and faculty training programs.

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Perception and Practice of Assessment for Learning: A Case from Tribhuvan University Faculty of Management

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Abstract

Assessment for learning plays a crucial role in enhancing student learning by integrating student assessment into the teaching-learning process. Taking a case from Tribhuvan University, we conducted a study on the practice of assessment for learning in higher education in Nepal. In this study, we analyzed the perceptions and practices of teaching faculty regarding assessment for learning. The primary research question focused on faculty members' perceptions and practices related to assessment for learning and how these practices contribute to student learning. We employed both quantitative (an online survey) and qualitative (in-depth interviews) methods for data collection. This study utilized descriptive analysis for the quantitative data, supplemented by qualitative analysis of the interviews. Our findings revealed that faculty members have a limited understanding of assessment for learning, and their practices are inadequate in this regard. To enhance the overall quality of higher education, there is a need to improve student assessment practices by adopting assessment for learning. This requires changes in assessment policies, enhancement of faculty capacities, and improvement in institutional environment.

Keywords: formative assessment, assessment of learning, assessment for learning, assessment as learning, assessment in higher education

Perception and Practice of Assessment for Learning: A Case from Tribhuvan University Faculty of Management

It has been over one hundred years since the concept of higher education was introduced in Nepal with the establishment of Trichandra College in 1918 (1975 BS). In its early years, Trichandra College adopted the syllabus and assessment practices of Calcutta University in India. In 1923, the college shifted its affiliation to Patna University in India (Poudel, 2050 BS). Students were required to take final examinations conducted by affiliated institutions until the establishment of Tribhuvan University (TU) in 1959 (Parajuli et al., 2008). The assessment practices implemented by Tribhuvan University were not significantly different from those of the affiliated universities in India, which included an annual examination system for grading purposes. TU initiated an internal assessment alongside a semester system in the National Education System Plan, which began in 1971. However, the semester system was replaced by an annual examination system in 1980. Initially, TU allocated a 20% weight for internal assessment, which was discontinued in 1986 at the intermediate and bachelor's levels and in 1991 at the master's level (Mishra, n.d.). Since 2013, the reintroduced semester system, along with formative assessments—commonly referred to as internal assessments, carries a weight of 40%, while the end-semester examination, usually called the final examination, carries a weight of 60% for final grading (TU, 2070). Annual written examinations continue to dominate assessment practices in higher education in Nepal, except in a few universities and higher education programs. However, available information suggests that the internal assessment provisions at TU have not effectively contributed to achieving objective of improving students' learning through continuous feedback and support (Acharya, 2022; Luitel, 2022; Neupane, 2023; Sharma, 2021).

This study examines the extent to which current assessment practices contribute to assessment for learning. This case study-based article reviews assessment practices in higher education in Nepal by identifying the perceptions and practices of teaching faculty in undergraduate management courses at Tribhuvan University. The next section outlines the objectives and research questions of the article. After reviewing the literature on concepts and theories related to assessment for learning, it discusses studies on assessment practices in higher education in Nepal and briefly describes global trends and practices in this field. Additionally, it outlines the methodology employed to conduct this study. The article then analyzes the data, summarizes the key findings, and presents the conclusions of the study.

Objectives and Research Questions

The objectives of this study were to review the assessment practices in higher education in Nepal and to examine the extent to which these practices have contributed to assessment for learning. The following research questions guided this study:

1. How do teaching faculty perceive assessment for learning?
2. What methods and tools do teaching faculties use for assessment?
3.   To what extent do the assessment practices adopted in higher education contribute to student learning?

Review of Literature

This section begins by discussing the concepts of assessment for learning and assessment as learning and concludes by identifying the key qualities of effective assessment. Additionally, it provides a brief overview of global assessment trends in higher education. Finally, this section reviews assessment practices in higher education in Nepal.

The current practices of the examination system in higher education can be understood within the context of a long historical tradition of written

examinations globally. The systematic written examination originated in imperial China, where it was used to select civil servants through the examination beginning in 606 A.D. (Sven and Yu, 2006, as cited in Kellaghan and Greaney, 2019). However, other sources indicate that written examinations had been practiced in China as early as 165 B.C. (Elman, 2000, as cited in Kellaghan and Greaney, 2019). The primary purpose of these examinations was to select individuals for employment rather than to support learning. This system, with some modifications, persisted in China until 1905 A.D. (Wilbrink, 1997). In the ancient period, the Gurukul education system adopted an oral education with an oral form of assessment in the Indian subcontinent.

Similarly, during the ancient education system of Greece and during the medieval period, in the Islamic education system as well as European universities, oral examination was practised (Kellaghan & Greaney, 2019). However, during the late fifteenth century, European universities adopted both written and oral examination systems. In response to schools' and higher education institutions' demand for a formal way to assign ranks and evaluate student progress, the education system continued the practice of testing globally (McArthur, 1986). In the late nineteenth century and early twentieth century, attempts have been made to develop a standardized examination system, generating some ideas and discussion of intelligence measurement initiated by Francis Galton (1822–1911) and Alfred Binet (1857–1911). During the first decade of the twentieth century, there was a growing realization of the need for the use of statistics in different fields of study, including educational measures. In the twentieth century, the objective intelligence test was the focus of such standardization and statistical modulations by introducing a new type of test 'multiple choice questions' (Kellaghan & Greaney, 2019; McArthur, 1986). In addition, psychometric models, including Classical Test Theory (CTT) and Item-response Theory (IRT) of measurement, and statistical methods of calculating reliability and validity as

well as item qualities have been introduced. Since the nineteenth century, high-stakes public examinations at the national level have begun in various countries across the globe. Besides, in several education systems, there are practices for participating in provincial as well as international board examinations. In relation to higher education, most universities have a separate examination system for the purpose of certifying students. However, since the mid-twentieth century, education researchers have demonstrated that standardized testing does not significantly enhance student learning (Nichols & Harris, 2016).

Currently, diverse examination systems exist worldwide, primarily serving functions such as certification, selection, student motivation, oversight of school activities, provision of information for educational management, accountability for student achievement levels among schools and teachers, and students, and legitimization of membership in a global society (Kellaghan & Greaney, 2019). Unfortunately, these examinations often fail to provide direct feedback to students that could facilitate their learning. In many instances, public examinations are not integrated with classroom practices. Due to the limitations of examinations in contributing to student learning and the lack of adequate integration of assessment and teaching-learning, educationists and assessment experts proposed a wider meaning of student assessment with the use of both formative and summative purposes through using various assessment methods, including both testing and non-testing. As the focus of the examination was 'assessment of learning' rather than assessment for learning and assessment as learning, educators and assessment experts searched for an alternative idea about assessment that could be used to promote students' learning. Since the middle of the twentieth century, the discourse about making assessment an integral part of teaching and learning to contribute to students' learning has been initiated with the emergence of constructivist learning theories in the late nineteenth century, together with Bloom's taxonomy for learning in the middle of the twentieth century. Scriven's

(1967) identified the need for formative assessment by differentiating formative and summative assessment, as "Scriven's formative evaluation led to using assessment processes early in the educational course of events to inform learners as to what they needed to learn and instructors as to what they needed to teach" (Brown, 2022, p. 3).

Three distinct functions of student assessment have been identified: guiding and encouraging effective approaches to learning; providing valid and reliable measures of expected learning outcomes, particularly in higher-order thinking; and assessing students to assign grades that define and uphold academic standards. To achieve these three functions, current assessment literature emphasizes three objectives: assessment of learning, assessment for learning, and assessment as learning (Earl, 2003). One of the key objectives of student assessment is to support students in their learning journeys. Literature widely agrees that assessment is an integral component of teaching and learning. Meaningful integration of teaching, learning, and assessment enhances students' learning achievements. However, the practice of examination-focused student assessment in higher education does not contribute to these goals; rather, it may simply reinforce pre-existing social status and hierarchy (Bourdieu, 1977, 1974) and serve as a tool of elitism (Brown, 2022; Gipps, 1994).

Assessment For and As Learning

Assessment of learning has been used to make 'judgments about students' summative achievement' with the purpose of 'selection and certification,' which also works for 'quality assurance' (Boyd & Bloxham, 2007). It has hardly any direct use in providing feedback for improving current teaching and learning practices. Assessment for learning is a kind of alternative practice to such an assessment of learning practices as it is 'formative' and 'diagnostic' in nature. The main purpose of such an assessment for learning is to provide feedback for the teaching-learning process, aiming at improving students' learning. Although the

purpose of the third type of assessment, assessment as learning, is also to support students for their learning, therefore, this can also be considered assessment for learning. However, in the former one, the roles of teachers in managing feedback and improving learning are the key, whereas in the latter, the focus is on the student's self-realization and improvement, which provides self-feedback for the students. As defined by Black and Wiliam (1998), assessment as learning is 'tackling assignments and revision is when higher education students do much of their learning' and 'is a subset of assessment for learning and sees student involvement in assessment, using feedback, participating in peer assessment, and self-monitoring of progress as moments of learning in themselves' (Bloxham & Boyd, 2007). Further, assessment as learning helps students know what the standard or goal is that they are trying to achieve, how their current achievement compares to those goals, and act to reduce the gap between the first two (Sadler, 1989). Students' involvement in assessment activities as a form of learning-oriented assessment and feedback activity contributes to developing learning and evaluative skills essential for employment and lifelong learning rather than just contributing to the learning at university (Boud & Falchikov, 2006, as cited in Bloxham & Boyd, 2007).

Darling-Hammond et al. (2013) identified five criteria for high-quality student assessment. First, it should provide students with the opportunity of transferring learning to new situations and problems through assessing higher-order cognitive skills. Next, there should be high fidelity in the assessment of critical abilities, meaning that instead of assessing through artificial or proxy context, conduct assessment in real situations, focusing on students' performances. Then, the high-quality assessment should be internationally benchmarked. Similarly, assessment tools should be instructionally sensitive and educationally valuable. That is, assessment should support learning. Finally, the high-quality assessment should be valid, reliable, and fair. Reviewing various

literature (e.g., Black & Wiliam, 1998; Bloxham & Boyd, 2007; Carless, 2007; Darling-Hammond et al., 2013; Earl, 2003; Poudel, 2016; Wiliam, 2011), in addition to technical qualities such as validity, reliability, fairness, and practicality.

Key Qualities of Assessment for Learning

Align with Learning Objectives and Pedagogical Activities. Teaching learning activity should be directed towards achieving the learning objectives. Effective pedagogical activities support achieving the learning objectives and quality assessment that informs the degree of attaining the learning goals (Torrance, 2007). Thus, the assessment and pedagogy should be linked and aligned with the objectives. When assessments align with the learning objectives, the assessment practice can contribute to enhancing the student's learning effectively.

Embedded with Classroom Practice. The classroom is the place where the faculty and students interact with each other for learning purposes. For the enhancement of learning, assessment practice should be linked with the classroom setting and classroom activities. To regulate student learning and ensure the achievement of learning objectives, embedding the assessment activity with the classroom setting is crucial (Black & William, 1998).

Promotes Deeper and Productive Learning-oriented. Higher education itself should promote a deeper understanding of the subject. The formative assessment practice supports deeper understanding and learning. Effectively designed formative assessment helps create a learning-oriented aptitude for the students. Among the various merits of the formative assessment, one important merit is to create a deeper learning-oriented environment. Hernandez (2012) stated that learning-oriented assessments encourage and support students learning in a more productive way.

Provide Effective and Constructive Feedback (Timely and Forward-Looking). Providing feedback is the most important function of the formative assessment. Timely and forward-looking feedback not only supports student learning but also helps teachers modify learning strategies. Without feedback, the assessment alone cannot enhance student learning (Hernandez, 2012).

Facilitate Self-assessment and Peer Assessment and Reflection. The learning focus approaches of assessment should include peer and self-assessment. Students can get the opportunity to assess their own tasks by self-assessment, which supports their own learning and self-regulation of the learning. Peer assessment also supports learning by assessing a distinct perspective, which will contribute to learning better and provide critical input for the students.

Work Assessment Tasks as Learning Tasks. Engagement of the students in learning process is essential. The traditional teaching-learning approach and assessment practice do not allow student engagement in learning. Effective formative assessment provides several opportunities for engaging the learner in their own learning. Assessment cannot be effective in separating student engagement and learning. For such engagement, assessment tasks should be designed in such a way that it works as a learning task. Bloxham & Boyd (2006) mentioned assessment methods that foster student engagement with learning tasks contribute to making assessments valid.

Emphasize Authenticity. Authentic assessment provides the opportunity to gain experience effectively in the real-world situation. Effective formative assessment emphasizes using the situational or contextual tasks for the assessment and helps connect the learning.

Motivate Students for Learning. Regular feedback and engagement in the learning process can leverage students' learning. Formative assessment with feedback support motivates students to learn. The multiple approaches of the formative assessment support the motivation of the students to learn better.

Provide Teachers with Sufficient Information for Improving Instruction. Assessment not only provides information to students but also, teachers modify their pedagogical approaches. During the formative assessment process, teachers can get the opportunity to modify their instruction and adjust the learning objectives with the student's learning needs and context (Popham, 2009).

Global Trends and Practice of Assessment in Higher Education

There is a growing concern about how to use assessments to foster employability and innovation skills for higher education graduates. There are some attempts to link student assessment to achieving twenty-first-century skills. The search for effective strategies and techniques for the assessment of non-cognitive skills like improved networking, social skills, and citizen awareness about civic responsibility has continued since these skills have not been assessed effectively in higher education (National Research Council, 2012). The recent expansion of online and blended learning challenges traditional assessment practices. E-assessments, e-portfolios, e-assignments, and computer-aided assessments are becoming popular concepts in the field. Generative artificial intelligence is creating uncertainty and unexpected changes not only in the assessment but also in the higher education system itself. Inclusion, social justice, and technological adoption are also the priorities of higher education practices, including the teaching-learning and assessment process. Technological advancement creates more opportunities for personalized learning, and it is also linked with a personalized assessment. Assessing higher-order thinking skills effectively has always been an issue in higher education (Brookhart, 2010). There is a growing concern about the practice of assessment for learning, which may adopt a wider perspective on assessing higher-order thinking skills.

The previous paragraph has indicated some general trends of assessment in higher education. Further, Hundley, Kahn, and Barbee (2019) have summarized student assessment trends in higher education with ten points. Although the focus

on external accountability of assessment in higher education has been continued, there is a growing trend of using assessment for improving students' learning—towards assessment for learning from assessment of learning. However, there are still tensions between accountability and improvement in higher education. Leadership and stakeholder's support and engagement have been considered basic conditions for an effective assessment system, which needs to improve continuously. Assessment strategies and approaches are becoming more diverse, inclusive, equity-oriented, and reflective with the use of diverse methods, tools, and technology (particularly, using ICT). Assessment is not limited to the content knowledge and skills; it is broadening its perspective by incorporating students' personal, academic, and professional development. For this, the focus has been shifted towards more authentic measures of student learning, which demands more performance-based and context-specific tools for assessment. Assessment is expanding its focus to include the learning processes and practices rather than just final outcomes, in which efforts must be shifted towards embedding assessment in teaching-learning (classroom practices) from the usual practice that separates assessment and teaching-learning activities. However, to improve and sustain quality assessment practices, there is a need for continuous high-quality professional development as well as support and encouragement for innovation and a continuous improvement in practice. Although there are several examples with convincing evidence of progress in assessment in higher education, innovation and improvement in assessment are continuous processes.

Assessment Practices in Higher Education in Nepal

According to 2023 UGC data, there are thirteen universities, five medical academies, and 1455 higher education campuses offering higher education in Nepal (UGC, 2023). Different universities have their own practices for student assessment. However, paper-and-pencil tests have been widely used. Variations in assessment practices are noticed not only from university to university but also

from program to program. In the re-introduced semester system of Tribhuvan University (TU), both the in-semester (internal) assessment and end-semester examination systems have been provisioned with a total weight of 40 percent for internal and 60 percent for end-semester examination in each course (TU, 2070) at the bachelor's and master's programs. The assessment system varies from program to program. This study focuses on the BBA program, and it has internal (ongoing) evaluation and external (end of the semester) examinations that carry 40 percent and 60 percent weightage respectively for final grading (Faculty of Management, 2021).

Acharya (2022) found that the practice of paper-pencil tests has remained dominant in higher education in Nepal. Indeed, there are practical examinations in technical subjects, including medical sciences, engineering, agriculture, and science and technology. However, they have also been using traditional paper-and-pencil tests as the main assessment approach. In the case of TU, although the university guidelines allow the teacher autonomy for the internal assessment, hardly any alternative assessment approaches have been practiced in assessing students' learning (Acharya, 2022). Similarly, Sharma (2021), in his case study on assessment practice in the English language at the master's level in the education faculty under the current semester system, found that assessment practice was not aligned with the principle of 'assessment for learning.' Instead, the focus was on 'assessment of learning," which is for grading purposes. He hardly found any assessment activities other than the ones formally provisioned for grading. The focus of the assessment was to obtain good marks (grades) rather than improvement in learning.

Similarly, Luitel (2022), in her analysis of assessment practice in higher education based on the case study at the Department of Mathematics within the Central Department of Education at Tribhuvan University, found that the assessment is mostly focused on the cognitive aspect of the student's learning

rather than practical. She further explains that there was a student's reluctance to involve other assessment strategies than the written test. When the teachers do not use a transparent assessment approach, certainly the students will not be ready for other assessment approaches. Similar findings presented by Neupane (2023) mentioned that most of the teachers used traditional paper-and-pencil tests rather than different strategies to assess and support student learning. He mentioned that the teachers were not properly updated and trained for the formative assessment. Acharya (2022) further claimed the poor quality of the student evaluation system influenced the quality of higher education. Certainly, the formal assessment of learning is not sufficient to assess the different learning dimensions, like collaboration, problem-solving, critical thinking, and so on.

Paudyal (2016) connected assessment practice and academic standards with the professional certification examination, like those from the Medical and Engineering Council, as students pass the university examination with good scores but fail the professional council's assessment after several attempts. A similar example can be drawn from the Teacher Service Commission License Examination. About 75 percent of the university graduates from the faculty of education have not got a pass score in the teacher's license examination in 2022. Out of seventeen thousand, four thousand permanent teaching posts were not fulfilled in 2022 (March 3, 2023, ekantipur.com). There might be several reasons for this, though the ineffective assessment system could be one reason. Concerning the reform of higher education assessment, Gaulee (2014) opined that the examination system in higher education needs to be revamped and modernized. Based on the discussion, there is a need to reform the higher education assessment system, focusing on assessment for learning.

Method of Study

To prepare this article, we used both qualitative and quantitative approaches. The participants were selected from the management faculty at

Tribhuvan University using the snowball sampling approach, which is a non-probability sampling technique (Johnson, 2005). All the respondents were current faculty members working at different campuses under the Faculty of Management of Tribhuvan University. All twenty-one respondents were from the faculty of management at Tribhuvan University, teaching different courses under the faculty of management at the bachelor level. The respondents represent all types of colleges (constituent, private, and public) and different job statuses, like full-time, part-time, and contract. Out of twenty-one participants, fifteen have master's degree qualifications, and the rest have further degrees, like MPhil. and PhD. Among them, twelve were aged between 30 and 40 years, and the rest were more than 40 years old. Similarly, sixteen participants have more than 7 years of teaching experience; others have less than that. The respondents taught the core subjects of bachelor-level management courses like economics, business statistics, accounting, finance, marketing, and management principles. In addition, we conducted in-depth interviews with three faculty members (economics, accountancy and finance), selecting them purposefully.

There were six sections in the questionnaires. Except for section two, others were adopted from already used tools developed by Rawlusyk (2018), which were used by Hernández, R. (2009), and Tang, Harrison, and Fisher (2008). The first section of data collection tools concerns personal information about research participants. Similarly, the second section of tools provides the faculty's perception of assessment for learning. Likewise, the third section of tools was designed to collect information from research participants on assessment tasks. The fourth tool section was related to self- and peer-assessment information. The fifth and sixth sections of the tools provide participants' views on feedback. The respondents ticked an appropriate box for the first section and selected the best alternative for the second section. The third and fourth sections of data collection tools were designed with a five-point Likert scale, and the remaining two sections

were designed with a six-point Likert scale. To conduct the in-depth interview, the major guiding questions were developed, like, how do you understand the assessment for learning? How do you do it? What are the challenges faced by you while using assessment for learning approaches? The university and faculty/institutions were selected purposefully to get three participants for the study.

To collect the quantitative information, we requested participants through email, phone, and social media by providing a link to the online questionnaire. The participants returned their responses to the structured online questionnaire. In addition, we conducted in-depth interviews using guiding questions from three faculty members coded FM1, FM2, and FM3 through Google Meet.

The information collected from the participants was analyzed on different themes, such as perceptions, practice, and challenges. The authors' experiences have also been utilized in the discussion section, as we are also partially involved in higher education teaching and assessment at different universities and courses. The information collected from the respondents was analyzed, connecting the different literature and research studies.

Presentation and Analysis of Data

The quantitative data has been presented as a number and percent, and the qualitative information has been added and transcribed based on theme. The analysis is presented in three themes: the perception of assessment for learning, assessment tasks and tools, including self-assessment and peer assessment practice, and feedback practice. The faculty's response has been categorized as never used, sometimes, and often based on the responses.

Perception of Assessment for Learning

The effectiveness of the formative assessment depends on the teachers' understanding and perception of the assessment. The assessment literacy of the teacher contributes to the effective use of assessment information in the

classroom. There is not any formal capacity development opportunity for formative assessment for the faculties. Out of the twenty-one respondents, 11 (52%) have not received any formal training or capacity-building opportunities. Likewise, 8 (38%) respondents mentioned that they have learned through teaching, learning, and personal effort. During the in-depth interview, one faculty member (FM1) who has more than 15 years' experience stated:

> I completed my master's degree with a good score and got the opportunity to remain a teacher at a private college. A few years later, I started teaching at a public campus as a full-time faculty member. I have never had a chance to get training on the formative assessment approaches. The faculty conducted only a one-day formal orientation regarding the changed course. I am undertaking my job as I observed what my teachers did. I have not been offered any orientation about formative assessment or assessment for learning.

In the quantitatively structured questionnaire, there was a question about how they assess their knowledge and understanding about the assessment for learning. Out of twenty-one respondents, 10 (47%) responded that they were just familiar; four respondents obtained an extremely low understanding, and seven (33%) respondents obtained a good understanding of the assessment for learning. So, the understanding of the assessment for learning was found to be unclear, and they have hardly employed it in the classroom. FM2 expressed his dissatisfaction of the training quality. He stated, 'the training was just formality and theoretical explain the structure of the assessment; I couldn't learn new things what I practised in college.

The data shows there is no systematic plan to apply assessment for learning. About 61% of teachers have conducted the internal assessment and practical examination as part of the final examination. Only one respondent has designed a performance task for the students. The remaining teachers conducted

the unit test but did not use the proper feedback mechanism as a part of the assessment for learning. FM3 expressed his experience with the new initiative which he was started and dropped.

> I have started some initiatives to assess the student learning from various practical tasks, but I couldn't get any support from the campus administration. A senior professor on my campus told me that you are a new teacher you can do. It is not necessary for us to do more tasks. Just teach them better, and they will study.

Assessment Tasks and Tools

The structured questionnaires asked the respondents how often they have been using different tools to assess the students' learning. Assessment techniques include individual projects and presentations, group work, and a workbook or worksheet. Similarly, writing a term paper, an observation form or checklist, a portfolio, lab activities, written tasks, quizzes, journals, blogs, etc. were the possible list of assessment tools. Table 1 shows the number of participants using different tools to assess students' learning.

Table 1

Assessment Tasks and Tools

Assessment Tasks/tools	Number of Participants		
	Never used	Sometimes	Often
Fieldwork	6	11	4
Individual projects	13	4	4
Group work	12	7	2
Topic-based discussion	5	9	7
Term paper	11	8	2
Observation/checklist	17	2	2
Portfolio	12	6	3

Table 1 shows that most of the tasks and tools that are designed for the purpose of assessment for learning are never practiced by the teacher. Fieldwork and topic-based discussions have been practiced by many teachers as prescribed

by the curriculum. Other assessment tasks and tools demand more engagement of the teacher during the assessment design. There might be several reasons for not using the assessment for learning. One of the reasons may be the lack of sufficient knowledge and skills in designing and using the techniques and tools for this.

Self-assessment and peer assessment are also assessment approaches that are useful for assessment for learning. However, the collected quantitative data and discussion in the in-depth interview show that there is almost no practice of these approaches in assessment. Students sometimes assess their own learning by reflecting on themselves, but the teachers do not design the self-assessment activity for application in the classroom.

The Practice of Feedback

Feedback is the most important aspect of assessment for learning. To use assessment for supporting students with their learning, the information collected from the assessment activities needs to be aligned with the feedback. Without providing constructive and specific feedback to the students, the assessment alone does not contribute to the student's learning. To assess the feedback-giving practice, some structured questionnaires were asked of the respondents, and a discussion on feedback practices was included in the in-depth interview. Table 2 presents information about the feedback practices of teachers.

Table 2

Feedback Practice

Statements	Response Number		
	Disagree	Neutral	Agree
Providing feedback for the student is an important task for the teacher.	1	14	6
I used different strategies to provide the feedback.	5	11	5
I have a good understanding of how to provide effective feedback.	4	9	8

It is a waste of time to provide feedback because students only care about their grades.	6	7	7

Table 2 shows that the understanding and practice of the feedback differs among the respondents. Very few (only 5) teachers used different strategies for the feedback. Most teachers (7) believe that providing feedback is a waste of time and that students only care about their grades and about 34 percent respond as neutral mean that they are unaware of the importance of feedback. Based on the discussion during an in-depth interview, there is no formal training, workshop, or capacity-building opportunity for the teacher to provide feedback. One of the faculty members (FM2), "I never observed the individual feedback-providing system when I was in college. Lately, I listened to it but did not practice it individually and I never seen in my college from the senior professors".

Challenges of Implementing Assessments for Learning

The participants of the in-depth interview mentioned that the lack of proper knowledge and skill of teachers is one of the challenges in the implementation of assessment for learning effectively. Similarly, in the assessment design prescribed by the syllabus, there is no place to design the assessment independently. However, teachers can use the assessment for learning approaches while teaching in the classroom. The student's regularity, motivation to learn, and high number of students in the classroom are other challenges to implementing assessment for learning effectively. The major focus of the teaching-learning process is to complete the course on time rather than conduct the assessment activity. One participant (FM3) stated that:

> A successful teacher was the one who completed the course before the session ended. Then, most of the teachers' priority is to complete the course. Some teachers tried to use different types of assessments, but they did not get support from colleagues and did not have a conducive environment or motivation from the seniors.

Therefore, changing institutional culture is important for improving the practice of assessment for learning. Thus, the challenges for effective implementation assessment for learning can be grouped into four categories: teacher-related factors, student-related factors, course-related factors, and institutional factors.

Discussion on Key Findings

Based on the analysis of both quantitative and qualitative data, we found that faculty members in higher education possess insufficient knowledge and understanding of how to implement assessment for learning. Assessment literacy is a crucial factor in effectively applying assessment for learning to enhance student learning outcomes. To gather evidence of student learning, it is essential to design and utilize a variety of assessment tools and tasks. The limited responses from teachers regarding the use of diverse assessment methods indicate ineffective and inadequate assessment practices. This study aligns with the findings of Luitel (2022), Neupane (2023), and Sharma (2021), which highlight a predominance of assessment of learning practices in higher education in Nepal, rather than a focus on assessment for and as learning.

To effectively implement assessment-for-learning approach, a teacher's knowledge and understanding are crucial components that significantly influence their academic autonomy (Popham, 2009). Centrally designed curricula provide structured guidance for assessment practices; however, teachers often lack the flexibility to choose alternative assessment methods. The systematic implementation of self-assessment and peer-assessment practices is notably absent, with only a few respondents indicating occasional use. Furthermore, feedback mechanisms are neither well-designed nor effectively implemented. Consequently, there is a limited application of assessment-for-learning approach. Current assessment strategies are insufficient to support student learning and to develop human resources that meet evolving needs.

Assessment should facilitate and enhance student learning. A variety of strategies, tools, and tasks must be employed to ensure effective practices in assessment for learning. To meet the diverse needs of students from various backgrounds, assessments should promote the development of each student's potential. To motivate students to learn, it is essential to monitor their progress and provide support throughout the learning process. Traditional assessment methods may not adequately address the diverse needs and potential of students. Therefore, there is a need to monitor their learning and provide feedback for the learning progress.

Numerous factors influence assessment practices. The rapidly changing global context is a significant driving force shaping these practices of assessment. Additionally, a learning-focused assessment approach enhances student learning (Carless, 2007). To make assessments more effective for improving student learning outcomes, student engagement and constructive feedback are crucial. The awareness and skill development of higher education faculty and relevant stakeholders regarding assessment for learning will significantly enhance the effectiveness of student learning.

Conclusion

The global trend has shifted from assessment of learning to assessment for and as learning in the early twentieth century. At Tribhuvan University, which serves approximately 80 percent of higher education students, this shift has not been effectively implemented. The emphasis on paper-and-pencil tests has led to a predominance of textbook-based lectures in teaching and learning activities. Faculty understanding of assessment for learning approaches is inadequate, and practical application is lacking. The weak internal assessment practices and the dominance of assessment of learning in Nepali higher education restricts teachers' flexibility to select and utilize various tools and tasks for assessment.

Faculty capacity and motivation concerning assessments, student engagement in the assessment process, and the institutional environment are critical factors for enhancing assessment practices aimed at learning. Improving faculty motivation and capacity, allowing flexibility in selecting assessment approaches, and fostering a supportive college environment are essential areas for advancement in assessment for learning within higher education. A fundamental aspect of this transformation is to shift the culture of assessment practices in higher education from a focus on grades to a more learning-oriented approach, moving away from a grade-centric perspective.

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Manifestation of Hybrid Subjectivity: Fate of Diaspora in the Assamese Novel *Damphu*

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Abstract

This article concentrates on the hybrid subjectivity of the protagonist Jung, a Nepali diaspora in the novel *Damphu*: *The Rhythms of Life* living at Assam in India. It scrutinizes how Jung, as a diaspora, embodies cultural affiliations on both sides namely Nepal and Assam. He stays in one place and maintains close and imaginary relations with another. The novel written by Rumi Laskar Bora originally in Assamese language and later translated in English by Sarita Sharma is under scrutiny in this article. Theoretical insights of hybridity are borrowed from Mikhail Bakhtin, Michele Reis, Edward Said, Evan Mwangi, Brian Stross and G. Sheffer. During the Second World War or earlier to it or even today, many people of Nepalese origin migrated or have migrated to the land of India for job opportunity or settlement or the both. However, they embody double consciousness, an outcome of hybridity swinging back and forth between Nepal and Assam. The hybrid subjectivity seems to accept the coexistence of opposites.

Keywords: hybrid subjectivity, double consciousness, diaspora, borderline, globalization

Introduction

The objective of this research article is to examine hybrid cultural orientation as one of the characteristics of diaspora in the novel *Damphu*: *The Rhythms of Life* written by Romi Laskar Bora, an Assamese novelist in Assamese language and later translated in English by Sarita Sharma. The novel projects the story of a Nepali diaspora named Nar Bahadur, afterwards renamed Jung Bahadur living in Assam and his sweetheart Radha Tamang back in Nepal. The preliminary part of the novel sheds light on the exhilarating love story between Radha and Nar (Jung) belonging to Tamang community in Daman, Nepal. In the middle part, as a family legacy Nar (Jung) joins the British *Gurkha* army. Further, the novel reflects the effects of the Second World War. The third or the last part of the novel highlights the cultural twoness of the protagonist, between the homeland of the past and the host land of the present. Jung's bifurcated psyche also swings between two cultures, two nations, two lands and two women.

This article tends to expose hybrid standpoint of the protagonist since earlier researches upon the novel are not guided through theoretical perspective. From the critical lens of diasporic theory, the novel is semantically rich. The prime concern of the study here is to demonstrate an intersection of the geographical here and geographical there inspired by double consciousness.

While analysing the novel, this research seeks answers of three pertinent questions from the perspective of hybridity. Firstly, what hybridity means in theoretical discussion, secondly, why hybrid characteristic grows when people cross the national border and live in the capacity of transnational citizens. Thirdly, how *Damphu*, the selected novel for analysis, reflects the hybrid subjectivity of the protagonist Jung alias Nar.

Meanwhile, it is contextual to define certain theoretical terms such as hybridity, double consciousness and diaspora used in the article. The term 'diaspora' employs archetypal as well as modern day liberal meaning somehow

different from each other. In the archetypal sense, classical diaspora" get associated with antiquity, ancient Greece and Jewish exilic experience" (Reis, 2004, p. 53). Their exile is forceful, painful and full of nostalgic longing. However, modern diaspora" are more dynamic and unpredictable as the process of dislocation and regeneration are often played out in the context of globalization" (Reis, p. 53). Modern diaspora's dislocation may not necessarily be forceful. Seeking better opportunities, modern people may roam around globally on their own will.

Similarly, the term 'hybridity' defies cultural confinements. Edward Said states that hybrid experiences "partake of many often contradictory experiences and domains, cross national boundaries, defy… simple dogma and loud patriotism. Far from being unitary or monolithic or autonomous things, cultures actually assume more foreign elements, alterities, differences than they consciously exclude" (1993, p.15). When the concept of hybridity is applied in the study of culture, if refers to the process of mutual borrowing. At that time, cultures differing to each other come together, blend, interact and produce an in-between situation.

In the similar fashion, Evan Mwangi defines double consciousness as the worldview and practice. Under double consciousness "a community and individuals are aware of complimentary difference that constitutes them and are ready …to tolerate other groups and individuals with different worldviews" (2007, p.51). They also frankly adopt dissimilar elements from other cultures into their own. So, double consciousness as a by-product of hybridity keeps affiliation to two opposing sides remaining at the borderline of culture, language, nationality and the like. Despite the fact that Rumi Laskar Bora comes from the Assamese cultural background, she selects the subject matter of Nepalese diaspora in the novel *Damphu* and follows the trajectory of a Nepali diaspora starting from Nepal. She successfully celebrates the theme of hybridity at the level of culture,

nationality, language and love as well. The fictional protagonist Jung, through his double consciousness, defies purist ideology and performs double attachment. Research Methodology

This article explores and analyses how the Assamese novelist Rumi Laskar Bora's novel *Damphu* based on diasporic theme articulates double consciousness mainly of the protagonist Jung. He imagines Nepal as his biological mother and Assam as his foster mother. For theoretical support, insights are borrowed from the theorists and researchers such as Mikhail Bakhtin, Michele Reis, Edward Said, Evan Mwangi, Brian Stross and G. Sheffer. Among them, Mikhail Bakhtin, Edward Said and Paul Gilroy are vocal about hybridity, Mwangi about double consciousness, Michele Reis and G. Sheffer about diaspora. Hybridity and double consciousness operate at the levels of language, love, culture and nationality as well. The protagonist Jung in the novel *Damphu* repeatedly articulates his affiliation to both Nepalese and Assamese nationality and culture. Jung's loyalty to both of the women namely his wife Januka in Assam and his beloved Radha in Nepal also exposes his double consciousness in love. Jung's affiliation to the land of settlement and his nostalgic attachment to the land of origin makes his life hybridized. Further, his use of language also draws words and phrases from both Nepali and Assamese. His cultural bifurcation requires hybridity as a tool to analyse his doubleness of existence.

Textual Analysis

The novel *Damphu: The Rhythms of Life,* written originally in Assamese and translated in English, articulates a diasporic character's double vision. Crossing his boundary of nationalism and standing at the transnational space, Jung loves both of the phenomena from his homeland and destination land. The hybrid orientation comes out of its pre-designed parochial establishment. Hybridity, as Mwangi comments "reaches out to forms of expression and experiences beyond established boundaries" ((Mwangi, 2007, p.45). Nar, renamed

as Jung born in Daman, Nepal fought the war in Burma on behalf of the British Gurkha army, got injured in the war and after the treatment process, entered Assam to try to luck. The modern liberal definition incorporates him as a diaspora uprooted from the land of origin and constantly living in reminiscences. The narrator comments, "He [Jung] knew that he could not even think of going back to Nepal. He had thoughts of going back there for Radha but those were immature thoughts of an immature lover boy" (Bora, 2020, p.131). Jung's double consciousness about the Nepalese past and the Assamese present puts him at the hybrid point of belonging to two opposite sides. The narrator comments as 'immature' to Jung's desire to return Nepal.

Jung survives with his nostalgia of the young age love even in the battlefield. When Birendra, who had barred him from marrying Radha, was killed in the war in Burma, Jung helplessly wished he could have saved Birendra and softly murmurs, "Please, forgive me Radha. Forgive me for all my failings" (Bora, 2020, p.66). Jung's love to Radha, though a vast geographical distance survives between them and his magnanimity to the previous enemy indicate his double vision. Disregarding his inimical relations with Birendra in Nepal, years back, Jung remorsefully comments, "In this alien land, I got to know you, see your good side and now when I feel like embracing you as a friend. You have gone away from me never to return. Forgive me my dear friend. I could never do justice to you" (Bora, p.65). Jung's diasporic self beyond the national border survives with hybrid psyche. He magnanimously forgets his hostile relations with Birendra in Nepal years back.

Drawing a line of difference between pure and hybrid, Brian Stross writes, "Pure… means relatively more homogenous in character… having less internal variation, Hybrid, the opposite, is of course more heterogeneous in character, having more internal variation" (1999, p.258). In the novel *Damphu*, Jung's co-fighter Mungri, from Burmese background, crossing his national boundary

castigates the Burmese revolutionaries who burnt down his family members and everything. To borrow Stross's phrase, Mungri is an 'internal variation' with his hybrid subjectivity, Mungri aggressively comments, "This [Burma] is no longer my motherland. This is the land of my enemies, traitors, they have finished everything" (Bora, 2020, p.56). Mungri transgresses the boundary of his nationalism as the Burmese revolutionaries were inflicting torture on the Indian and British people in Burma. The revolutionaries wanted the 'outsiders' to leave 'their' soil. Indian traders were economically rising however the Burmese landed gentry lost their property and reduced to the state of penury.

Mikhail Bakhtin postulates hybridization at the level of linguistic fusion. For him, hybridization means "the mixture of two languages, an encounter between two different linguistic consciousness" (1981, p.358). In Bora's *Damphu* Jung served at Maharjan's house in Assam in the capacity of a cowherd, even though Jung was not satisfied with the evil Mahajan's behaviour, he had a soft corner in his heart for Aideu, the wife of Mahajan. After living for a long time in Assam, Jung could fluently speak Assamese language however reading and writing were comparatively poorer. He would address Mahajan's wife as '*aai*' which meant mother in Assamese language. He had understood the power, significance and emotional depth of the word *'aa*i'. Nepalese diaspora in Assam were turning to be hybrid in their linguistic usage. The narrator comments that Jung's "S*anima* (aunt) and her family people mostly spoke in Assamese at home. They had Assamese neighbours. Intermixing of language was common" (2020, p.163). In course of time, diasporas develop hybridity in their linguistic expressions and selection of diction. The overarching system of the host land does not let them remain isolated from the linguistic system prevalent.

In today's mixed and syncretic world, nobody can retain purity and cultural exclusiveness. In this regard, Paul Gilroy comments, "We must be prepared to give up the illusion that cultural and ethnic purity has ever existed" (2000, p.251).

Hybridization is a process constantly present. Harilal, one of Jung's friends of Nepalese origin in Assam, in his festive mood says to Jung, "We are no longer Nepalese. We are Gurkhas. We have earned the epithet ʹGurkhaʹ for ourselves. Even the Nepalese of Nepal now address us as Gurkhas, we no longer claim to be Nepalese" (Bora, 2020, p.171). In due course, the cultural ambience of Assam transforms the diaspora to develop their loyalty to the host land. However, this loyalty is not one-sided and permanent but keeps fluctuating. The narrator successfully captures Jung's bifurcated psyche of living between Assam and Nepal. At times, Jung feels:

> Like going back to his native place, to Nepal, But then he knew that time had changed. The Daman of now must be very different from the Daman that he had known. He would have to start everything afresh. Would he be able to herd sheep like in the past? Would he be able to harvest the terrains of Daman once again? Was the sheep grazing area as before? Would things be same? And … His own mother must have given up all hopes of seeing him. She must think him to be dead. It had been such a long time how he wished to see her again. (Bora, p.203)

Jung's hybrid subjectivity does not let him to remain unwavering to his host land. The memories drive him to his birthplace where his mother is perhaps waiting. Jung's double consciousness on one hand inspires him to create a new world in the place of current habitation, on the other hand, his longing to the land left behind lures him repeatedly.

The narrator draws similarities of Jung with the Hindu mythological characters Krishna from *Mahabharata*. The narrator's comment on Jung's hybrid status sounds more logical, "Nepal was his [Jung's] biological mother… just like Krishna's mother Debaki, Nepal was his birthplace but Assam was like Krishna's Jasoda, his foster mother" (Bora, 2020, p.221). In today's context, the term diaspora does not refer only to such classical groups as Jews, Greeks and

Armenians. Now the term has acquired broader semantic domain. The protagonist Jung does not belong to the definition of classical diaspora, as he is not a forceful expellee from his homeland. G. Sheffer's definition of modern diaspora reads simple but poignant, " [They] are ethnic minority groups of migrant origins residing and acting in host countries but maintaining strong sentimental and martial links with their countries of origin" (1986, p.3). However, the host land is equally respectful to them. The narrator of the novel *Damphu* evaluates Jung's attachment with his host land Assam and motherland Nepal as follows:

> Assam was the land which fed him and made him capable in life. There was no comparison between the two mothers. Each one had her own rightful and special place in his life. Comparing them would be like insulting them. He had become a part of the land that he called his own. He had adopted the Assamese language and culture his own. He would create a new society there along with the people of the land which had given him shelter and protection. It was only because of him that the dense jungle on the banks of the Kapili had become habitable …. and hospitable. He had created his own living out of nature. He had not looted anyone's rightful property. (Bora, 2020, p.221)

Jung's outlook towards his homeland is ambivalent. If he has a choice, he doesn't choose to return as the homeland is just an ideal but practically it turns to be uncomfortable and unwelcoming to a diaspora. Nonetheless, the senses of yearning and distancing keep recurring.

Jung's dividedloknath self between the homeland and host land manifest strongly with his hybrid subjectivity. The narrator comments, "He could not stop his tears from flowing. His emotions feel freely, one eye representing the milky clear falls of Daman and the other representing the enchanting falls of the Xunakusi hills. Both were his own, both dear to him, both represented parts of his

own heart" (Bora, p.221). Jung's diasporic subjectivity is entangled between the clear falls of Daman and the enchanting falls of the Xunakusi hills.

The hybrid subjectivity of Jung mostly falls in contradiction. His desire and decision to go to Nepal, time again "fizzled out like a flattened balloon" (Bora, p.242). Sometimes, Jung grows sentimental and broods over something. Capturing those moments his wife Janaki asks him the reason. He admits his helplessness and reveals himself, "Whenever I sit by the Kiling, the memories of my life at Daman come rolling down. The memories make me nostalgic" (Bora, p.246). Jung's neither-here-nor-there sort of hybrid mentality keeps him rolling back and forth between Daman and Assam.

The subjectivity of a diaspora remains in the process of transformation. Shyam Selvadurai states that the cultural identity of diaspora, "stresses not just who one was in the past but who one might be in the process of becoming" (5). Sometimes, Jung would think making a far better world in Assam. He had willingly chosen the land of Assam after leaving the battlefield in Burma. In Assam "he was going to create a new village, a new society, a new culture. He was filled with renewed vigour and energy" (Bora, p.221). Jung was torn apart between his in-laws in Assam and family members including sweetheart Radha in Daman, Nepal. Jung had formed a new world in Assam. The narrator reveals, "Janaki's parents were like his own *ama, buba*. Rukmini and Padma were like sisters to him. Harilal and Bhim daju were like his own brothers, too" (Bora, p.242). Nevertheless, at times, Jung felt serious deficiency in his life. His desire to return Nepal lurked deep down his psyche and occasionally burst it out. The narrator interrogates, "Why was it that he sometimes felt like leaving everything behind and setting off to Nepal immediately?" (Bora, p.242). The same bifurcated hybrid subjectivity is the reason behind.

In Evan Mwangi's definition, hybridity is "the practice of enriching one's own culture, epoch, language and genre through guarded acceptance and use of

the characteristics of another genre, culture, era and language" (2007, p.44). Modern diasporas like Jung in the novel *Damphu*, in course of time, happen to follow culture and language of the land of relocation. Through the repeated use, they make it a part of their life and forget what is their originality is and what is not. Jung is confused about the Nepalese and Assamese name of a flower. The narrator states, "He had almost forgotten the Nepalese tongue. Actually, it was not bhatgilla but kokmehandu in Nepali. Bhatgilla was the Assamese name for kokmehandu. It was but natural for him to imbibe the language and culture of the place where he had been living and breathing in its air for so long" (Bora, p.262). Cultural and linguistic intermixing make diaspora's lifestyle full of double consciousness that according to Mwangi, "merges from hybridity" (2007, p.51). Jung is an exemplary model of modern diaspora bearing cultural and linguistic hybridity.

In addition to linguistic hybridity, Jung equally loves and revers his birthplace Nepal and his place of settlement Assam. His loyalty between these two places is divided. Diaspora engage in the juxtaposition of ambivalent notions between two worlds. They sometimes awfully discover that they belong to nowhere. Jung's duality of belonging is remarkable as he "had been living in Assam for the past five years. He had come to like the place and love it like his own. He loved the rivers, the mountains, and the soft flowing breeze of Assam. The place didn't seem alien to him. It felt like his own. Like Nepal, his birthplace, Assam too had its share of plains and hills, vales and valleys. Just like the hills of his native Daman, the hill of Sitajakhala and Xunkusi behind the Kiling also stood tall" (Bora, p.130). Living with the duality of mind is diasporic fate. They can neither delete their past from the memory nor embrace the new circumstances wholeheartedly. The diasporic realization of belonging to both sides but ultimately not belonging to anywhere grows severely painful. Such plight of hybridity is connected with diasporic existence.

Conclusion

This research article on *Damphu*: *The Rhythms of Life*, an Assamese novel written by Romi Laskar Bora, exposes hybridity mainly of the protagonist Jung at cultural and linguistic level. Migrated from Daman, Nepal to Assam of India, Jung is a diaspora culturally uprooted from this homeland. From the borderline, Jung maintains strong cultural ties to his homeland and the host land. Double consciousness turns to be a fate of diaspora. As an outcome of hybridity, double consciousness establishes a relation between the homeland and the destination land. Instead of making homeland a site of residency, it is an ideal, so diaspora revives a connection with the prior home. For Jung, Nepal is biological home and Assam, the place that has ascertained his residency is something like a foster mother. Moreover, the novelist draws a mythical allusion of *Mahabharata* to compare Jung's duel affiliation that is Jung as Krishna, Nepal as Devaki, the biological mother and Assam as Jasoda, the foster mother. This association with the mythical characters posits Jung at the borderline of culture and nationality from where he cannot associate himself only on a single side.

Naturally, a diaspora's psychology survives in duality. Their emotional links with the cultural homeland and attachments with the place of current habitation keeps the diaspora ever in swinging position. The protagonist in the novel *Damphu* seems doubly conscious in terms of language, culture, nationality and love as well. The waterfalls from both of the lands Nepal and Assam are respectable to him. In his linguistic expression, interchange between Nepali and Assamese words are quite noticeable. At times, Jung and his Nepali fellows in Assam love calling themselves not Nepali but Gurkha. They just want to disengage their Nepalese identity. Other times, they wish to come in touch with Nepal. Such ambivalence Jung shows in his love as well especially after he marries Januka. He emotionally moves back and forth between Radha in Nepal and Januka in Assam.

In our time, cultures are dynamic. In the meantime, no culture is fully pure and unaffected. Diaspora people are one of the key agents who make cultural interactions possible worldwide. Diasporas themselves grow hybrid after cultural crosspollinations on the multicultural platforms. In the novel *Damphu,* Assam turns to be a location encompassing people from plural cultural backgrounds. Jung and his Nepalese fellows sometimes earnestly long for their homeland; other times, maintain a distance from it showing their diasporic dilemma.

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Historical Roots of Impunity and Its Role in Perpetuating Corruption in Nepal

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Abstract

Corruption, a pervasive global issue, is particularly pronounced in countries where impunity and lawlessness prevail. This article examines the complex relationship between impunity and corruption, highlighting how unchecked power and weak legal frameworks allow corruption to flourish. In Nepal, the historical context of impunity, dating back to the Rana regime and continuing through various political systems, has significantly contributed to the institutionalization of corruption. The lack of accountability for the Rana family and high-level officials has created an environment where corruption thrives unchallenged during Rana Regime. Instances from Nepal's history, such as the Panchayat's "Panchakhat Mafi" and the vacuum in the Commission for the Investigation of Abuse of Authority (CIAA) in long time in republican regime, illustrate how legal provisions have been manipulated to protect the powerful. This study combined historical analysis and semi-structured interviews with key informants to examine the evolution of impunity and its impact on corruption in Nepal, using thematic analysis to identify patterns and assess reforms. This study underscores that efforts to combat corruption will remain ineffective without robust watchdog institutions and genuine enforcement of the law. The article argues that dismantling impunity is essential for eradicating corruption and achieving good governance in Nepal.

Keywords: impunity, corruption, anti-corruption, institutional weakness, accountability, transparency

Historical Roots of Impunity and Its Role in Perpetuating Corruption in Nepal

Corruption is a pervasive issue that undermines the integrity of public institutions, erodes trust in governance, and stifles economic development (Ahmed, 2023). In many countries, corruption is not merely a consequence of weak institutions but is deeply rooted in a culture of impunity, where powerful individuals and groups are shielded from accountability. This is particularly evident in Nepal, where historical and contemporary practices of impunity have allowed corruption to become entrenched in various levels of government (Ghimire, 2018).

The relationship between impunity and corruption in Nepal is complicated, shaped by the country's unique socio-political dynamics (Ghimire, 2015). During the Rana regime and the Panchayat regime, rulers, high-level officials and political elites operated above the law, creating an environment where corruption could flourish without fear of punishment. Even in the post-democratic era, despite efforts to establish stronger anti-corruption institutions like CIAA, the legacy of impunity continues to hinder the effective enforcement of laws and the prosecution of corrupt practices.

This study tries to explore how impunity has perpetuated corruption in Nepal's public institutions by comparing the mechanisms of corruption and the role of impunity in both the pre- and post-democratic eras. By understanding the historical context and the factors that have sustained this culture of impunity, the study aims to provide insights into the challenges of combating corruption in Nepal.

Methodology

This study employed a qualitative study approach to explore the relationship between impunity and corruption in Nepal, focusing on both pre- and post-democratic eras. It combined historical analysis and key informants'

interview to provide a comprehensive understanding of this relationship. Historical analysis involved reviewing legal texts, government records, media contents, and scholarly works to trace the impunity and its impact on corruption across different political regimes. Semi-structured interviews with seven key informants including former commissioner of CIAA, government officials, legal experts, anti-corruption activists, and scholars provided insights into the perceptions of impunity and the effectiveness of anti-corruption measures. The data from these sources were analyzed using thematic analysis which involved coding the data, identifying patterns, grouping them into themes, refining these themes, and interpreting them to uncover meaningful insights and connections related to the research question to identify recurring patterns and assess the impact of legal and institutional reforms on impunity and corruption. Ethical considerations in this study included obtaining informed consent from all key informants, ensuring the confidentiality and anonymity of their responses, and handling sensitive data with integrity to avoid any harm or bias in the analysis of impunity and corruption in Nepal.

Impunity and Corruption in Nepal: A Historical Glimpse

Corruption is a serious problem in countries where impunity and lawlessness prevail. One of the key factors contributing to the prevalence of corruption is the culture of impunity that has taken root in the country's public institutions. The endemic of corruption is a complicated system that pervades nearly all state institutions (Tum, 2001). According to Tum, impunity is the lack of rule of law and lawful act. The emergence of impunity gives rise to corruption. Lack of lawful acts increases monopoly, and the possibility of political corruption also increases (Bhattarai & Khatiwada, 2006).

Impunity means exemption from punishment or the consequences of one's actions, it is a significant obstacle to effectively combating corruption. Flaws have plagued the criminal justice system in Nepal, and it is not sufficient to prevent

corrupt activities (Parajuli, 2010). Many corrupt acts are outside the purview of the judicial system, and the success rate of corruption cases is low, with only around 40% resulting in convictions. The criminal justice system is also heavily affected by delays, further undermining its effectiveness in holding corrupt individuals accountable (Parajuli, 2010).

Corruption is also deep-rooted in Nepalese society, manifesting itself in various forms such as bribery, embezzlement, nepotism, fraud, and abuse of power (Subedi, 2005). The culture of impunity in Nepal is perpetuated by several factors, including the nexus between politicians and business interests, vote-buying, and the misuse of public funds (Transparency International, 2023). The capture of state institutions and systems by powerful individuals or groups intensifies the problem, preventing effective checks and balances (Upadhayay, 2017).

Tum (2001) asserts that corruption undermines the justice system by impairing its effectiveness. When acts of corruption involving high-ranking government or state officials are exposed, the institutions responsible for prosecuting these cases either fail to conduct investigations or deliver acquittals. As said by Tum, during the traditional types of regimes like Rana regime, the high-level rulers and administrators would not be investigated for any kind of financial irregularities or corruption. If they were investigated, they would not be punished (Regmi, 1975). The same situation was repeated during the modern regimes too. When the government of Dr. K.I. Singh tried to investigate corruption, his government got sacked in a very short time (Pangeni, 2005). In 1976, the contemporary Corruption Control Commission investigated 1 hundred 25 persons including the contemporary Prime minister Dr. Tusali Giri, Finance Minister Dr. Prakash Chandra Lohani for garment scandal and had cased files against them. But they got bail in a short time saying they were free from guilt (Dhakal, 2003).

Similarly, the Panchayat regime had the provision of forgiving the politicians from any kind of crimes if the Panchayat rulers wanted. It was called *Panchakhat Mafi.* During the Panchayat regime, if the authorities of palace, *Bhardars* and center of Panchayat politics were made happy then any kind of crime would be forgiven. When the Panchayat system was supported, corruption and other kinds of crime would be forgiven. (ReMAC Nepal, 2006). The contemporary Agriculture Minister Rabindra Nath Sharma was convicted in Cow/Ass scandal in 1979, but he was not investigated for this (Dhakal, 2003). He assumed the role of Finance Minister in 1997. During his tenure, the gold smuggling incident occurred at Tribhuvan International Airport. The parliamentary committee investigated, identified the guilt and presented the report (Dhakal, 2003). No investigation was carried out into this report. Neither the CIAA nor the government paid any attention to this. Due to that *Panchakhat Mafi* the impunity crossed the limit during that time. There was no parliamentary committee or CIAA as there is in the democratic regime. So, during the Panchayat regime, the politicians were free of any kind of corruption, and they were never punished. This impunity led to extensive corruption activities during the Panchayat regime (ReMAC Nepal, 2006).

In 1996, to extend the term of Prime Minister Sher Bahadur Deuba's government, five ministers were sent to Bangkok simultaneously under the pretense of health check-ups, each receiving 2,000 US dollars. The CIAA investigated these ministers and confirmed political corruption. However, the Commission did not press any charges against them (Thapa, 2001). This was because the CIAA act formed in 1992 did not have provision of filing the case against the political leaders. The CIAA Act 1992 was made in such a way that this act was not applicable to the political parties' leaders and cadres. In the act, the provision was made that if Ministers were to be punished then it had to get consent from the Prime Minister while from the speaker of the parliament for the

members of the parliament (Government of Nepal, 1991). This has created the situation; the politicians are not punished for any kind of financial crime or corruption. On April 17, 2002, the House of Representatives promulgated four acts at a time including corruption control act, CIAA act, impeachment act and Special court act. All these acts had the aim of controlling corruption. All the parties in the House of Representatives passed these acts by discussing them in parliament rather than forming the committee (Himal Khabarpatrika, 2002). When no action is taken against the political leaders involved in financial irregularities, smuggling and corruption, this increases impunity. Due to this kind of impunity political corruption goes on institutionalizing. When these leaders are not investigated for and brought into the legal premises, this increases impunity. When the respective body does not give interest in investigating against any leader though they have enough evidence, this has increased political corruption. While the election for the Prime Minister was going on in 2010, some news came into publicity that the leader of UCPN Maoist, Krishna Bahadur Mahara asked Rs. 50 crores with a Chinese through telephone for buying the vote of CA members (The Himalayan Times, 2024). No investigation was carried out into this event. Another event came into publicity in 2012 where Kaski District leaders asked for 50 lakh rupees with a contractor to grant the contract who had bid the double of estimated cost (The Himalayan Times, 2019). The one who was involved in this scandal accepted their fault. While these types of news were being published the UCPN Maoist party did not help in investigating its leaders and cadres. Rather, it protected them.

This trend made an increase of impunity among politicians and cadres. When they are aware that whatever crime they commit, they shall be excused; the events of corruption occur one after another. While analyzing the events in Nepal, the corruption and irregularities from the high-level politicians are not

investigated, if investigated they get bail immediately. As said by Tum this has been promoting for the political corruption in Nepal.

It appears that political parties are exacerbating impunity by creating obstacles for bodies responsible for investigating and prosecuting corruption. They have been hesitant to appoint new authorities out of fear that they might be investigated and charged for corruption and financial irregularities. From November 3, 2006, when the term of the then Chief Commissioner of the CIAA, Surya Nath Upadhyaya, ended, the CIAA was without a chief commissioner until May 7, 2013. During this period, the commission refrained from investigating politicians or pursuing cases against them. Consequently, the CIAA did not investigate scandals such as the Sudan scandal, transformer scandal, and cantonment scandal involving politicians (Bhattarai, 2013). Impunity is a key factor contributing to the failure to investigate and prosecute such scandals. When state mechanisms are weakened, agencies like the CIAA fail to investigate high-level politicians. The legal provision that prevents the CIAA from investigating decisions made by the cabinet further complicates the issue. As a result, even minor departmental decisions are subject to cabinet approval, which has further facilitated corruption.

Impunity refers to the exemption from punishment and fines, often prevalent in countries where the rule of law is weak, and corruption is widespread (Avakian, 2022). The absence of legal accountability in a state constitutes impunity. This lack of accountability fosters corruption and financial misconduct, contributes to monopolistic practices, and adversely affects economic growth and development (Tum, 2001). Impunity negatively impacts a country's development by encouraging high-level politicians, bureaucrats, and other officials to engage in further corruption and financial crimes when they are not held accountable for their actions.

Tum (2001) asserts that in the absence of robust watchdog institutions, impunity becomes the solid foundation upon which corrupt systems are established. Without dismantling impunity, all attempts to eradicate corruption are destined to fail. There is nothing more reinforcing for corrupt individuals than witnessing their reflection in the same mirror of impunity that has been exploited by numerous public officials, military leaders, businesspeople, and politicians globally. Tum also notes that in Nepal, political corruption is escalating due to the prevalence of impunity.

Law is for Only Those Who Do Not Have Power

The trend of punishing only those without power continued even during the democratic regime, while those in positions of authority involved in major corruption and criminal activities often escaped accountability. Actions are typically taken against lower-level officials, while high-ranking individuals remain unpunished. Various studies highlight that corruption and poor leadership significantly impact governance and development in third-world countries like Nepal. Impunity plays a crucial role in exacerbating political corruption in Nepal. The problem of impunity was notably severe during traditional regimes, such as the Rana era, when the law applied only to lower-level employees and laborers, with the Ranas being above the law. This situation fostered corruption at higher levels and reinforced the notion that influential individuals were above accountability. Regarding the increase in impunity during the Rana regime, Nepal (2012) notes:

> There was the provision of final audit from Kumarichwok office during the Rana regime. When Judda Shamsher was Prime Minister, Ram Shamsher was Badahakim in Mahottari. When the auditor from the Kumarichwok office checked the account of Mahottari he found some irregularities. According to the law of that time, the auditor sanctioned Rs.1 for Ram Shamsher as fine for irregularities, he was furious with the

auditor. He came to Kathmandu and proclaimed in front of the contemporary Prime Minister Judda Shamsher that the tenant is sanctioning fine against the ruler; it was not fair. Then Judda Shamsher ordered that if Kumarichwok sanctioned any punishment to the Ranas the fine should be paid by the person who is one level below the Rana. (p.390)

A former Chief Commissioner of CIAA also agrees with it. He says:

Why does Nepal remain poor and underdeveloped? The answer lies in corruption, weak governance, and ineffective leadership. But why do these issues persist in Nepal? The root cause is impunity, which means that criminal authorities face no punishment. This lack of accountability perpetuates a cycle of mismanagement, weak governance, corruption, and ineffective leadership, all of which significantly impede the country's development. Impunity is a key factor enabling and sustaining these problems.

The Rana rulers earned huge property illegally for 104 years. This trend continued during the Panchayat regime as well. During the Rana Regime, if people objected to the property of the rulers, they were called anti-nationalist. To object to the wrong ruler was equal to objecting to the rule. At that time, there were not any watchdog institutions like CIAA. The rulers were outside the premises of punishment. There was a trend of *Panchakhat Mafi* during the Panchayat Regime by persuading the officials, and political power. If the criminal people support to the Panchayat, every kind of crime was forgiven (ReMAC Nepal, 2006).

This situation intensified more during the restoration of democracy in 1990. After the people's movement in 1990, Janardan Mallik Commission was formed to investigate against the Panchayat rulers who earned by misusing power and national properties. The commission had made a list of those who repressed the democratic movement of 1990. Similarly, an investigation commission was

formed for investigation of irregularities and repression over the people's movement in 2006. The contemporary Home Minister Kamal Thapa had spent 22.479 million rupees, the power and national treasury was misused extensively. However, even after the establishment of democracy no action was taken against him (Thapa, 2012).

> Impunity has become an important part of governance in the history of Nepal. The high-level politicians and power holders never acted, but the low-level employees are taken action. This trend has been continuing since the Rana regime. While high level officials get protection for any kind of crime, this increases more and more corruption in the country and hence there is negative impact on the development process in Nepal. (p. 333)

Impunity and corruption have plagued Nepal since the era of the Rana regime. The Ranas ruled with absolute power, exploiting the law to secure their dominance without fear of repercussions. This pattern of impunity and corruption persisted beyond the Rana era, embedding itself deeply in Nepalese society.

Despite political changes following the establishment of democracy, impunity remained entrenched. High-ranking leaders faced no real threat of punishment for their corrupt actions or financial misconduct. Instead, these individuals gained more power, evading legal consequences and influencing the legal system to shield themselves. Consequently, efforts to combat corruption were ineffective, and corruption became deeply ingrained in institutional practices. A researcher studying corruption notes:

> A thorough hasination of Nepal's history reveals that powerful individuals involved in corruption have largely escaped consequences, with only a few exceptions. Despite their significant economic misconduct and corrupt activities, they maintain their political influence. This prevailing impunity

has exacerbated corruption, as it fosters a climate where perpetrators feel no fear of punishment.

Such impunity not only emboldens those who engage in corruption but also expands its reach. Corruption, in this context, transcends personal gain and becomes ingrained in societal norms, with individuals perceiving no risk of legal repercussions. Consequently, impunity and corruption reinforce each other, transforming corruption from a mere crime into a pervasive cultural phenomenon in Nepal.

High Profile Never Got Punished

Examining Nepal's history reveals that high-profile leaders and administrators have frequently avoided punishment. Since the restoration of democracy in 1990, serious investigations into high-level politicians accused of corruption have been lacking. Weak investigative mechanisms and political protection have allowed corrupt leaders to evade both investigation and punishment (Bhattarai et al., 2005). Khum Bahadur Khadka, Jaya Prakash Prashad Gupta, and Chiranjibi Wagle are notable exceptions.

On October 13, 2003, the CIAA detained former minister Govinda Raj Joshi and formally charged him three months later in the special court. Joshi was accused of illegally acquiring Rs. 39.3 million during his tenure (Bhattarai et al., 2005). As of 2021, his case remains pending in the Supreme Court. Similarly, Parliament's PAC found that former minister Bim Bahadur Rawal of the CPN (UML) had engaged in malpractice while approving a 2001 deal to lease an aircraft from China South-West Airlines for NAC (PAC, 2001). However, no investigation followed.

Girija Prasad Koirala faced numerous corruption allegations. In 1993, the PAC investigated and confirmed Koirala's misuse of authority, resulting in Rs. 395.5 million in losses for the Corporation (Thapa, 2074). No action was taken. Nine years later, during Koirala's second term as Prime Minister, the Lauda

scandal emerged. In late 2000, NAC leased a Boeing 767-300 from Lauda Air at $3,350 per flight hour for 18 months, with an additional crew charge of $350 per flight hour. The deal was finalized without formal bidding. The CIAA investigated and identified errors in the cabinet's decision, but no action was taken against Koirala. The PAC also found faults in the cabinet's decision, noting that the government violated NAC's policy by leasing aircraft over 10 years old (PAC, 2001). The CIAA filed charges against the tourism minister and nine NAC and government officials in the Appeal Court in Lalitpur for embezzling Rs. 380 million, including NAC's losses. Despite this, no action was taken against Koirala, and significant cases of money laundering remain protected by political and administrative influence (Acharya, 2019). Several corruption cases brought to public attention have been investigated by parliamentary and special committees, which have confirmed corruption and recommended further action to the CIAA. However, many of these scandals have yet to be investigated by the CIAA.

The involvement of political leaders in corruption cases in Nepal has often gone uninvestigated. For instance, despite clear directives for investigation, significant cases such as the Chamelia Hydropower Project irregularity and the Taragaun Development Committee's illegal sale of land remain untouched by the CIAA. The same pattern of inaction is observed in major scandals like the Nepal Oil Corporation's land purchase and the Nepal Trust land deal, where substantial amounts of money were misappropriated but no investigations were conducted.

Similarly, high-profile cases involving influential figures, such as the Shivaraj Shrestha money laundering scandal and the Gokul Baskota commission incident, highlight the systemic impunity within the political sphere. Despite overwhelming evidence and recommendations for action from various parliamentary committees, the CIAA has consistently failed to investigate or prosecute those involved. This trend extends to other significant cases, including the Widebody purchase scandal, the Ganesh Thapa corruption case, and the Omni

Business Corporate International agreement during the COVID-19 pandemic, where no substantial investigative actions were taken despite clear indications of corruption.

High-profile corruption cases in Nepal involve substantial amounts of money, often linked to high-level politicians and bureaucrats. If these significant funds had been directed towards the country's infrastructure and public services, Nepal could have avoided issues such as inadequate roads, poverty, poor or nonexistent drinking water supply, and high unemployment. Instead, substantial sums are embezzled by politicians, bureaucrats, and businessmen, who transfer the money to developed countries, undermining the nation's development.

The scandals illustrate the close connection between financial corruption and national development in Nepal. Bribery and the illegal siphoning of public funds into private hands—funds that could otherwise be used for public goods and development—represent fundamental forms of financial corruption. Such corruption erodes democracy, undermines state legitimacy, stifles economic growth, and threatens citizens' freedom and security, thereby obstructing national development. The table above highlights several complaints filed with the CIAA that remain uninvestigated, indicating a growing trend of leaving scandals unresolved. Meanwhile, lower-level employees are being arrested under the guise of sting operations, whose numbers are depicted in Table 1.

Table1

Sting Operation Cases

FY	Total Case	Bribe related Case	Sting Operation
2017/18	194	97	36
2018/19	351	147	132
2019/20	440	206	181

Note. The information provided in the table is based on CIAA Annual Reports.

The CIAA has been disregarding the big corruption cases and acting against the lower position government employees. Among 181 sting operation cases in the fiscal year 2019/20, 99 were less cases of bribes less than 25 thousand. Similarly, there were 43 cases of bribes of 25 thousand to 100 thousand and more than 39 cases of bribes more than 100 thousand rupees. A total of 277 employees were arrested. Among them, 16 were office assistants and 69 were non-gazette first class employees (CIAA, 2020). The researcher says:

> The complaints of huge corruption cases have been made to the CIAA, which have remained uninvestigated. Leaving few exceptions, CIAA has been entangling itself in cases of corruption involving meagre amounts of money. While corruption has been flourishing in the country, the country is drowning in the vicious circle of corruption.

> The flourishing impunity in Nepal is of two types. First, those who are in power and government make laws in their favor excluding them from the premises of punishment. No investigation can be made into them. Second, they have a foul aura over the institutions that are responsible for acting against corruption. The officers in these institutions are appointed in their will and are escaped from being taken action. This kind of impunity has been contributing to the development of underdevelopment of Nepal.

The situation of impunity has been deteriorating, with powerful individuals remaining beyond the reach of punishment. The mindset of centralized governance has persisted despite changes in political regimes, and the governance system itself has not evolved. Consequently, the country continues to experience stagnation and underdevelopment.

Conclusion

The examination of impunity's role in perpetuating corruption within Nepal's public institutions reveals a complex interplay between historical legacies and contemporary governance challenges. Impunity has been a longstanding issue

in Nepal, dating back to the Rana era, and corruption appears to be deeply entrenched in its foundations. Despite changes in government, impunity has remained unchanged. Since the Rana period, influential individuals have undermined the legal system to advance their own interests, eroding the rule of law. This pattern continued during the Panchayat era, where powerful figures institutionalized corruption and evaded legal consequences. Even with the return of democracy, the culture of impunity persisted, exacerbating corruption and further entrenching it within state institutions. Despite the establishment of anti-corruption bodies such as the CIAA, the effectiveness of these institutions has been severely compromised by legal loopholes and political interference. The CIAA's inability to prosecute powerful individuals, often due to the requirement of governmental consent, exemplifies the systemic barriers that perpetuate impunity. This situation is further exacerbated by the public perception that corruption is not only tolerated but often rewarded, leading to widespread disillusionment among citizens. It clearly shows that there is paradoxical coexistence of democracy and corruption prevail in Nepal. It highlights the challenges of weak institutional accountability and the entrenched culture of impunity that undermines democratic principles.

When the legal system is weak and state institutions lack transparency and accountability, the connection between impunity and corruption becomes even more pronounced. In Nepal, the disparities and irregularities among political leaders, administrative officials, and the judiciary exacerbate this issue. Historical evidence indicates that when those in power misuse the legal framework, it erodes public trust in the system, making anti-corruption efforts less effective. Therefore, achieving a corruption-free society in Nepal hinges on eliminating impunity. To address this, both legal reforms and a restructuring of state institutions are crucial.

To dismantle the pervasive culture of impunity, it is essential for Nepal to implement comprehensive reforms that strengthen accountability mechanisms and

promote transparency in governance. This includes enhancing the capacity and independence of anti-corruption institutions, ensuring that legal provisions are applied uniformly, and fostering a political culture that prioritizes integrity over personal gain. Ending the culture of impunity and combating corruption requires a critical examination of how democratic processes are co-opted by corrupt practices, and proposing reforms to strengthen transparency, rule of law, and civic engagement to mitigate this contradiction.

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Understanding Second Language Writing Research: A Methodological Perspective

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Abstract

Second language (L2) writing research is a dynamic field that explores the complex interplay between linguistic, cognitive and sociocultural dimensions of writing in a non-native language. This paper explores the diverse paradigms, methods and methodologies used in L2 writing studies, emphasizing their contextual relevance and purpose-driven applications. The paper underlines the importance of aligning research designs with specific objectives and contexts by situating these approaches within theoretical frameworks such as cognitive process theory, sociocultural theory, and genre theory. It categorizes key methods including elicitation, introspection, observation and text analysis with practical insights for novice researchers. Additionally, it reviews methodological designs like experimental studies, ethnography and action research, discussing their applications and implications for understanding writing development, challenges and pedagogical practices. The paper emphasizes the need for tailored approaches that consider the diverse needs of L2 learners and the multifaceted nature of writing. By integrating theoretical insights with practical guidelines, the article serves as a comprehensive resource for researchers aiming to contribute to the evolving field of L2 writing. This work bridges theoretical and methodological considerations, fostering a deeper understanding of the principles guiding research on second language writing.

Keywords: second language writing, research methods, methodologies, genre aanalysis, action research**,** elicitation

Second Language Writing in Context: From Theory to Classroom Practice

Over the last three decades, second language writing has grown into a well-established field of inquiry. Now teachers and ELT practitioners have acknowledged the value of second or foreign language writing. The post method context-sensitive pedagogies today encourage us to better understand the texts we present in our classes, the ways our students write and how target communities use the texts. Teachers of writing are, then, increasingly becoming researchers of writing, developing an understanding of texts and establishing a basis for reflection which in turn improves, teaching. This kind of reflection can be termed as action research (Burns, 2013).

Second language (L2) writing is an evolving field that examines how individuals learn and enhance their writing abilities in a language other than their native one. This area of inquiry intersects linguistics, education, and applied linguistics, offering insights into cognitive, sociocultural, and pedagogical dimensions of writing. Hyland (2016) emphasizes that L2 writing involves both linguistic competence and the ability to address audience expectations and communicative purposes effectively. Furthermore, Ferris (2009) highlights the challenges that L2 writers face, such as limited vocabulary, grammatical errors, and difficulties in structuring arguments, which often stem from cross-linguistic influences and limited exposure to target language norms.

Recent contributions to the field further enhance these perspectives. Paltridge et al. (2018) emphasize the role of genre-based approaches in teaching L2 writing, focusing on helping learners navigate varied academic and professional discourse communities. Lee and Wong (2019) explore the integration of technology, such as automated feedback tools, to support L2 writers in developing both linguistic and genre-specific competence. Matsuda and Tardy (2021) investigate the role of writer agency and identity in multilingual writing contexts, highlighting how learners adapt their writing to meet diverse cultural

and disciplinary demands. Zhang and Hyland (2022) underscore the importance of stance and engagement in academic writing, revealing how effective rhetorical choices can enhance L2 writers' interaction with their audience.

The field also explores the role of feedback in L2 writing development. According to Ellis (2009), corrective feedback can significantly enhance learners' ability to revise and improve their written work, fostering long-term learning. Another critical aspect is genre knowledge, as Swales (1990) and Tardy (2016) note the importance of understanding rhetorical conventions and discourse structures in specific academic and professional contexts. Teng (2022) further investigates the role of self-regulated learning strategies in improving L2 writing performance, emphasizing metacognitive approaches. Thus, second language writing encompasses the interplay between linguistic, cognitive, and sociocultural factors, emphasizing the need for tailored instruction and feedback to address the diverse needs of learners (Hyland, 2016; Tardy, 2016).

Second language (L2) writing plays a pivotal role in fostering learners' linguistic proficiency while equipping them with essential academic and professional skills. Hyland (2003) emphasizes that L2 writing not only involves developing linguistic accuracy but also mastering rhetorical and genre-specific conventions required for participation in global academic and professional discourse. Ferris (2009) identifies key challenges faced by L2 writers, such as limited vocabulary, grammatical errors, and difficulties in structuring arguments, which often stem from cross-linguistic influences. The cognitive and sociocultural aspects of writing further underline its importance, as highlighted by Swales and Feak (2012).

Moreover, the role of reflective teaching practices, often grounded in action research, has significantly contributed to enhancing L2 writing instruction. Burns (2013) argues that action research allows teachers to explore their learners' specific needs and develop pedagogical strategies that are context-sensitive and

effective. Additionally, feedback practices, as highlighted by Hyland and Hyland (2006), play a vital role in engaging learners and promoting their motivation to write. Xu and Liu (2023) provide insights into the impact of peer feedback in fostering collaborative writing skills and improving writing quality. By addressing linguistic, cognitive, and sociocultural factors, L2 writing not only empowers learners to communicate effectively in diverse contexts but also prepares them to engage critically and reflectively in academic and professional settings (Ferris, 2009; Swales & Feak, 2012). This makes L2 writing an indispensable area of focus in language educations.

Theoretical Framework

Cognitive Process Theory

Cognitive process theory, developed by Flower and Hayes (1981), views writing as a problem-solving activity involving planning, drafting, revising, and editing. This theory emphasizes the cognitive processes that writers engage in to manage their goals, organize ideas, and refine their texts. In second language (L2) writing research, it supports paradigms that focus on understanding the mental strategies writers use and how they navigate challenges during the writing process, particularly in managing linguistic complexity.

Sociocultural Theory

Vygotsky's (1978) sociocultural theory, extended by Lantolf (2000), posits that writing development occurs through social interaction and the use of cultural tools. This theory underscores the role of collaborative learning, mediation, and context in shaping writing practices. In L2 writing research, it informs ethnographic paradigms, highlighting how social and cultural factors influence learners' writing behaviors, feedback practices, and textual production.

Genre Theory

Genre theory, advanced by Swales (1990), focuses on how writing is shaped by the conventions, structures, and communicative purposes of specific

genres. It emphasizes that successful writing depends on understanding the rhetorical requirements of genres within specific social contexts. In L2 writing research, this theory supports paradigms that investigate how learners adapt to and master genre-specific expectations, such as academic essays or professional documents.

Interlanguage Theory

Interlanguage theory, introduced by Selinker (1972), examines the transitional and dynamic language systems of L2 learners, which are influenced by their first language (L1) and the target language. This theory highlights the evolving nature of linguistic competence in writing, where errors reflect developmental progress rather than failure. It aligns with paradigms that explore linguistic challenges in L2 writing and the interplay between learners' L1 and their written output in the target language.

Critical Discourse Analysis

Fairclough (1992) developed critical discourse analysis (CDA), which explores how language in writing reflects and reproduces power dynamics, ideologies, and social inequalities. This theory connects writing to broader socio-political contexts, examining how writers navigate identity and agency in their texts. In L2 writing research, CDA informs paradigms that critically analyze how learners' texts are shaped by and respond to socio-cultural and institutional pressures.

Functional Linguistics Theory

Functional linguistics theory, developed by Halliday (1978), views writing as a system of meaning-making tied to its social and functional purposes. It emphasizes that language choices in writing are shaped by the writer's communicative goals and the contextual demands of the task. In L2 writing research, this theory informs text-based paradigms that analyze linguistic features

of learners' texts to understand how they convey meaning effectively in different contexts.

The Objectives

Second language (L2) writing, a growing field that studies how people learn and improve writing skills in a language other than their own, covers various cognitive, sociocultural, and teaching aspects. This article aims to explore the diverse methodological approaches and research paradigms employed in second language (L2) writing research. It seeks to provide novice researchers with an overview of the key methods and methodologies available for studying the complex and multifaceted nature of L2 writing. By situating these approaches within relevant theoretical frameworks, the paper highlights how various research designs influence the interpretation of writing phenomena. Additionally, it offers practical guidelines for selecting suitable methodologies based on research questions, contexts, and objectives, emphasizing the interplay between methodological choices and the insights they enable researchers to uncover.

Methodology

This article employs a comprehensive review of existing literature and key studies in second language (L2) writing research to identify and categorize major methodological approaches and paradigms. It uses a theoretical and descriptive framework to systematically analyze the interplay between research designs, methods and the theoretical foundations that guide them. It emphasizes the contextual and purpose-driven nature of methodological selection, highlighting how different approaches address specific aspects of writing development, challenges, and pedagogical practices.

Discussion

The section of this article focuses on the critical considerations involved in selecting methods and methodologies for second language (L2) writing research. It presents that the choice of approach depends significantly on the research

purpose, context and questions being addressed. The section elaborates on how tools such as surveys, interviews and ethnographic methods can be used to explore learners' writing development, challenges, and adaptation to diverse academic and social demands. It highlights the inherent complexity of writing research, emphasizing that there is no universal or "one-size-fits-all" method and researchers must align their methodological choices with their theoretical frameworks, assumptions, and available resources.

Methodological Choices in Second Language Writing Research

Scholars such as Hyland (2016) and Nunan (1992) emphasize that selecting methods and methodologies in second language (L2) writing research depends on the purpose, context, and research questions. In the context of L2 writing, tools like surveys, interviews and ethnography are employed to explore how learners develop writing skills, address challenges, and adapt to varying academic and social demands.

What is the best method that can be employed in second language writing researches? It depends on the type of research we are going carry out. Just as there is not any single best method that can be used for all ELT situations, there is not any single capsule type method that can be used in all second language writing researches. Research typically begins by identifying a topic or issue that sparks interest or concern, followed by formulating questions to explore it. The types of questions posed are influenced by the researcher's preferences, preconceptions, the specific topic and purpose of the study, the context, the availability of data, the time and resources at hand and the effort one is willing to invest. There is no universal formula for conducting research, whether in writing or other fields, nor is there a singular approach that addresses all questions comprehensively. While research endeavors provide answers, they rarely yield a singular or absolute truth. Indeed, many research designs can address the same question, yet the approach chosen reveals specific aspects of the subject under investigation. It is therefore

essential to acknowledge the assumptions underlying research design and the selection of data collection tools.

Research methods and methodologies serve distinct purposes. Methods encompass techniques for collecting data, such as observations, surveys, and interviews, whereas methodologies represent the underlying principles and frameworks guiding the choice and application of these methods, including approaches like experimentation and ethnography.

Methodology, fundamentally, pertains to how research is conducted, how knowledge is acquired, and how findings are validated. It provides a rationale for selecting specific methods and explains their relevance to the research objectives. In studying second language (L2) writing, the choice of methodology is heavily influenced by one's conceptualization of writing, the linguistic model adopted, and the understanding of learning processes. Methodology thus serves as a strategic framework or operational blueprint for research, detailing the logical organization and steps required to answer research questions. While it shapes the application of methods, it does not inherently define the nature of the data to be collected or its subsequent analysis.

Methods and Procedures in Second Language Writing Research

There are four broad ways of collecting data for second language writing which are elaborated briefly in table 1 below.

Table 1

Key Methods and Techniques in Writing Research

Methods	Description
Elicitation:	A range of procedures for obtaining writing samples, ways of prompting self-report and performance data *Techniques*: Questionnaire, interviews, focus groups, tests
Introspection:	The process of observing and reflecting one's thoughts, feelings, reasoning processes, and mental states *Techniques*: Think-aloud techniques, anagram tasks, diary studies, retrospection
Observation:	Direct or recorded data of 'live' interactions or writing behavior *Techniques*: Recording, keystroke logging

Text samples:	Collections of naturally produced samples of writing
	Techniques: Single text, chain of texts, corpora

The methods and techniques outlined in Table 1 highlight diverse approaches to collecting data in second language writing research. Elicitation and introspection focus on understanding the processes behind writing, while observation provides insights into real-time behaviors. Text samples, on the other hand, offer rich data for studying patterns and trends in authentic writing. Together, these methods provide a comprehensive toolkit for examining the complexities of second language writing.

Elicitation

Elicitation techniques refer to procedures for obtaining samples (speech and writing) and other data from subjects. Elicitation techniques vary enormously in scope, aim, and purpose. They refer to methods for prompting self-report and performance data. The techniques include "studies which obtain their data by means of a stimulus, such as picture, diagram or standardized test as well as those based on questionnaire, survey, and interview data" (Nunan, 1992, p. 136). Some common elicitation techniques we often use in writing researches are questionnaires, interviews, focus group discussion, tests, surveys, etc. Questionnaires are "forms used in a survey design that participants in a study complete and return to the researcher. Participants mark answers to questions, and supply basic, personal or demographic information about themselves" (Creswell, 2016, p. 626). They are useful for collecting large amounts of structured, easily analysable information about text users' characteristics, beliefs or attitudes, information that is not usually available from observation of their behaviour or from their texts. Like interviews, they allow researchers to tap people's views and experiences of writing but are more quantitative and restrictive. They have been widely used in writing research to discover the kinds of writing target

communities require. An interview, according to Burns (1997, p. 329), "is a verbal interchange, often face to face, though the telephone may be used, in which an interviewer tries to elicit information, beliefs or opinions from another person." Interviews offer more interactive and less predetermined ways of eliciting information than surveys and so allow greater flexibility and potential for elaboration. "Interviews occur when researchers ask one or more participants general, open-ended questions and record their answers" (Creswell, 2016, p. 622). Interviews can be designed in both the structured and semi-structured formats. Participants in this technique are able to discuss their interpretations and perspectives, sharing what writing means to them rather than responding to preconceived categories. This flexibility and responsiveness mean that interviews are used widely in writing research to learn more about attitudes to writing, about teaching and learning and about reasons for rhetorical choices. They are therefore helpful in learning about how writers understand what it is they do when they write and are particularly valuable in revealing issues that might be difficult to predict, such as how students interpret teacher written feedback (Hyland, 2016).

Focus groups can be used to collect shared understanding from several individuals as well as to get views from specific people. A focus group interview is the process of collecting data through interviews with a group of people, typically four to six. Focus groups are more interactive and less threatening than interviews as participants are free to talk with other group members. They therefore take some control away from the interviewer, but can produce richer data as a result, although what participants tell the researcher is shared with other group participants as well, raising privacy concerns and limiting the kinds of topics that the researcher can pursue. Usually conducted face-to-face, they may also be held in synchronous computer-mediated venues such as skype or on chatrooms where transcripts can be saved and considered later. Groups have been used to discover students' academic writing needs and difficulties.

Tests, or one-shot writing tasks, elicit performance information from students, discovering what it is they know, can do or are able to remember in writing. They therefore offer insights into students' writing ability and knowledge of genre, language forms and rhetorical understandings.

Introspection

Introspection is a way of obtaining information about unobservable mental processes such as thoughts, feelings, and motives. The use of verbal reports as data reflects the idea that the process of writing requires conscious attention and that at least some of the thought processes involved can be recovered, either by talking aloud while writing or as retrospective recalls. It is "the process of observing and reflecting on one's thought, feelings, motives, reasoning processes, and mental states with a view to determining the ways in which these processes and states determine our behavior" (Nunan, 1992, p. 32).

Think aloud protocols (TAPs) are data collection techniques in which subjects complete a task or solve a problem and verbalize their thought processes as they do so. They involve participants writing in their normal way but instructed to verbalise what they are doing at the same time, so that information can be recorded on their decisions, strategies, and perceptions as they work.

Diaries are first-person entries in a journal or blog and then analyzed for recurring patterns or significant events. Bailey (1990, p. 215) defines diary as "first-person account of a language learning or teaching experience, documented through regular, candid entries in a personal journal and then analyzed for recurring patterns or salient events." Through diaries writers can articulate problems they are having with course content. Diarists can be asked to produce 'narrative' entries which freely introspect on their learning or writing experiences or follow guidelines to restrict the issues addressed.

Observation

While elicitation and introspective methods provide insights into what individuals claim they think and do, observational methods offer concrete evidence of their actions. Observations rely on deliberate attention and detailed documentation of behaviors, allowing researchers to reinterpret these actions from a fresh perspective.

Behavior can be recorded in real-time or through video or audio recordings. Researchers can apply varying levels of structure to the substantial amount of data generated by this method. These range from using predefined checklists at regular intervals or whenever a specific behavior occurs to producing comprehensive narratives of observed events. Highly structured observations typically involve a predetermined coding scheme to emphasize key behaviors. However, a limitation of this approach is that it inherently prioritizes certain behaviors while potentially overlooking others, as researchers tend to record only what they deem significant. Predefined checklists, while offering more manageable data, may inadvertently exclude unexpected behaviors.

Keystroke logging provides a less intrusive and more precise means of monitoring writing behaviors compared to direct observation by a researcher. Tools like Inputlog and Scriptlog can record and replay writers' activities, including keystrokes, pauses, cut-and-paste actions, deletions, and mouse movements. These tools log and timestamp actions, enabling researchers to reconstruct text production processes and the digital environments visited by writers.

Text Data

A primary source of data in writing research is the text itself, treated as an object of study. Approaches to text analysis view writing as the product of an activity, represented by words on a page or screen. These approaches may be descriptive, focusing on documenting what occurs; analytical, interpreting the

reasons behind occurrences; or critical, examining the underlying social relationships and power dynamics reflected and reproduced through the text.

Text analysis serves both as a methodology and a method, depending on its application and purpose. Researchers use it to explore the linguistic choices made by writers, the motivations behind these choices, and their intended meanings, offering valuable insights into the processes and contexts of writing.

Single Text. Certain studies concentrate on a single text as a specific example in action, selected either for its intrinsic interest or because it exemplifies a particular genre or author.

Chain of Texts. Another source of text data involves compiling a series of texts organized based on a specific principle. This approach is often used to examine the changes a single writer makes across multiple drafts.

Corpora. Currently, it is most common for analysts to examine collections of texts to obtain a more representative understanding of a genre or a group of writers. A corpus reflects a writer's use of language within a specific domain, offering an empirical alternative to intuition. It enables researchers to analyze the frequency of words or patterns and explore how features tend to co-occur in collocational patterns, thereby highlighting typical usage within the genre.

Methodologies

Researchers working on the nature of second language writing use various methodological designs. Some of the major methodological designs are summarized in Table 2.

Table 2

Major Design Methodologies in L2 Writing Research

Methodology	Description
Experimentation:	Compares effects of treatments under controlled conditions.

Ethnography:	Provides a detailed, qualitative analysis of a cultural group's behavior, beliefs, and language through prolonged engagement and various data collection methods
Auto-ethnography:	Reflects on personal experiences in social contexts.
Critical analysis:	Links language use to socio-political contexts
Discourse analysis:	Analyzes authentic spoken or written communication to explore linguistic structures, cultural contexts, and the dynamics of language use.
Meta-analyses:	Synthesizes findings from existing studies
Text analysis	Explores linguistic patterns and genre-specific features.
Conversation analysis	Studis spoken interactions and conversational turns
Action Research	Addresses classroom issues through small-scale inquiry.

Table 2 outlines major design methodologies used in L2 writing research. From controlled experimentation to naturalistic ethnography, these methodologies allow researchers to explore various aspects of writing in diverse contexts. Critical and discourse analyses delve into the interplay between language and social factors, while auto-ethnography provides a reflective lens on personal experiences. Meta-analyses and text analysis focus on synthesizing findings and identifying linguistic patterns, respectively. Together, these methodologies equip researchers with robust approaches to examining the multifaceted nature of second language writing.

Experimentation

Experimental methods are designed to investigate the impact of one variable on another. As a deductive approach, experimentation involves the researcher intervening to test a theory by isolating and examining a specific factor under controlled conditions. Typically, this entails applying a treatment to one of two groups while keeping other variables constant. Both groups are subsequently subjected to a post-test to evaluate the treatment's effect, with statistical analyses determining whether the differences between the control and experimental groups are significant. More advanced techniques, such as factorial designs, allow for the exploration of multiple treatment variables and their interactions at various levels (McGowan, 2011).

Experimental research is used to establish cause-and-effect relationships by manipulating one variable and observing the effect of that manipulation on another variable, while controlling for extraneous variables. This type of research is crucial for determining the effectiveness of various teaching methods, language interventions, or educational technologies. "Experimental research is the only type of research that can test hypotheses to establish cause-effect relations. It represents the strongest chain of reasoning about the links between variables" (Gay, Mills & Airasian, 2017, p. 262). Experimental research involves the deliberate manipulation of at least one independent variable, while keeping other relevant variables under control, to examine the resulting influence on one or more dependent variables.

Ethnography

Ethnographic designs are qualitative approaches aimed at describing, analyzing, and interpreting the shared patterns of behavior, beliefs, and language within a cultural group that evolve over time. These designs seek to provide rich, detailed descriptions and interpretive accounts of activities within settings such as classrooms, workplaces, or other social environments, focusing on the outcomes of interactions and participants' understanding of their actions. Researchers employ diverse methods, particularly observation and elicitation, to explore behaviors from the participants' perspectives. Ethnography's reliance on multiple methods and prolonged engagement makes it both labor-intensive and time-consuming, requiring significant expertise and resources.

This approach offers a nuanced understanding of specific groups by situating writing within their social, cultural, and institutional contexts. Conducted in natural environments rather than laboratories, ethnographic research involves close, in-person interactions with participants to accurately reflect their ideas and behaviors. Data collection is unstructured, inductive, participatory, and iterative, employing techniques such as observations, interviews, diaries, and field notes.

Developed by anthropologists to understand individuals within their social and cultural settings, ethnography requires researchers to critically reflect on their influence on both the research site and the cultural group. Its goals are to be context-specific, holistic, and focused on examining the interplay of complex elements, with triangulation of data being a central feature of the process.

Action Research

Field (1997) defines action research "as a small-scale investigation carried out by a classroom teacher" (p. 192). Patton (1990) describes it as "an approach aimed at addressing specific problems within a program, organization, or community" (p. 157). Action Research Design (ARD) involves small-scale inquiries conducted by teachers to address particular classroom challenges, with the goals of curriculum improvement and professional development (Field, 1997; Patton, 1990). Similarly, Gay, Mills, and Airasian (2017) explain that action research in education refers to "any systematic inquiry conducted by educators, principals, school counselors, or other stakeholders in the teaching-learning context to gather insights about how their schools operate, how teachers instruct, and how students learn" (p. 451).

Narrative Inquiry

Narrative inquiry is a systematic approach to collecting, analyzing, and presenting individuals' stories, emphasizing the personal and cultural dimensions of their experiences (Clandinin & Connelly, 2000). In English Language Teaching (ELT), it has been widely used over the past two decades to explore teachers' learning-to-teach experiences and self-understandings through re-storying techniques. By analyzing participants' life stories, this methodology provides meaningful interpretations and insights into teaching and learning processes. Narratives offer an "insider view," enhancing the understanding of interactions between participants and researchers and addressing critical issues in ELT.

Auto-ethnography

Autoethnography focuses on the researcher's personal experiences, connecting these subjective insights to broader cultural and social contexts (Marechal, 2010). As a form of self-narrative, it situates the individual within a social framework, exploring the dynamic relationship between culture and the self (Ellis, 2009). This narrative research method is conducted from the researcher's perspective, aiming to reveal how personal experiences and perceptions, understood as socially constructed, are influenced by and contribute to cultural dynamics (Canagarajah, 2012). Through reflective and analytical writing, the researcher examines significant life moments that have shaped their trajectory, offering insights into the interplay between individual and cultural experiences (Stephenson & Harold, 2015). Autoethnography thus provides a lens for understanding the intersection of personal narratives and societal structures.

Critical Analysis

Critical analysis is a methodology employing a range of methods to "identify linkages, broadly construed, between local occasions of language learning and use to broader social processes, formations and discourses" (Talmy, 2015, p. 153). Essentially the prefix critical can be added to other methodologies such as discourse analysis or ethnography to empirically explore these linkages. In writing research, methods such as text analysis, observations and interviews have been used widely.

Text Analysis

Texts can be analyzed from various perspectives and for diverse purposes, such as examining systems of linguistic choices, exploring institutional ideologies, understanding first and second language (L1 and L2) practices, analyzing their implications for user communities, and investigating their connections to other texts. Broadly, texts can be interpreted in two primary ways. The first approach views texts as systems of forms, focusing on grammatical structures or patterns to identify recurring features or to analyze student errors.

The second, and more common approach, treats texts as discourse, emphasizing how they function as tools for communication in specific contexts. This perspective sees texts as dynamic resources for achieving writers' goals, often analyzing specific genres like newspaper editorials, business reports, or argumentative essays.

Corpora, as collections of texts, can be studied using either corpus-based or corpus-driven methods. Corpus-based analysis starts with a predefined set of potentially relevant items, examining their frequencies and behaviors within the corpus. This approach provides empirical insights into linguistic patterns and usage.

Meta-Analyses

A meta-analysis is an empirical synthesis or systematic review designed to offer a comprehensive summary of the existing literature related to a specific research question. Unlike traditional literature reviews, which are typically categorized as primary research (involving new data) or secondary research (summarizing existing studies), meta-analyses adopt an empirical approach. They strive for thoroughness and rigor, critically evaluating the findings of previous studies rather than accepting the claims of authors at face value.

Case Studies

A case study offers a detailed examination of a bounded system, such as an activity, event, process, or individual, through extensive data collection (Duff & Anderson, 2015). It provides a close-up view of participants' lived experiences and perspectives, portraying the unique characteristics of a specific situation. Typically, case studies employ multiple methods to explore a defined phenomenon, aiming to deepen understanding of a person, group, process, or context rather than to produce statistical generalizations. However, they can support theoretical generalizations that are valuable in broader research contexts (Yin, 2014). Combining rich descriptions with interpretive analysis, case studies

often draw on participants' insights to create a nuanced portrayal of local behaviors and practices, particularly in fields like second language (L2) writing research. As a qualitative research approach, case studies focus on a specific unit of study, such as an individual teacher, a classroom, or a school, within a particular context. Miles and Huberman (1994) define a case study as the investigation of a phenomenon within a clearly defined setting, emphasizing that cases without clear boundaries are not suitable for this method. Although the precise definition of a "case" may vary among scholars, its context-specific nature is a fundamental characteristic of this research approach.

Discourse Analysis

Discourse analysis is a method used to explore the relationships between language sounds, word formation, meanings, and sentence structures. It provides insights into the significance of language choices in both spoken and written contexts. Additionally, it offers tools for analyzing larger text units, such as conversational structures and organizational patterns typical of specific language uses or genres. Discourse analysis also investigates the social and cultural contexts of language use, helping to understand how individuals make linguistic choices within these settings.

Conversation Analysis

Conversation analysis (CA) is an approach to doing a discourse analysis that focuses on the analysis of spoken conversational analysis (Hellermann, 2015). The researcher in conversation analysis attempts to make recordings of natural, mundane conversation, either from face to face or telephone conversation. CA researchers attempt to describe the language use and show how the participants are hearing, interpreting, and reacting to one another's turns of talk.

Quantitative and Qualitative Approaches in Writing Research

Writing researchers often integrate both quantitative and qualitative methods to develop a more comprehensive understanding of writing. The concept

of triangulation, which involves using multiple data sources or analytical approaches, enhances the credibility and depth of research findings. A notable aspect of writing research is its emphasis on data collected in naturalistic settings rather than in controlled environments. However, this does not diminish the value of methods such as questionnaires, structured interviews, or experiments, which also provide valuable insights into writing. Nonetheless, there is a clear preference for gathering data in authentic, real-world contexts.

Most importantly, our choice of methods are influenced by our preconceptions: our personal view of what writing is and how it might best be understood. The selection of methods depend upon many questions like: What are you going to study?, What stance will you take ?, What theoretical framework will you use ?, What data will you collect?, How will you collect the data?, How will you analyze it ? How will you present it?

Language research methodologies encompass both the approaches of researches quantitative and qualitative. Quantative approaches involve statistics and manipulating numerical data, being contrasted with qualitative research, which is more holistic and process-oriented.

Theoretical Foundations and Methodological Insights

The research findings align closely with several theoretical frameworks, providing a nuanced understanding of second language (L2) writing processes and practices. Cognitive Process Theory (Flower & Hayes, 1981) is reflected in the use of introspective methods like think-aloud protocols and diary studies, which highlight the iterative processes of planning, drafting, revising, and editing involved in writing. Sociocultural Theory (Vygotsky, 1978; Lantolf, 2000) is evident in the emphasis on ethnographic and observational methodologies, showcasing how social interactions, feedback, and collaborative learning mediate writing development. Genre Theory (Swales, 1990) supports the findings on text-based methods, such as genre analysis and corpus studies, which focus on

understanding discourse structures and genre-specific conventions. Interlanguage Theory (Selinker, 1972) is reflected in the exploration of linguistic errors and cross-linguistic influences, viewing these as developmental rather than deficient. Critical Discourse Analysis (Fairclough, 1992) underpins the critical examination of socio-political contexts in writing, revealing how texts reflect and reproduce power dynamics and ideologies. Additionally, Functional Linguistics Theory (Halliday, 1978) is evident in the analysis of linguistic choices and their communicative purposes, emphasizing writing as a context-dependent meaning-making activity. By integrating these frameworks, the research highlights the multifaceted nature of L2 writing and reinforces the relevance of its methodological approaches.

Conclusions

A variety of approaches and methods are available to explore the intricate and multifaceted nature of second language writing. The selection of tools by researchers is guided by the specific purpose and context of their study, as there is no universally perfect research design or method. Methods, methodologies, and theories are inherently interconnected and cannot be considered in isolation. This article briefly outlines the methods and methodologies employed in studying the complexities of writing, raising key questions such as: What methods are most suitable for investigating writing? What constitutes appropriate data? Should data be collected in naturalistic or controlled settings? How should statistical tools be utilized for interpretation? These considerations reflect the diverse perspectives and approaches researchers bring to understanding writing as a multifaceted phenomenon requiring analysis through multiple lenses.

Writing is a purpose-driven activity that necessitates an understanding of the intended audience. Researchers and writers must reflect on the questions of who their audience is, why they are writing, and what objectives they aim to achieve. Writing serves various purposes, and researchers must acknowledge the

multiple ways of knowing that influence their methodological choices. These choices, shaped by perspectives, directly affect how research is approached, the kinds of questions posed, and the data collected to address them. Ultimately, although perspectives do not determine techniques, they influence the framing of research questions, ensuring that methodological choices correspond with the objectives of the study and settings.

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Health Facility as a Social Construct: Examining the Dynamics of Staffing, Power Relations, and Negotiated Order

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Abstract

Human resources are key to delivering health care services in a health facility. Working in an entity for a certain period, meeting with the same group of people during that time and having continuous interactions and interrelationships amongst the group, may open up the space to have a conducive atmosphere among the staff. Such interactions and interrelationships among the health care workers are crucial windows to peep into the health facility, delivery of health care services, and the emerging negotiated order. Based on ethnographic information acquired from a health facility in the Lakhanpur area in present-day Madhesh Province, this paper shows the dynamics of staffing, power relationships, and the negotiations among the healthcare workers and their collective impacts on the healthcare service delivered through the very institution.

Keywords: Staffing, intra-institution power relation, hospital ethnography, negotiated order, medical anthropology

Health Facility as a Social Construct: Examining the Dynamics of Staffing, Power Relations, and Negotiated Order

When medical anthropologists examine biomedicine and some of its dimensions, we approach it with the epistemic view that biomedicine is a socio-cultural system (Hahn & Kleinman, 1983; Kleinman, 1997). We consider it a typical field of ideas comprising of people pursuing different tasks by their corresponding roles. By doing so, biomedicine is delivered through the formal institutionalized setting governed by rules of practice and interaction. Moreover, Hahn and Kleinman (1983) emphasize that it also enacts "…as a means of socialization through which this domain and its procedures are taught and reproduced; and (enacts as) an enterprise of knowledge construction" (p.311). People encultured through such institutionalized procedures are involved in service delivery to health seekers and are, therefore, critical to the successful operation of healthcare institutions. When we want to expand our understanding of how a health facility operates, delivers health care services, improves the overall patient health outcome and enhances the efficacy of a health facility (Kabene et al., 2006), it is imperative to know the interrelationships among these staff, the human face of the health facility.

Ample anthropological investigations on service providers and patient/health seekers relations (Dahal, 2024; Dahal, 2022; Kohrt & Harper, 2008; Justice, 1986) have been produced in Nepal. However, interrelationships among the service providers themselves and the power dynamics involved in such a process have yet to be adequately dealt with. Therefore, this paper aims to fill this gap based on ethnographic information from an anthropological study conducted in the present Madhesh province of Nepal. Medical practice can be highly stressful (Hahn, 2011, 287) mainly due to long hours of work and the well-being of the physicians also affects their medical practices. Therefore, even to improve healthcare delivery, it is imperative to pay adequate attention to knowing the

human within the human resources for health and the context in which they pursue their tasks maintaining the negotiated order (Klemelä, 2023) in the organization.

Looking at health institutions as a bureaucracy has widely taken pace in gazing at international health and healthcare development programs (Foster, 1987), and, likewise, we can see bureaucracy in national healthcare practices. More than three decades ago, Justice (1986) also pointed out the entangled bureaucracy in the healthcare domain in Nepal. Justice has shown that service providers perform differential roles in pursuing their jobs in the local health facilities even beyond their formal protocol. However, we have yet to explore how a phenomenon of organizational hierarchy unfolds at the local health facility in their everyday interaction, and this paper aims to shed light in this area. Ultimately, how far all these internal dynamics related with the health facility and health care staff influence the concerns of patients in this "era of the patient" (Reiser, 1993) in which the patients are supposed to be heard and paid adequate attention will be further explored here. The thirst that led to the formation of this paper is to know how it had appeared while we gaze into a specific context of Nepal's Tarai immediate before Nepal embarks towards the federal system of governance.

Research Question and Objectives

The general query behind the formulation of this paper is to expand our knowledge of the prominent facets of internal dynamics in a health facility. The specific objectives of this paper are-

   i.   To analyze the situation of staffing and internal power dynamics in the health facility,

  ii.   To examine our understanding of how far such internal power dynamics are mediated by the local social and cultural context, and

iii.   To broaden our knowledge of how a health facility manages to deliver health care services to the patients and visitors through the negotiated order in their typical local context.

Research Methods

This article is based on information generated through an ethnographic study carried out over three years from 2012 to 2015 as part of my doctoral fieldwork. The study was conducted in present-day Madhesh Province in a socio-spatial cluster; I have given the pseudonym of Lakhanpur. Lakhanpur comprises a Primary Health Care Centre (PHCC), an Ayurvedic health facility as well as some private pharmacies. This article is developed primarily based on the information generated through the PHCC located in Lakhanpur. As part of a study based on the hospital ethnography (Long et al., 2008) approach, interactions with the service providers and observations in the same health facility were the main data collection strategies. Ethnographic data is acquired through this process of "committed localism" (Skovgaard-Smith, 2024) by paying attention to the local everyday comprised of activities, interactions, and relations among the multiple actors in a health facility.

The main building blocks of this article are primary qualitative information. The qualitative information generated from the field was thematically analyzed upon completion of the formal data collection phase. The researcher took utmost care in upholding the ethical compliance essential in conducting an ethnographic study among human subjects. Ethical adherence was fully taken throughout the data collection, data analysis, and while presenting them through publications. The researcher was copiously aware of maintaining anonymity and confidentiality of the data. As a conscious effort to maintain the researcher has chosen the strategy of assigning a pseudonym and defending it, as Rössler and Röttger-Rössler (1991) did while carrying out their ethnographic study in a rural community in Indonesia- I gave pseudonym to the place and the

health care facility staff whenever they are referred here in this writing. I always sought informed consent from the research participants while looking for information. I have realized that acceptance in the community and frequent in and out of the field setting over the period made it convenient to acquire layers of required data. Nevertheless, my positionality as an outsider/insider in the field setting has also played a critical role (Dahal, 2023) in generating the data.

Various forms of Service Providers

The service providers in this health facility comprise of different health workers and supporting staff. Understaffing is not limited to the retention of medical doctors in rural and remote areas only (Russell et al., 2021) but also in relatively convenient areas of Madhesh and that of the supporting staff can affect the performance of a health facility. This health facility is not an exception. Additionally, in such context, how the staff navigates to go beyond their official designated status roles is another crucial arena that prevails as a typical phenomenon.

The health facility's in-charge maintained that despite the central government providing Rs. 6.00 crores for the development of the PHCC building, the organization was experiencing a manpower shortage. The facility lacks a cleaner, a vaccinator, and a peon (the office assistant). The in-charge added, "Our job is just to guide them; these are the real service providers." Given the situation as Justice (1986) found that "the peon was the only real local worker in the health program" in Nepal—that is, someone who lived in the village, spoke the local dialect, and knew the patients and their families—it is noteworthy to connect these findings to the prevailing trend she had already observed. Even though they lack professional medical training, they serve as "invisible health workers", usually the only employees in the medical facility, offering medical care to visiting patients (pp. 101-106).

I have seen multiple individuals working as doctors in this medical facility on my follow-up visits. A third of Nepal's PHCCs (WHO, 2008) often had no medical doctors, either because the positions were unfilled or the doctor would have left. I had noticed that this PHCC has two doctors working there on a winter day in 2013. Both of them had contracts; the MBBS had a two-year contract, while the MD had a six-month contract. Due to a government regulation requiring government fellowship recipients to serve in rural areas for two years, the MBBS doctor is there. He is a resident of the District headquarters and runs a clinic out of his residence. Every working day, he travels to the PHCC from his residence. Senior staff are referred to as "doctors" by both locals and PHCC junior employees. Just the lab assistant, office assistant, and auxiliary nursing midwife (ANM) are not doctors at this PHCC; the other five employees can be called "doctors."

The government of Nepal mandates that the person in-charge of the health center must be a medical officer. However, it also states that the office's financial matters can only be managed by permanent employees. In this facility, there is controversy and confusion because neither of the medical officers is permanent. The medical officer with the MD must be in charge, according to the portfolio. A Health Assistant (HA) was in charge prior to his arrival. Yet the Senior Assistant Health Worker (Sr. AHW) is the most influential employee in this facility due to his nearly three decades of local service and political ties.

The PHCC has a lab assistant who frequently assists in the dispensary area. He is not local, but neither is the ANM. The office assistant hails from Lakhanpur. He informed me that his duties included cleaning the office, giving the doctors drinking water, and caring to the patients' wounds. But I noticed that he offers services to the visiting patients in the dispensary and registration area. He enters their name in the register. He gives the patients their medications after checking the prescription that the "doctors" gave him. In this PHCC, boundary

crossings in other employees' workspaces appear to be regular occurrences. Such behavior breaches the general code of conduct, and it demands employees to operate within their professional limits. Additionally, it makes the patient more at risk of receiving the wrong prescription at the same time. Merely because one has been hired by a biomedical institution, administering services to patients with no necessary training, expertise, or experience is similarly akin to the abuse of biomedical power.

In 2013, on a summer day, neither of the two physicians had visited the hospital. That day, the lab assistant was also absent. Human resources were experiencing a crisis. I talked to the ANM about how she felt at this medical facility while I sat at the registration/dispensary. Around 11:30 a.m., a pregnant woman came for a check-up. This patient and the ANM headed to her room. That day, there was an ongoing flow of patients. About 15 patients had already arrived at this point. The office assistant then stepped up and started registering the patients. He wrote their name in English with no trouble whatsoever. In addition, he gave the patients medication or advised them that "you had to buy this cough medicine from the market because it was not available here." I talked to him and saw him perform all of these tasks, which were ideally supposed to be done by the health workers.

Typically, the office assistant seldom inquired about the patients' conditions while giving them their medications. He appeared uncertain about what to do at one point since he was unable to read what was written on the prescription. And it was only then that he enquired about the patient's condition. The patient informed him of his fever. He then administered a medication. Upon the patient's departure, I inquired as to why he had questioned him about the illness. He explained to me that he used that technique for determining the medications rather than consulting the prescribing "doctor" because he was unable to figure out the prescription. Although the office assistant was smart

enough to look up the names of the medications this time, nobody can be sure that such a clever move will always have the desired effect.

Intra-organizational Power Dynamics and Negotiated Order

By assessing various aspects of their interactions, the relationships between the staff members of the health facility can be identified. Their relationship with one another influences how they reach to the negotiated order (Klemelä, 2023) in the health facility as an organizational unit and its potential to provide healthcare support for patients.

I had witnessed even in my presence the Sr. AHW sometimes greets the HA by saying "Hello!" (Oe!) In-Charge. In the local dialect, calling someone lesser than oneself is carried out with the phrase "Oe." I have witnessed the HA get upset yet never answer when he calls him in this manner. The HA informed me that the he was previously an in-charge, but that he no more is once the medical officers are present.

The manner that HA had been administered suggested that the formal structure and authority of the government is not necessarily always an indicative of how the power hierarchy is actually experienced in the context of Lakhanpur. Instead, it can be thought of as locally mediated at times. As seen in the previous paragraph with the scenario of HA being continuously insulted by a lower staff member, the powerful may become ineffectual in such negotiations. When I use the term "resistance," I do not imply deliberate action towards members of the social strata. Such insults to their seniors also occur when informal hierarchies replace formal hierarchies in a modern organization, such as a PHCC (Diefenbach & Sillince, 2011).

When observing these employees executing their various responsibilities within the formally established organizational space, it seems that they are mimicking the most recently approved government plan to promote all employees who have held the position for a specific amount of time. In actuality, this

promotion came about as a result of continuous lobbying and objections from different sections of government employees' associations, which were established as sister organizations belonging to major political parties. There is a lot of criticism and objections about lower-level employees being elevated to positions with greater responsibility based only on how long they have held their current positions. Service providers themselves consider that this is making it tougher to put new hires in relation to their capacity to carry out the obligations of the higher position.

The District Public Health Office (DPHO) and the staff at this facility acknowledge that it is hard to find staff members who are not connected to any political parties these days because government healthcare personnel have been affiliated with various political parties. They frequently join the sister wing of a powerful political party, either locally or nationally. This allows them to obtain authority locally, which they can utilize in a variety of ways, including negotiating with the facility's in-charge, their coworkers, or the DPHO for a promotion, transfer, or training. During my visit to DPHO, I learned that he was primarily preoccupied with managing his staff's travel allowance, overtime compensation, and staff management.

They can also utilize their influence in politics to prevent unwanted transfers from a facility near their home or from a facility of their choice. Only 5% of the staff in this district are from other districts, and DPHO acknowledges that this is the primary cause. Due to their political acquaintances, local employees who are *ateri*, disobedient, and disregard directives and regulations may still not face punishment or transfer. In support of his affirmation, I've also heard that local employees in Lakhanpur are *ateri*. This makes it difficult to get anything done from them, particularly if the person in charge is not from within.

Junior employees use their years of experience, which sometimes are significantly greater than those of young senior employees, as a negotiating tool

for overturning the official organizational structures (Diefenbach & Sillince, 2011). They maintain that experience is more important than training when determining a person's senior status. Only skilled professionals can accurately diagnose and satisfy patients. Teaching can be accomplished through knowledge, but becoming a doctor requires practice! The medical officers, on the other hand, consider that people who had their medical science educations decades ago are incapable of diagnosing patients and subsequently assisting them in their recovery. These individuals truly are defrauding patients by simply diverting their funds to their own palms.

Differential and conflicting explanatory models (Kleinman, 1980) thus turn out to function at the level of institution. There is controversy throughout the many echelons of service providers as well as between patients and healers over what it takes to be a good doctor. Health workers have occasionally argued about whether the experience is more important or educational attainment is decisive. Since paramedics make up the majority of the local health workforce, they have been observed lobbying for experience above formal education. The situatedness of their claim lends itself to their positionality.

Absenteeism, Frequent Transfer, and Service Quality

There are barriers to women's "quest for therapy" (Janzen, 1978) in the Madhesh area both in the home and in medical facilities. Health staff absenteeism is one of the primary variables influencing women's utilization of healthcare services. Periodic training, regular staff changes, open positions, and the tardiness of medical professionals have all added to the normalization of absenteeism in healthcare facilities. Women's health is negatively affected by the gendered repercussions of this. Women may occasionally have to wait a long time to receive care. Family members would then chastise her for not doing work from home. In this sense, absenteeism impairs those who try to seek health care and adds to structural violence (Galtung, 1969; Farmer, 2004; Gupta, 2012).

Similar to this, employees at public healthcare facilities are often transferred after two years of tenure. As a result, patients will ultimately become unable to depend on medical professionals for their prescriptions. Instead, a patient's therapeutic relationship, or at least their perceptual dependence cannot be reliant on a single "doctor." Transferring healthcare professionals between facilities is a common occurrence that may have "unintended consequences" (Smith-Oka, 2009) on their path to seeking medical attention and which will eventually end up them to the private pharmacies and clinics.

I occasionally felt that the medical staff at this clinic had largely absorbed the fundamental principles of biomedicine. They rarely used the disease name in local words while discussing the ailment types that are common in the area, both with other people and among themselves. If they ever describe the disease to patients, they do so in a biomedical fashion. To understand illnesses, they have internalized the biomedical categories and values (Dahal, 2022). In a similar vein, they support their claims with statistical data to demonstrate their propensity for biomedical objectivity (Hahn & Kleinman, 1983), even if they are unable to provide enough numerical data.

"Local people have learned that free drugs cannot cure 20% of the health conditions for which people attend this health facility," my interaction with the PHCC's Senior Community Medical Assistant at one point revealed. I asked him, nodding, how he obtained these numbers. He assured me that it is based on his observations of the locale. Here is an indication of how these service providers frequently select to validate their claims by this kind of "evidence." They have the tendency toward numerical testimony, however not in a methodical manner, even though the data may not be adequate for use as evidence.

Conclusions

The bunch of ethnographic information that have provided basis to formulate this article show that biomedical health facilities like a PHCC in the

study area are lively organizations comprising of different categories of human resources. While working together at an institution, their styles of doing work, everyday interactions and interrelationships among themselves make the health facility a culturally construed entity. I would argue that regardless of prevailing contradictions and deviation from the normative formal organizational structure, the PHCC as an entity can construe a negotiated order to pursue its everyday tasks.

We can see that understaffing is neither confined to the remote and rural areas (Russell et al., 2021) nor only related to that of the physicians and medical doctors but also to that of the supporting staff. Nevertheless, as an organization comprising of variety of "doctors" and non-doctors workforce, they can offer health care services to the patients and visitors. Amidst the hierarchy and friction among the staff, they have been employing multiple strategies to construe the image of the health facility in a particular way, which helps them to undertake the task of maintaining negotiated order in the health facility to accomplish the perpetual maintenance of health care delivery. In the days to come, it will be interesting to explore further ethnographic accounts of how such power dynamics and negotiated order are evolving in the unfolding federal context of Nepal.

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Biophilia and Social Work: Advancing Nature-based Health and Healing Perspectives in Social Work Practice and Education

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Abstract

The human connection with Nature is rooted in a symbiotic relationship that fosters harmony and balance. Humans have an innate need to be in contact with Nature, relying on it for essential resources such as food, shelter, medicines, and overall well-being. In return, it is the responsibility of humans to become stewards and caretakers of Nature. This reciprocal relationship between living beings and the non-living environment is captured by the concept of biophilia. In social work, biophilia is emerging as a promising approach to mental health practice. This article aims to explore the significance of biophilic health and healing practices in mental and physical well-being. We established inclusion and exclusion criteria and systematically searched for articles in databases published between 2010–2022. Twenty-three articles met the inclusion criteria and were used for in-depth analysis. The findings highlight that nature-based health and healing practices effectively address a range of mental and physical health challenges. These approaches also promote equity and justice within healthcare systems, particularly benefiting Indigenous populations worldwide. Integrating Indigenous knowledge and practices—such as nature-based interventions, green therapy, and traditional healing methods—into social work education can better prepare students to collaborate with Indigenous communities and individuals from diverse ethnic and racial backgrounds across all areas of social work practice.

Keywords: biophilia, nature-based health and healing, green therapy, traditional health and healing approaches, social work practice

Biophilia and Social Work: Advancing Nature-based Health and Healing Perspectives in Social Work Practice and Education

The human relationship with Nature[1] is built upon a symbiotic interconnectedness. Nature-based interventions and practices are fundamental parts of the existing healthcare system. For example, most pharmacological productions contain the elements and compounds such as minerals, vitamins, chemicals, and alloys that are primarily nature's products. Nature-based health and healing practices have become increasingly recognized by the scientific community. Studies have concluded that human interaction with Nature has positive benefits, such as being in or around Nature makes us feel good, lowers stress levels, enhances learning, and improves recovery rates following illness (Hill, 2009, 2008; Wilson, 2002). For example, gardens around hospitals reduce patients' pain and stress during hospitalization while enhancing care providers' feelings of well-being from working in stressful situations. Regrettably, urbanization and industrialization have made it challenging to access green spaces, gardens, and farms. As a result, city dwellers are often deprived of contact with nature and nature-related activities. The western culture of urbanization and industrialization has both become a norm of civilized living and has contributed to the destruction of the biosphere and adversely impacted human connection to Nature. Moreover, the western biomedical model of healthcare has predominantly overshadowed the importance of nature-based health and healing practices (Hill, 2009).

Using the philosophical underpinnings of *biophilia*[2] (Fromm, 1964), we explore some important traditional Indigenous health and healing practices based

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[1] We have used "Nature" with capital "N" to signify the "biosphere and abiotic matrices." This may also help avoid confusion with "nature" (with small "n"), which refers to "intrinsic quality of a certain creature and/or phenomenon" (Barbiero & Berto, 2021).

[2] *Biophilia* originates from two Greek words, Bio (life) and Phillia (love): meaning the love of life (Barbiero & Berto, 2021)

on and guided by the principles of Nature. We argue that there is a lack of acknowledgement and validation of traditional forms of knowledge, and while this knowledge originated from Indigenous peoples across the globe, these populations now experience disproportionate rates of adverse health outcomes due to the prioritization of westernized knowledge. For example, higher cases of chronic diseases, mental illnesses, suicide, and substance use are among the major areas with higher disparities (Dunn, 2020). We also contend that the ethnocentric perspective of the western healthcare system has led to the implementation of various assimilationist policies and systemic discriminatory practices that prevent the healthcare system from being inclusive and Nature friendly. Through an extensive review of existing literature, we explore the significance of Nature-based health and well-being practices which may contribute to the health and mental well-being of people. Such Nature-based practices may foster equity and justice in the healthcare system, specifically for Indigenous peoples across the globe. Social work education, training, and practice need to focus on the person-in-the-environment perspective at all levels of practice.

Biophilia: Nature-based Health and Healing Practices

The term *biophilia* was first coined by a psychologist, Erich Fromm, to describe the "psychological orientation of being attracted to all that is alive and vital" (Fromm, 1964). One of the fundamental traits of biophilia is an affiliation with Nature, meaning an "affection towards animals, plants, and all other living organisms due to the evolution of the human race" (Berto et al., 2018, p. 3). Over thousands of years, humans have created environments requiring physiological and psychological adaptability to natural settings. The attachment to Nature and natural settings has developed in human genetics as a result of this long evolutionary process. As a theory grounded in genetics, biophilia assumes that people living in contact with Nature think more creatively, are friendlier, more cooperative, and less sad (Besthorn & Saleebey, 2003; Gullone, 2000). Further, this theory explains why

people of different ages, genders, and cultural backgrounds worldwide have similar responses to specific biophilic environments and are impacted in similar ways. This consistency across various demographic and cultural variables with an overwhelming preference for natural scenes versus urban settings is known as the features of the savanna biome [originated in the savanna of East Africa] (Gullone, 2000). Throughout human evolution, green spaces, vegetation, and water were closely associated with the necessities of life (Ulrich, 1993, in Besthorn & Saleebey, 2003).

Building on the biophilia hypothesis, the aesthetic-affective theory (AAT) postulates that natural views elicit higher aesthetic preference and pleasantness than urban views (Stigsdotter et al., 2011). All these explanations indicate how biophilia is "innately cemented in our evolutionary history" (Berto et al., 2018, p. 3) and why a person experiencing stress can quickly get positive effects from contact with Nature. Due to this evolutionary attachment, Nature can block our negative thoughts and feelings by providing a sense of peace and reducing physiological and psychological problems (Ulrich, 1983, in Hartig et al., 2014). Yet, another theoretical assumption drawn on the biophilic hypothesis is the attention restoration theory (ART), which explains how nature restores our mental and physical well-being and optimizes our ability to work (Mimnaugh, 2018; Kaplan & Kaplan, 1989). According to Berman et al. (2012), ART identifies two types of attentional resources: directed (intentional mental focus on an activity) and involuntary (no effort required for an activity). Berman et al. (2012) mention that "interacting with nature activates involuntary attention modestly, allowing replenishment of directed attentional mechanisms" (p. 6). This means objects and events draw our attention either effortfully or effortlessly. Effortful attention makes our mind and body feel tired, whereas "effortless attention engaged by intrinsically interesting aspects of nature enables rest for a fatigued neurocognitive inhibitory mechanism engaged when willfully directing attention" (Kaplan & Kaplan, 1989, in Hartig et al., 2014,

p. 217). Nature's power to draw our effortless attention contributes to curing fatigue and restoring the ability to engage in effortful activities. This perceived level of restoration is determined by two aspects: the sense of connection to Nature and the biophilic quality of the environment (Ackerman, 2020; Berto et al., 2018). ART provides a theoretical explanation that natural environments have the restorative capacity to restore attention, improve performances, heal health problems, contribute to improving resistance and obtain recovery from stress (Ackerman, 2020; Mimnaugh, 2018). These biophilic, biophobic and restorative theories strongly support the role of Nature and Nature-based interventions in peoples' health, healing, and well-being. Traditional holistic approaches to health have a foundation in these theories. As such, these theories explain why Indigenous peoples experience disparities in the biomedical health system (causes) and offer nature-based healing and well-being approaches on the foundation of evolutionary and restorative theories (solutions) (Ackerman, 2020; Mimnaugh, 2018).

Studies discuss the impacts of Nature-based interventions on various psychiatric conditions. For example, Berman et al. (2012) explore the benefits of walking in Nature for individuals diagnosed with major depressive disorder. Pedersena et al. (2016) present several case examples from Norway on how care farms are efficiently used to involve communities in supporting those living with mental health issues. These patients are transferred from crowded hospitals located in urban centres to peaceful countryside care farms, making them low-cost rehabilitation centres and peaceful care farms. After studying the effects of the farm elements in a green care rehabilitation farm on cancer survivors, Johannessen et al. (2019) conclude that the interventions are holistic and highly therapeutic in managing cancer-related fatigue and pain. Counselling combined with the experience of the therapeutic spaces of nature, farms and animals contributes significantly to reducing the distressing reactions from their grief (Cacciatore et al., 2020).

A study by Kim et al. (2020) investigated the rates of depression among senior citizens with dementia and found that horticultural therapy was very effective in "reducing the burden of caregiving and improving their quality of life" (Kim et al., 2020, p. 305). Masterton et al.'s (2020) meta-analysis of forty-nine studies discusses the benefits of greenspace intervention in mental health and substance use concerns. Thirty-three articles show that clients feel calmer, and experience decreased anxiety and stress in Nature. Likewise, twenty-one studies show a decrease in mental fatigue and restoration of attention. Twenty-three show an increased awareness of the need for change and readiness to change. Chavaly et al. (2020) summarize several studies on human contact with nature and its impacts on those living with mental issues. The authors highlight the positive impact of environmental exposure on health and conceptualize various Nature-based interventions. These studies conclude that Nature-based interventions benefit several mental and physical health problems, such as high blood pressure, heightened cortisol levels, anxiety, stress, mood swings and dementia.

Danto et al. (2020) explore the significance of Nature in Indigenous peoples' health, healing, and well-being practices through engagement in land-based activities, such as gathering around the fire, observing Mother Nature, and learning wisdom from Nature (e.g., care of the little ones, circle of changes, reciprocity, and interdependence). The study identifies that Indigenous people's connection to land, spirituality and respect for their Mother Creator significantly contribute to their good health and well-being. In addition, the study shows that land-based activities assist in healing the impacts of disconnections from language, culture, spirituality, and Elders. The land is not just a physical resource but is connected holistically to personal and cultural identity, health and wellness, healing and recovery, and overall well-being. This is all presenting Indigenous ways of being and knowing i.e., Indigenous peoples' epistemology, axiology, and ontology. It also alludes to how health is defined and understood from an Indigenous

perspective. These studies conclude that Nature-based health and healing practices have positive effects on individuals suffering from various mental problems.

Biophilia and Indigenous Approaches to Health and Well-being

Indigenous approaches to health and well-being follow a holistic path that integrates spirituality, culture, traditions, relationships, a deep connection to Mother Nature, ceremonies, values, food, and lifestyle. Indigenous peoples' healing practices "go back to the time before the spread of western biomedicine" (RCAP, 1996, in Martin, 2009, p. 27). In the Indigenous approach, prevention is more important than healing interventions (Hill, 2008). Healing and well-being are both individual and societal responsibilities (Radu et al., 2014), which include recognizing, understanding, and facing health issues; knowing, trusting, and accepting the self; forgiving oneself and others; and staying focused on the four aspects of the self [physical, emotional, spiritual, and mental] (Hill, 2008). In addition to individuals and families, the whole community is involved in the healing process (Martin, 2012). As a societal responsibility, "fostering positive relationships is one of the principal goals of Indigenous healing" (Radu et al., 2014, p. 95). Studies have identified principles of the Indigenous health and healing approach (Hill, 2008; Mundel, 2008; Marsh et al., 2015). For example, the Medicine Wheel, also known as the Sun Dance Circle, represents an individual's mental, spiritual, emotional, and physical well-being; it is at the core of Indigenous healing practices (Mundel, 2008). Marsh et al. (2015) argue that the integrated structure of these traditional and modern health knowledge systems can be an efficient healing strategy in the holistic approach to achieving balance in health and well-being.

Indigenous practices to health and well-being include giving back or rebalancing through reciprocating for what was received from Nature. For example, performing rituals, ceremonies, and cultural activities is part of the giving back technique. A number of these ceremonies and rituals, including Sweatlodge,

Smudging, Sundance, Sunrise, Harvest and Midwinter, Pipe Ceremony, fasting, feasting and full moon, contribute to healing and well-being by providing peace of mind and reminding us of our place in this creation (universe). Similarly, respecting and following the wisdom of Elders as a source of knowledge and traditional teachings, connecting with family and community, and participating in these healing circles and cultural ceremonies equally contribute to the balance in health (Cote, 2016; Martin, 2012; Rahman et al. 2021). Along with these cultural and ceremonial practices, Indigenous peoples give importance to natural medicines, regard them as a gift of traditional science and prefer to use them.

Contrasting with the western biomedical approach to health care, which focuses on the diagnosis and treatment of sickness, the Indigenous concept of health and wellness goes beyond the mere presence or absence of illness and disease (Karki et al., 2024). Rather it is a balance of various aspects of health and well-being (mental, emotional, physical and spiritual). Indigenous health and healing approaches highlight the importance of holistic perspectives, preventative practices, collective responsibilities, and the significance of traditional values, principles, and beliefs that underlie them. Adopting this nature-based holistic approach in the healthcare system makes it approachable to these people, brings more positive outcomes from the interventions and provides justice to this population in healthcare.

Methodological Approach

We used library and academic databases such as JSTOR Journal, Social Work abstract (EBSCOhost), PsycINFO, and JSTOR Journal for a comprehensive selection of relevant literature. In addition, we obtained grey literature from Google Scholar to complement empirical literature. Databases were searched using the key terms: "biophilia" AND "holistic health" AND "green therapy" AND "traditional healing practices" AND "Indigenous health and healing practices." These key terms were searched individually and in combination with "Nature-based healing."

For this review, the inclusion criteria included the peer-reviewed journal articles published in English between 2010 and 2022. However, a few articles published before 2010 were chosen due to their significance and rich contribution to the topic. Some articles were selected following the snowball sampling method using the reference sections of the articles. During the preliminary search of the terms listed above, we identified 97 related articles. Upon initial review of the titles and abstracts, we eliminated articles that did not meet the foregoing pre-determined inclusion criteria. Articles that met the pre-determined inclusion criteria were included in the final pool. A total of 23 articles were included in the pool based on the pre-determined inclusion criteria and were reviewed and analyzed. We employed a thematic analysis approach to critically analyze the selected studies. In order to build context and ensure a robust discussion of our findings, we relied heavily on grey literature. In all, our analysis generated five major themes, which we present and discuss subsequently.

Discussion of Major Findings

In this section we discuss the major themes emerged in the analysis. This section also discusses the importance and relevance of biophilia and Nature-based health and healing practices in the social work field.

Conceptualization of Health, Healing, and Well-being

The first theme, "*Conceptualization of Health, Healing, and Well-being,*" emerged as one of the major themes, which refers to a holistic approach to Indigenous health and healing practices in conjunction with a western biomedical lens. This concept aptly aligns with what Hinchliffe (2018, in Cacciatore et al., 2020) states, "making health possible requires not just the investment in biomedical remedies, but also recognition of the relational, cultural and environmental or non-pharmacological factors that enable people to cope with life crisis and transitions" (p. 8). The conceptualization of health, healing, and well-being could also be understood through one's own cultural epistemology (how do we know that we

know what we know). In other words, the experiences of enculturation and acculturation are deeply embedded within our knowledge systems, values, and relationships with health, which tend to vary depending on cultural belief systems.

The World Health Organization (WHO) defines public health as "the science and art of preventing disease, prolonging life and promoting health through the organized efforts of society, organizations, public and private, communities and individuals" (WHO, 2021, para.1). In the western Eurocentric perspective, health and healing are often limited to either the presence or absence of disease based on a science-driven set of physiological criteria (Mundel, 2008). However, Waldram (2014, in Radu et al., 2014) suggests that the concept of healing is a continuous process to improve an individual's physical and/or mental situation. The healing process prepares an individual for commitment and responsibility for a healthy social life (Radu et al., 2014). Such explanations suggest that healing cannot be limited to just "curing" the illness as in the biomedical approach. Rather, it should "empower the individuals to make the right choices in life, bringing changes in their physical, behavioural, cognitive, emotional, social, spiritual, and existential functioning" (Radu et al., 2014, p. 91).

According to Hill (2008), healing should empower an individual to find "a reason for living, meaning in suffering and motivation to act for good health" (p.10). Healing is also presented as a multidimensional and holistic concept involving a range of perspectives and interventions, including "physical cures using herbal medicines and other remedies to promote psychological and spiritual well-being using ceremonies, counselling, and the accumulated wisdom of elders" (RCAP, 1996, in Hill, 2008, p. 9). The concept of healing moves "beyond hurt, pain, disease and dysfunction, to establish a new pattern of sustainable living and well-being" (Lane, Bopp, Bopp, & Norris, 2002, in Hill, 2008, p.24). This approach regards traditional medicines as an essential healing component, and the concept of traditional medicines expands to "the sum total of cultural knowledge, skills and

practices…, Indigenous to different cultures and are used in the maintenance of health as well as in the prevention, diagnosis, improvement and treatment of physical and mental illness" (WHO, 2001, in Hill, 2009, p. 27). In addition, the traditional healing concept regards a person as responsible for meeting the health problem and, therefore, responsible and capable of seeking appropriate solutions (Hill, 2009).

In addition to a wide range of these epistemological and axiological meanings, healing is also a pathway to recovery from intergenerational trauma for Indigenous peoples. The impacts of trauma can be felt across multiple levels, including individuals, families, communities, and the wider society. The colonization has left Indigenous peoples with multiple layers of intergenerational trauma, requiring an appropriate approach to healing these damages (Karki, 2016). Lavallee et al. (2010) argue that healing of trauma requires skilful, time-taking, holistic community-based interventions that aim to restore and balance physical, emotional, cultural, spiritual, and social well-being. As such, holistic healing can best be achieved through "practising spiritual and cultural traditions, passing healthy behaviour down to the next seven generations and including the Indigenous understanding of mental health and healing" (Lavallee et al., 2010, p. 279). Alfred (1999, in Hill, 2008) has the perspective that healing approaches for Indigenous peoples should be based on "the Indigenous culture and take traditional values, principles, and processes into consideration" (p. 27). Such a model of healing and well-being is holistic, basically preventive, multi-dimensional (mind, body, spirit, and emotion), collective and reciprocal (Martin, 2012). This encourages a person to take a more active and proactive approach to their own health instead of relying on western medicine and professionals to tell them what is wrong and fix it for them.

Western Vs Indigenous Approaches to Health, Healing and Well-being

The second major theme, "*Western Biomedical Vs Indigenous Approaches to Health, Healing and Well-being,*" discusses how the western biomedical knowledge system contrasts in its epistemological, ontological, and axiological aspects with the Indigenous traditional holistic knowledge system. First, western knowledge is "objective, born from a reductionist and linear understanding of time and hierarchies of knowledge" (Timler & Sandy, 2020, p. 4). As such, spiritual and cultural beliefs, traditions, and practices are not considered "scientific." Second, this positivist knowledge system believes in a single objective truth where anything outside this reasoning is considered inconclusive and inaccurate. This implies that only one perspective of viewing things and a single approach to solving the problem can be accepted. Yet, western biomedical health knowledge is clinical, data-driven, and shaped by conventional scientific approaches (Karki et al., 2024; Martin, 2012, in CMA, 2020). For example, an illness is caused by disease-causing microorganisms or the absence of essential hormones or vitamins in the body. As such, the system will diagnose an individual as either healthy or unhealthy (Mundel, 2008). Such a knowledge system has difficulty accepting multiple truths, holistic approaches and diversity in beliefs and values.

In contrast to this rigid concept of illness, based on a defined set of symptomatic criteria that must be present to qualify, nature-based interventions are considered therapeutic, preventive, and restorative of good health in some way. In this approach, a person doesn't have to wait until they are sick before they begin thinking about healing. Therapeutic landscapes with all four environmental dimensions (physical, social, and natural environmental dimensions have significant implications for achieving health and healing (Jiang, 2014). Many studies from diverse cultural groups have pointed out the benefits of nature in healing and well-being; however, different studies have given these nature-based therapeutic places and interventions other names, such as restorative landscapes and gardens (Bahamond, 2019; Pouya et al., 2016), care farms or horticultural therapy

(Cacciatore et al., 2020; Kim et al., 2020; Pedersena et al., 2016), onotherapy, nature-assisted therapy (Mimnaugh, 2018), ecological psychotherapy (Cote, 2016; Hartig et al. 2011), wilderness therapy (Chavaly & Naachimuthu, 2020).

A substantial amount of literature has shown how spending time with Nature, clinically or non-clinically, contributes to many health benefits, not limited to reducing anxiety, stress, aggression, traumatic experiences, pain, depression, forgetfulness, cognitive decline and addiction. In addition, interaction with Nature has been beneficial in improving the immune system, mood, confidence, self-esteem, memory, cognitive performance, relationships, motivation, and overall satisfaction with the quality of life (Bahamonde, 2019; Berto, 2014). Interestingly, the scientific method that promoted the concept of western biomedical knowledge is now being applied to researching nature-based therapies that have been tested via experiments on their applicability to different stress-related and mental issues (Hartig et al., 2014, Pande Khadka, & Karki, 2024). A common denominator across these studies is that activities in green spaces, gardening, and contact with Nature are efficient interventions to fight various physical and mental health issues.

Nature-based Interventions and Mental Well-being

The third major theme, "*Nature-based Interventions, Mental Health and Stress Management*" discusses Nature-based interventions or the use of restorative and therapeutic power of nature in healing physical and mental illness. Mental health is described as "the state of a person's psychological well-being, running on a continuum from positive mental health to poorer mental health" (Masterton et al., 2020, p. 1). The problem with this definition is that it limits our understanding of mental health as a concept that exists within the individual as opposed to describing it as a relationship with the environment around them. Several studies indicate significant benefits of natural and built green spaces and environments in ameliorating mental problems, such as depression, anxiety, dementia, trauma, and schizophrenia (Berman et al., 2012). In addition, Nature-based healing

interventions contribute to stress reduction, restoring the ability to do mental and physical work, tranquillizing the human mind, restoring wellness, and maintaining good health (Chavaly & Naachimuthu, 2020). Among other benefits of short-term exposure to Nature include - shortened hospital stay, balanced blood pressure, balanced cholesterol level, heart rate and blood sugar level; relaxation of muscles; positive emotions; improved overall mental health (Austin, 2006), improvement in mood; increased memory and cognitive performance (Berman et al., 2012), a stronger immune system; the reduced prevalence of chronic inflammatory diseases, improved self-esteem, mood improvement, perceived mental and physical health, physiological and psychological relaxation, (Chavaly & Naachimuthu, 2020), speedy recovery from health problems (Thompson, 2018), increased alpha waves in the brain, pain management, and reduced mortality (Besthorn & Saleebey, 2003).

Most studies used in this review discuss the recovery benefits of Nature-based interventions for people living with mental health issues. Contact with Nature has significant benefits for problems like mental fatigue, stress recovery, attention-deficit hyperactivity disorder and nature deficit disorder (Ackerman, 2020). Nature-based interventions suggest several benefits in building positive clusters of emotions, like friendliness, playfulness, elation, and affection, and removing negative emotions, like anxiety, fear, anger, and aggression (Besthorn & Saleebey, 2003). Studies also confirm that nature can cure many emotional disorders and increase adaptive intelligence, enabling a person to adapt better to a changing environment (Ackerman, 2020). A study by Kim et al. (2020) indicates that horticultural therapy helps reduce dementia caregivers' burden and severe depression, resulting in an improvement in their quality of life. Such results offer a new method "to support dementia caregivers by proving the applicability of horticultural therapy that implements the conventional psychotherapy intervention strategies" (p. 217). In short, despite their low cost and higher accessibility, Nature-

based resources and interventions offer proven alternative therapies to restore and improve people's mental and emotional health (Thompson, 2018).

Some studies also point out the visible manifestation of the restorative factors in the environment and the benefits of Nature-based interventions in mental health and stress-related problems. Berman et al. (2012) suggest a perceived restorativeness scale (PRS) for measuring the level of the four restorative factors in the environment (compatibility, fascination, being-away and extent). The evidence-based measurable outcomes indicate that Nature-based interventions are therapeutic and healing (Stigsdotter et al., 2011). In this regard, Berto (2014) mentions that an individual's self-report on physiological, behavioural and task performances could reflect the perceived outcomes and changes. Behavioural effects can also be observed in the changes in social behaviour, performance scores, level of aggression, violence, stress and tolerance.

A rapid increase in the number of people living with mental illnesses despite advancements in diagnosis and treatment technology suggests the need for changing intervention approaches to mental illnesses (Bohamande, 2019). This reality indicates that biomedical approaches to health have been successful in diagnosing and labelling individuals with these mental problems but less effective in understanding the nature of the problem and providing holistic intervention solutions. Since Nature-based interventions are holistically balanced and often focus on prevention, they can be implemented as efficient and cost-effective options in community-based interventions and health promotion initiatives. Indicating the need for change, Masterton et al. (2020) mention that Nature-based interventions have the "potential to be widely accessible for people within their communities and used alongside a variety of treatment plans" (p. 1). Similarly, studies have urged the need for ecopsychology and biophilia in the mental health professions (Bahamonde, 2019) because Nature-based interventions in the healthcare system can positively change the current reward (Chavaly & Naachimuthu, 2020).

Care Farms for Nature-based Healing and Rehabilitation

The fourth major theme, "*Care Farms as Nature-based Healing and Rehabilitation*" refers to an individual's holistic health and well-being through connection with Natural and farm elements and engagement in agricultural activities. Studies suggest that care farms carry a high level of therapeutic and restorative significance (Cacciatore et al., 2020). For example, Stigsdotter et al. (2011) explain the properties of the care farms in two approaches: the communication approach and the ecological approach. The communication approach believes that "the signals from nature spark creative processes that are important in the rehabilitation process, both through the cognitive system and through the fast emotional tone" (Grahn, 2008, in Stigsdotter et al., 2011, p. 319) because there is coordination between our neuro-physiological systems and the rest of our bodies. The ecological approach includes two concepts: diseased condition and the greening of psychotherapy. Detachment from nature puts us in a diseased condition, and reuniting with the natural environment cures us of the illness. The greening approach regards nature as a living co-educator, co-therapist, and catalyst of healing and well-being. In this approach, the healing intervention process follows the phases of "healing pedagogy, experiential learning, creativity, reflection, and applied knowledge" (p. 319). Our activities in care farms help to "reduce anxiety and pain, restore our sense of self, improve our perceptions of reality and promote tolerance and understanding" (Hansson 1996, in Stigsdotter et al., 2011, p. 319).

Studies also point out that farm activities promote physical and mental recovery, empowerment, therapy and recreation, skills development, social interaction, handicraft making, gardening and spending time with animals (Pedersena et al., 2016). For example, horticultural activities that support healing have four distinct values: "the physical dependence on plants (for survival), the aesthetic value of plants and animals, the nurturing value of plants and animals and the social interaction in the farm environment" (Kielhofner, 1997, in Stigsdotter et

al., 2011, p. 317). Johannessen et al. (2019) regard a care farm as a sanctuary with free space for social fellowship, energy-boosting activities, and inspiration for survivors of different events. One participant expressed the holistic experience on the farm as:

> To be a part of the group, chat together, garden in the greenhouse, it felt so good to be there. I looked forward to every Wednesday, but I am not able to entirely put my finger on what exactly it was that I was looking forward to, whether it was to grow tomatoes, the peace and quiet out there, or to speak with the others, I think it was the whole setting (Johannessen et al. 2019, p. 135).

A common thread across the studies is that natural components in the farm and the surrounding area have very high therapeutic and restorative potentials. For example, farm animals, greenhouses, and vegetable beds, surrounded by wild sheep grazing on rolling pastures and a babbling brook streaming gently down a hill against a backdrop of snow-capped mountains have been shown to have high therapeutic and healing properties for the recovery from mental and physical illnesses (Johannessen et al., 2019). Therapeutic properties are also hidden in the activities done in these green spaces, with the animals and the plants and social interactions among the participants, health professionals and farm people (Marsh et al., 2018).

Care farms are widely used as hubs for rehabilitating people from mental health centres, prisons and different walks of life needing support in health recovery as they transition to community life. The transition of people with mental illnesses from mental health centres to community care in such care farms is cost-efficient and a way of speedy recovery in the natural setting by adopting the holistic biopsychosocial approach to care (Pedersena et al., 2016). A Norwegian study supports this role when care farms are successfully used as cost-efficient rehabilitation places for recovery activities supporting these people in their

transition to working life in the community. Many European countries have succeeded in converting care arms into recovery centres with peaceful natural surroundings (Pedersena et al., 2016). Besides these rehabilitative and therapeutic roles, working on care farms can also generate income for those living with mental illness, thus, promoting a sense of achievement and contribution to society. In addition to the therapeutic benefits to all people, these findings indicate that health equity for diverse ethnic and racialized people in general and Indigenous peoples, in particular, can be promoted efficiently by prioritizing care farm interventions in the healthcare system as these activities offer them land-based holistic health and healing opportunities essential for the healing of intergenerational trauma and wounds from the colonial past.

Biophilia in Social Work Practice and Education

Nature-based or eco-social work is an emerging social work practice. This approach seeks the well-being of both the person and the natural environment (Besthorn & Saleebey, 2003; Norton, 2009). It is critically important to review and revise social work curricula in colleges and universities and implement the green agenda and approaches to health and healing. This is one of the ways to decolonize and Indigenize social work education and practice. In doing so, person-in-environment is an important perspective at all levels of social work practice (Norton, 2009; Rogge & Cox, 2001). A social worker's responsibilities are obvious in these circumstances: bring these nature-based traditional healing practices into the light of the day, adopt beneficial intervention approaches, advocate for the holistic and inclusive healthcare system, and let justice flourish. The knowledge about the role of Nature in human health helps social workers apply appropriate intervention strategies Besthorn & Saleebey, 2003). The conventional social work approaches are less guided by the characteristic features of the relationship between human beings and biophilia. The biophilia hypothesis and other nature-based

principles are highly significant and compatible with core social work values and guidelines.

Besthorn and Saleebey (2003) state, "Nature offers a vast accumulation of resources critical to how social work understands and responds to the physical, psychological, social, and spiritual development and well-being of the clients we serve" (p. 8). In the ecosystem, every member is interdependent. Understanding this interconnectedness is critically important to social work professionals, and particularly, engage themselves in green and preventive social work practices. Social workers should advocate for protecting nature's places from unplanned industrialization and urbanization. Social workers also need to support efforts to fight against species' extinction and educate people about the importance of Nature for the development of healthier communities. This is one of the best approaches to creating a bio-rich, diversified environment on the earth for its residents' better physical and mental well-being. For these reasons, social work curricula must incorporate Indigenous social work practices, including nature-based interventions, green therapy, and traditional health and healing approaches so that social work students can be better prepared to work in partnership with Indigenous peoples.

Conclusions

This paper concludes that human beings have a physiological and psychological need to be in contact with Nature. We are dependent on it for our overall well-being. We are also responsible for being caretakers of the land. This notion of reciprocity between living organisms and the abiotic environment has been explained as biophilia. As a theory grounded in genetics, biophilia explains why people across the globe have similar responses to biophilic environments. Traditional Indigenous health and healing practices are based on and guided by a biophilic relationship with Nature. This paper discussed the positive benefits of human interaction with Nature. Green spaces around hospitals have reduced patients' pain and stress while also enhancing care providers' feelings of well-

being. Nature-based interventions benefited several mental and physical health issues. Such Nature-based practices may foster equity and justice in the healthcare system, specifically for Indigenous peoples across the globe. Despite these findings, there has been a lack of acknowledgement and validation of Indigenous traditional forms of knowledge. The ethnocentric perspective of the western healthcare system has prevented the healthcare system from being inclusive and Nature friendly. While biomedical approaches to health have been successful in diagnosing and labelling individuals with mental problems, they have been less effective in understanding the nature of the problem and providing holistic intervention solutions. The literature shows that a holistic Indigenous approach to health and healing practices in conjunction with a western biomedical lens is possible. In terms of social work education and practice, the focus on the person-in-the-environment perspective must be incorporated into all levels of practice. The biophilia hypothesis and other nature-based principles are highly significant and compatible with core social work values and guidelines. Incorporating Indigenous knowledge, including nature-based interventions, green therapy, and traditional health and healing approaches to social work curricula would allow social work students to be better equipped to work in partnership with Indigenous peoples in all areas of practice, more significantly in physical and mental health, healing, and wellbeing.

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Impact of Climate Change on Agro-based Farming and Rural Farmers' Livelihoods: A Study of Balakhu, Okhaldhunga

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Abstract

This research examined the impact of climate change on agro-industries and rural farmers' livelihoods in Balakhu, Okhaldhunga, where agricultural systems have been severely disrupted, and extremely affecting smallholder farmers. The study explored the livelihood strategies adopted by farmers and examined the impact of climate change on agro-based farming and livelihoods in Balakhu. The study used a descriptive design and qualitative methods. Purposeful sampling ensured diverse farming contexts, with data collected from 188 participants using unstructured questionnaires and observations, while secondary data were gathered through literature reviews and document analysis. The data were analyzed using MS Excel for quantitative insights and narrative analysis for qualitative responses. The findings revealed that rising temperatures, irregular rainfall, and water scarcity have reduced crop yields and stressed livestock, while frequent floods, soil erosion, and pest outbreaks have further compounded the challenges. Seasonal shifts have disrupted planting and harvesting cycles, forcing farmers to transition to resource-intensive alternative crops. These challenges highlight the urgent need for adaptive strategies such as climate-resilient crops, improved irrigation systems, and sustainable land management practices. The study concludes that climate change significantly affects agriculture, rainfall patterns, and temperatures, posing a serious threat to livelihoods in the region.

Keywords: adaptive strategies, agro-based farming, Balakhu, climate change, livelihood

**Impact of Climate Change on Agro-based Farming and Rural Farmers'
Livelihoods: A Study of Balakhu, Okhaldhunga**

Climate change stances a significant threat to global stability and
agricultural sustainability, with shifting weather patterns and rising sea levels
threatening food production worldwide (Maharjan, 2024). Climate chnage has
become a threat to agriculture and livelihoods globally. The entire world has been
suffering from climate change and its effects when developing countries are
marked more than developed countries. The climate pattern have been changed
due to high increase levels of atmospheric carbon dioxide, produced by the use of
the fossil fuels over the decades (Chaudhary et al., 2020). It is a threat to the lives
in the world that largely affects water resources, agriculture, coastal regions,
freshwater habits, vegetation and forests, snow cover and melting and geological
processes such as landslide, desertification and floods, and has long term effects
on food security as well as in human health (Malla, 2009).

People throughout the world who depend on agriculture for their
employment are particularly vulnerable to the devastating effects of climate
change. It is anticipated that the consequences of climate change on agricultural
productivity and livelihoods would differ throughout nations and areas and will
become more pronounced over time (Chambers & Conway, 1992; FAO, 2016) .

Livelihood refers to the resources and activities that individuals or groups
use to meet their basic needs. It comprises the abilities, assets, and endeavors
necessary for a sustainable lifestyle that can adapt to hardship and enhance
opportunities for the future (Chambers & Conway, 1992). Among the many
natural and man-made factors influencing livelihoods are cultural aspects and
environmental conditions. While local economies and agricultural practices are
influenced by climate, human interactions with the environment shape settlement
patterns and cultures. The relationship between human life and the environment
has a significant impact on people's ability to cope with challenges, and climate

change is negatively affecting livelihoods all over the world (Khatri & Pasa, 2023).

Climate change in Nepal has intensified the frequency of natural disasters, such as floods, landslides, and glacial lake outburst floods, threatening lives and infrastructure. It has also disrupted agricultural productivity, impacting the livelihoods of rural communities dependent on climate-sensitive farming practices. Nepal has implemented several climate change policies, including the National Adaptation Programme of Actions (NAPA) and Local Adaptation Plans (LAPA), to address the needs of vulnerable communities (Ministry of Environment of Nepal, 2011). Developmental research often focuses on the responses of local population climate change, highlighting the importance of community perspectives and traditional knowledge (Hughes, 2013).

The present study aims to explore the status of farmers and their agro based products regarding climate change and its impact on their way of life. One of the main environmental problems that affect people, animals, and plants in different ways is climate change. The topic of climate change has been the subject of study, research, and debate because Nepal is a mountainous nation with diversity in geography, hydrology, plants, animals, and ethnic groups. Changing rainfall patterns of Nepal, temperature, and other climatic conditions have a direct or indirect impact on livelihoods of People in addition to plants and animals (Sapkota, 2024).

The study found significant impact of climate change on agro-based industries and the livelihoods of rural farmers in Balakhu. As climate change accelerates, it alters weather patterns, disrupts agricultural cycles, and contributes to extreme weather events. These changes lead to reduced crop yields, challenges in production, and economic instability for those dependent on farming and related industries. Rural farmers, already vulnerable due to limited resources and adaptive capacity, face heightened risks to their income and food security (WWF,

2005). Understanding the specific effects on agro-industries in the study area is essential for developing effective mitigation and adaptation strategies.

This study has shown that the impacts of climate change on livelihoods of farmers are evident, making adaptation crucial for coping with these changes. The goal is to enhance understanding of these effects on agro-industries and to recommend policy interventions to support vulnerable farming communities. Understanding how farmers implement adaptation measures to sustain their livelihoods is particularly important given the severity of climate change effects on agro-based livelihoods in Balakhu, located within Sunkoshi Rural Municipality, Okhaldhunga. This study, using a qualitative research approach, explores perceptions of farmers in impacts of climate change on various farming aspects.

Literature Review

Several recent studies have focused on the impacts of climate change on various aspects of human life and livelihoods in Nepal; however, there remains a significant knowledge gap in understanding its localized effects on specific communities, adaptive strategies, and long-term socio-economic implications (Dhakal, 2021). Glaciers are melting at alarming rates, heightening the risk of glacial lake outburst floods that pose significant threats to lives, property, and community relocation efforts (WWF Nepal Program, 2005). A study explores the impact of climate variability on livelihoods, highlighting how extreme weather events such as floods, droughts, and glacier melt jeopardize food security and agricultural productivity (Davis & Hirji, 2019). They argue that climate change is one of the primary barriers to sustainable development and poverty reduction initiatives. Studies (Sharma et al., 2020; Gautam & Bhandari, 2019; Dhakal, 2021) have explored diverse socio-ecological contexts of Nepal, highlighting the differing perceptions and experiences of rural communities regarding climate change. However, significant gaps remain in fully understanding the effects of

climate change on water resources and related hazards in the Himalayan region. To address these knowledge deficits, scholars recommend the implementation of monitoring systems that integrate considerations of socioeconomic development, ensuring a more holistic approach to climate adaptation and resource management (Chapagain et al., 2010).

The effects of climate change in the Manang Valley have been investigated, with four adaptation strategies proposed to bolster food production resilience: reclaiming abandoned land, substituting barley with wheat, reducing conspicuous consumption, and modifying agricultural practices (Aase et al., 2013). The importance of incorporating local knowledge as a vital resource for addressing climate change is emphasized, particularly through the examination of the intersection of local socio-cultural narratives and global climate discourses (Scally, 2019).

Environmental changes disproportionately impact different groups, with women facing greater challenges in collecting fodder and men experiencing increased difficulty in gathering firewood (Massey et al., 2010). The adverse effects of altered snowfall and monsoon patterns on the livelihoods of the Lama and Dalit communities have been documented (Maharjan, 2024). Many Nepali farmers rely on traditional knowledge to interpret climate change, highlighting the need for comprehensive support systems to foster effective coping mechanisms (Ministry of Environment of Nepal, 2011). Community-level projects designed to mitigate the effects of climate change in sectors such as infrastructure, forestry, and agriculture have been the focus of some studies (Sapkota, 2024).

Adaptive techniques and indigenous knowledge utilized by Kathmandu farmers in response to declining rainfall have also been highlighted (Rijal et al., 2022). The cultural dimensions of climate change's impact on millet production among the Magar community in Baglung district have been examined, linking these shifts to changes in ritual practices and livelihoods (Khattri, 2013). Sharma

et al. (2020) provide a comprehensive review of how gendered roles in agricultural practices intersect with climate change, emphasizing the unequal burden placed on women in managing biodiversity under shifting environmental conditions. Similarly, significant changes in rainfall patterns of Nepal, including decreases in pre- and post-monsoon rainfall, have critical implications for livestock and agricultural management. Extending this discourse, the research emphasizes the need to examine climate change and migration by assessing push and pull factors to inform future development priorities (Bhattarai et al., 2015).

The literature discussed above underscores the significant impact of climate change on agro-based industries and rural livelihoods in Nepal, with communities like Balakhu in Okhaldhunga facing a variety of challenges. Melting glaciers and extreme weather events, such as floods and droughts, are major threats to food security, agricultural productivity, and the overall stability of these communities (Sharma et al., 2020). These environmental stresses not only affect the immediate agricultural output but also disrupt the socio-economic fabric of rural areas, demanding urgent adaptive measures (Dhakal, 2021). While rural farmers often rely on traditional knowledge for resilience, they face mounting difficulties from shifting monsoon patterns and gender disparities exacerbated by changing agricultural practices. To effectively support these farmers and enhance their resilience, it is essential to integrate local knowledge and implement community-level adaptation strategies, promoting sustainable development and mitigating climate vulnerabilities (Gautam & Bhandari, 2019).

Objective

The general objective of this study is to assess the impact of climate change on agro-based farming and the livelihoods of the rural farmers in the community of Balakhu village of Okhaldhunga district. The specific objectives are as follow:

a. To access the practices of livelihood strategies adopted by farmers.

b.   To investigate how agro-based farming and livelihoods are affected by climate change.

Methodology

The study was adopted descriptive design and conducted by using qualitative method in which data were collected by researcher with the participants by using unstructured questionnaire and observation. Such approach supported to explore the lived experiences of farmers with effects of climate change on agro-based farming and livelihood. For the primary data, 188 participants, out of 3918, were selected using of purposeful sampling techniques to ensure representation from a range of farming contexts within the study area. Similarly, secondary data consists of literature reviews and document analyses in order to assess the impact of climate change in agro- industries and livelihoods of farmer. Data were analyzed using tables and figures with the support of MS Excel, while the perceptions of respondents were analyzed narratively.

Description of the Study Area

Balakhu is a village of Sunkoshi Rural Municipality which is in the Okhaldhunga District of Koshi Province, mid-eastern Nepal. It lies on the bank of Sunkoshi River, in the southwestern part of Okhaldhunga District. Following the restructuring of Nepal in 2007 A.D., Balakhu was divided into two wards (Ward Nos. 1 and 2) within Sunkoshi Rural Municipality. According to the census of Nepal, 2022, Balakhu has a population of 3,918, with Ward No. 1 accounting for 2,145 and Ward No. 2 hosting 1,773 population, living in 835 individual households.

Balakhu is a rural community known for its rich agricultural heritage and reliance on agro-based farming. Situated in a hilly region, the village supports the cultivation of diverse crops, including paddy, maize, millet, cereals, wheat, and various vegetables and fruits. Traditional farming practices, deeply rooted in local culture and passed down through generations, form the backbone of economy of

the village. However, Balakhu faces significant challenges posed by climate change, such as unpredictable rainfall patterns, prolonged droughts, and increased pest infestations. These factors adversely affect crop yields and threaten the livelihoods of the local farmers. Despite these challenges, the community demonstrates resilience through adaptive strategies that are critical for sustaining agricultural productivity and ensuring food security.

Results and Discussion

Nepal has diverse agricultural zones, including plains, hills, and mountains. The cropping patterns of farmers are influenced by the characteristics of these agro-zones. Climatic factors have a significant impact on the ecological distribution of agricultural production. Climate change primarily affects water resources, herbs, pasturelands, crops, vegetables, cereals, and soil quality. An increase in temperature causes greater damage to the agricultural sector compared to other types of production. As temperatures rise, cropping patterns and vector-borne diseases affecting humans and livestock (Malla, 2009).

Most of the informants in the study area reported that the timing of crop planting and harvesting has changed compared to previous years. Similarly, the frequency of landslides, floods, irregular rainfall, droughts, and vector-borne diseases has been increasing in the community. Based on the study and perceptions of farmers, the researcher has presented the results and discussion through detailed data analysis.

Water Sources in Balakhu Village

This region is home to several large and small water sources. The Sunkoshi River, the largest water source, flows to the south of the area. Other notable streams include Balakhu Khola, Mate Khola, Kaule Khola, Jalkeni Khola, Katuwa Khola, Lukuwa Khola, Ambote Khola, Ririshe Khola, and Sankhe Khola and name a few. In addition to these, there are several small ponds that supply clean drinking water.

Balakhu Khola, Sankhe Khola, Ambote Khola, Katuwa Khola, Sirise Khola, and Lukuwa Khola serve as primary sources of irrigation. However, water availability is largely limited to the wet season, with these streams almost drying up during summer and experiencing flash floods during the rainy season. Despite the presence of the Sunkoshi River, it is not yet utilized for irrigation due to the absence of modern water-lifting technology. Residents have reported a noticeable decline in the flow of these water sources. Many perennial streams in the area have become seasonal or have dried up entirely, posing challenges to both drinking water and irrigation needs.

Consequently, inhabitants of the study area increasingly rely on traditional water sources such as Kuwa and local streams to meet their water needs. The existing drinking water supply of the area is insufficient. The local government intends to draw water from the Sunkoshi River to meet the increasing demand for drinking water (Sunkoshi Rural Municipality, 2022). People hope that after the project is completed, extra water may be used for irrigation on small family farms, increasing the agricultural output of the area.

Factors Effecting Climate Change

The observed factors of climate change such as rising temperatures, irregular rainfall patterns, declining water resources, and increased natural disasters, have significantly disrupted the agricultural systems in Balakhu. These changes have led to shifts in cropping patterns, reduced soil fertility, and greater vulnerability to pests and diseases, as farmers struggle to adapt their practices to a rapidly changing environment. Seasonal shifts further complicate planting and harvesting schedules, shortening growing periods and limiting productivity. These factors underline the complex relationship of climate change impacts, threatening both agro-industries and the livelihoods of farmers who depend on sustainable agricultural practices for survival.

Table 1

Observation of Farmers on Effecting Factors of Climate Change

Effecting factors of climate change	Observation of farmers on effecting factors of climate change	Response 'Yes' (%)	Response 'No' (%)
Temperature	Noticeable warming, particularly during the summer months	90	10
Rainfall Pattern	Delayed onset and irregular rainfall; shorter monsoon seasons.	95	5
Water Resource Availability	Streams and small ponds drying up during summer; flash floods in rainy seasons.	93	7
Soil Fertility capacity	Loss of topsoil due to frequent floods; declining soil fertility over time.	80	20
Pest and disease outbreak	Increased frequency and intensity of crop and livestock diseases	95	5
Crops adaptability	Shifts in crop-growing areas; traditional crops struggling to adapt	80	20
Natural Disasters	Increased frequency of landslides and floods due to extreme weather.	90	10
Seasonal Shift	Changes in planting and harvesting times; shorter growing seasons.	98	2
Average (mean) in percent		90.12 %	9.88 %

Note. The data in the table is based on the field survey carried out in 2024.

According to Table 1, a substantial majority (90%) reported noticeable warming, especially during summer, highlighting the impact of rising temperatures on agricultural productivity and livestock health. Similarly, 95% of respondents noted irregular rainfall patterns, including delayed onset and shorter monsoon seasons, which disrupt traditional farming calendars and exacerbate irrigation challenges. Water resource availability is another critical concern, with 93% observing the drying up of streams and ponds in summer, compounded by flash floods during the rainy season. Soil fertility is declining, as reported by 80% of farmers, due to frequent flooding and topsoil erosion, leading to reduced agricultural productivity and increased dependency on chemical inputs. Pest and disease outbreaks were identified by 95% of respondents, affecting both crops and livestock and escalating the cost of farming. Furthermore, shifts in crop adaptability were noted by 80% of farmers, with traditional crops struggling to flourish under changing climatic conditions.

Natural disasters, such as landslides and floods, were highlighted by 90% of farmers, causing damage to farmland and infrastructure. Seasonal shifts were observed by 98% of respondents, indicating changes in planting and harvesting times and shorter growing seasons, which disrupt crop cycles and overall agricultural productivity. On average, 90.12% of respondents acknowledged the impact of climate change across these indicators, emphasizing its persistent influence on agriculture and livelihoods in the region.

Impacts of Climate Change on Agro-based Farming and Livelihoods

The study exposed that temperatures in the region have been steadily rising, while the amount and patterns of rainfall have undergone significant changes. Compared to previous years, snowfall has ceased, and the occurrence of frost, dew, fog, and hail has noticeably declined. These changes highlight the pressing impacts of climate change in Balakhu. Key challenges include reduced agricultural productivity, higher risks of crop failure, limited water resources, increased heat stress on crops and livestock, declining soil quality, and disrupted agricultural calendars, all of which threaten local livelihoods.

Table 2

Perceptions on Impacts of Climate Change on Agro-Based Farming and Livelihoods

Factors of climate change	Perceptions on impacts of climate change on agro-based farming and livelihoods	Response 'Yes' (%)	Response 'No' (%)
Temperature	Reduced productivity of temperature-sensitive crops; heat stress for livestock.	95	5
Rainfall Pattern	Reduced crop yields; increased reliance on irrigation; higher risks of crop failure.	96	4
Water Resource Availability	Limited water for irrigation; higher dependency on rain-fed agriculture	97	3
Soil Fertility capacity	Reduced agricultural productivity; increased costs for fertilizers and soil treatments	90	10
Pest and disease outbreak	Loss of crops and livestock; additional expenses for pest and disease management.	90	10
Crops adaptability	Farmers transitioning to different crops, requiring new knowledge and inputs.	95	5

Natural Disasters	Damage to farmland, infrastructure, and livelihoods.	98	2
Seasonal Shift	Disrupted agricultural calendars; reduced production cycles	97	3
Average (mean) in percent		94.75 %	5.25 %

Note. The data in the table is based on the field survey carried out in 2024.

The results from the study (Table 2) demonstrate the significant impacts of climate change on agro-industries and livelihoods of farmers in Balakhu. A remarkable 94.75% of respondents acknowledged the adverse effects of climate-related changes across various indicators. Rising temperatures were reported by 95% of farmers as a major factor reducing the productivity of temperature-sensitive crops while also causing heat stress in livestock. Similarly, 96% of respondents observed disruptions in rainfall patterns, which have led to reduced crop yields, increased dependency on irrigation, and heightened risks of crop failure. Water resource availability emerged as a critical concern, with 97% of respondents highlighting limited water for irrigation and increased reliance on rain-fed agriculture, especially during the dry season. Soil fertility has also been significantly affected, with 90% of farmers reporting declining agricultural productivity and rising costs associated with soil treatments and fertilizers. Pest and disease outbreaks have become more frequent, with 90% indicating substantial losses in crops and livestock, coupled with additional financial burdens for pest and disease management.

The adaptability of traditional crops is another pressing issue, with 95% of respondents noting a transition toward different crops requiring new knowledge and inputs, a challenge for farmers accustomed to traditional practices. Natural disasters, such as floods and landslides, have imposed widespread damage on farmland, infrastructure, and livelihoods, as reported by 98% of respondents. Seasonal shifts were also observed by 97%, disrupting agricultural calendars and reducing production cycles, thereby intensifying the challenges for agro-industrial activities.

Table 3

People's Perception on Changing Crop Sowing and Harvesting Time

Change in Crop Sowing and Harvesting Time	No. of Respondents	Percent (%)
Yes	110	58.51
No	78	41.48
Total	188	100

Note. The data in the table is based on the field survey carried out in 2024.

Rainfall shifts have caused maize and rice to snow later in the past and present. These two crops were traditionally sown in *Baisakh or Jestha*, but now people must wait until *Asar*. The informants did not state whether the time for wheat sowing had changed from the past. *Kartik/Mangsir* is when wheat is sown. According to informants, there hasn't been much of a change in harvest time. According to the majority of them, crops that are sown earlier will be harvested sooner, and crops that are sown later will ripen later. However, some of the informants agreed that they have noticed a shift of roughly 15 days in the ripening time of all crops and fruits as a result of rising temperatures and shifting soil quality. Crop sowing and harvesting times are directly impacted by altered weather patterns, particularly those related to temperature and precipitation.

Findings

The findings from the study illustrate the profound impacts of climate change on agro-industries and the livelihoods of farmers in Balakhu. Rising temperatures, reported by 95% of respondents, have reduced the productivity of temperature-sensitive crops and caused heat stress in livestock. Disrupted rainfall patterns, noted by 96%, have led to reduced crop yields, increased reliance on irrigation, and heightened risks of crop failure. Water resource availability has emerged as a critical issue, with 97% of respondents highlighting the drying up of streams and ponds, increased dependency on rain-fed agriculture, and challenges in accessing sufficient water for irrigation.

Soil fertility has declined significantly due to frequent floods and erosion, as reported by 90%, forcing farmers to rely on expensive fertilizers and soil treatments. Pest and disease outbreaks have intensified, affecting crops and livestock, with 90% of respondents highlighting increased financial and labor burdens. Farmers are also transitioning to alternative crops to adapt to climate changes, but this shift, noted by 95%, requires additional resources and knowledge. Natural disasters such as floods and landslides have caused widespread damage, as indicated by 98% of respondents, while seasonal shifts have disrupted planting and harvesting schedules, reducing production cycles.

The findings underscore the need for adaptive strategies, including improved irrigation, soil conservation techniques, pest management, and the adoption of climate-resilient crop varieties. Addressing these challenges is essential to mitigate the adverse effects of climate change on agro-industries and farmers' livelihoods in Balakhu.

The increased variability in temperature, rainfall, and water resources, combined with soil degradation and pest outbreaks, creates a challenging environment for agricultural sustainability. Natural disasters and seasonal shifts further exacerbate the difficulties farmers face, highlighting the urgent need for adaptive strategies, such as climate-resilient crops, efficient irrigation systems, and sustainable land management practices, to mitigate these impacts and safeguard livelihoods.

Conclusion

The study concludes that climate change has profoundly affected the agro-based farming and livelihoods of farmers in Balakhu. Rising temperatures and altered rainfall patterns, particularly a decline in winter, have reshaped agricultural landscape in the area. Traditional weather phenomena such as fog, dew, frost, and hail are now rare, signaling a dramatic shift in climatic conditions as remembered by the local community. While residents share consistent

experiences and interpretations of these changes, individual perceptions vary, reflecting the complexity of the impacts.

The findings indicate that climate change has led to declining soil quality, changes in agricultural practices, increased crop and human diseases, and more frequent droughts. These disruptions underscore the dynamic and multifaceted nature of livelihoods, which are influenced by environmental changes and factors of climate change but also by socio-economic and cultural factors. To mitigate these impacts and support local livelihoods, community-based climate adaptation strategies are essential. These should include raising awareness of climate change effects, promoting climate-resilient agricultural practices, and integrating traditional knowledge into modern adaptation measures. To safeguard livelihoods and ensure sustainability, implementing community-led climate adaptation strategies, preserving traditional knowledge, and promoting climate-resilient practices are imperative.

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Assessing Information Landscape in Nepal through Constructive Approach

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Abstract

Constructive journalism (CJ) was initiated in Europe with the goal of countering the negativity bias in news. It also resembles the concept of development journalism that emerged in the late 1960s in Asia. CJ aims to empower readers by providing them with information and tools to effect positive change in their lives nearly a decade and a half ago. Thus, CJ is a noble attempt in journalism to instill distinct news values. This article employs the theoretical framework of CJ to evaluate the media landscape in Nepal. Throughout this assessment, several news stories from different Nepali newspapers and online news portals have been scrutinized according to the three pillars of CJ. The systematic observation reveals that Nepali media largely fall short of adhering to the constructive approach to journalism. Therefore, the state of CJ in the context of Nepal has yet to advance.

Keywords: constructive journalism, solution-oriented journalism, constructive dialogue, multiple perspectives

Assessing Information Landscape in Nepal through Constructive Approach

Constructive journalism (CJ) originates from the noble aspiration to produce high-quality journalism that assists individuals in navigating a complex world. The Germany based Bonn Institute (2024), has initiated a mission to "take journalism into the future—with a focus on solutions, diverse perspectives, and meaningful dialogue (p. 504)," the Institute strives to offer valuable insights to individuals and foster the advancement of human society. However, academicians have linked the CJ with the evolution of public journalism which goes back a long period. Bro (2019) argues that CJ is not a new term and that its underlying principles share similarities with other well-known movements in the history of journalism. He contends that these include action journalism, which was popular on both sides of the Atlantic at the turn of the last century, and public journalism, which flourished at the turn of this century. He also states that common to most of these movements is their lack of conceptual clarity. However, the concept of CJ has been gaining popularity over the years.

Lippmann (1961) argues that newspapers have watchers stationed at certain places, like Police Headquarters, the Coroner's Office, the Country Clerk's Office, City Hall, the White House, the Senate, House of Representatives, and so forth (p.338). Lippmann (1961) further states that before events become news, something definite must occur, they often need to attract attention through specific actions, such as bankruptcy, accidents, the introduction of a bill or the expressed opinion of a well-known citizen. There must be a manifestation (p.340). DeFleur and Dennis (2002) outline seven criteria for judging newsworthiness: impact, timeliness, prominence, proximity, novelty, conflict, and currency. In contrast, constructive journalism (CJ) shifts focus from simply reporting events to fostering deeper engagement with their context. The Constructive Institute (CI) in Denmark challenges traditional news values, moving away from the older AVIS-K criteria (Timeliness, Importance, Identification, Sensation, Conflict) toward a

more constructive, value-driven editorial approach (Jorgensen & Risbro, 2021). Since, constructive journalism-by fostering a focus on solutions, embracing multiple perspectives, and promoting constructive dialogue within society-the contemporary world of journalism needs to transcend conventional news values.

The Bonn Institute (2024) emphasizes that CJ is people-friendly journalism and aids individuals in navigating the complex world. It highlights the importance of understanding our users' needs to ensure journalism reaches its intended audience: What is relevant to them? How would they like to be informed? And how can they communicate with us if they want to know more? The Bonn Institute views this as more critical in the digital age than ever before, as journalism competes with countless other offerings to capture people's attention. In other words, it is crucial in an era of unprecedented expansion of the information and communication ecosystem.

CJ also echoes a model of endogenous communication entitled "Information for Empowerment," which was developed by Kharel (2012) based on Nepal's experience of democratic upheavals. He elaborates on his idea as follows: Empowerment of people means citizen participation to the maximum possible extent for informed communication across society, informed decision-making, informed feedback, and revision by the initiator for good governance. To achieve such empowerment and advanced public participation, Nepali media need to transcend traditional news values. In this context, Kharel (2012) states that Nepali media requires defining itself. Furthermore, he holds that they must incorporate new voices and offer niche content that is neither biased nor manipulated. Hence, the necessity to embrace new news values aligned with the constructive approach in journalism is equally pertinent in Nepal's mass media landscape.

U.S. development cooperation with Nepal dates back to 1951. Over the past five decades, the U.S. has assisted Nepal in various sectors, including

transportation, communication, public health, family planning, malaria eradication, agriculture, forestry, and energy. The MCC Nepal Compact, aimed at enhancing electricity, improving infrastructure, and advancing connectivity, includes two key projects: a 315-kilometer electricity transmission line and the construction of three new substations. However, the compact has faced significant controversy.

The U.S. government's assistance through the MCC has been the subject of debate, involving not only developing countries but also American taxpayers. In order to avoid potential complications, a provision for parliamentary endorsement was included in Nepal. However, some critics argue that the provisions of the MCC could undermine Nepal's sovereignty.

Currently, 25 countries have signed and completed their MCC compacts. Eight countries, including Nepal, are in the process of implementation, while two—Mali and Sri Lanka—have voluntarily terminated their agreements. The MCC was established by the U.S. Congress in January 2004, with strong bipartisan support, to provide foreign assistance aimed at promoting economic growth, reducing poverty, and strengthening institutions. In Nepal, political parties and successive governments had been deeply divided over the MCC's potential benefits and challenges since negotiations began in 2011.

The suspicion surrounding the MCC grew following comments by U.S. Assistant Secretary for South Asia, David J. Ranz, who suggested a potential connection between the MCC and the Indo-Pacific Strategy (IPS) during his visit to Nepal in May 2019. In December of that year, some Nepalese politicians, referencing statements from U.S. officials, questioned Foreign Minister Pradeep Gyawali's remark that the MCC had no ties to the IPS (Ghimire, "Why the MCC," 2020). The controversy was further fueled in September 2021 when the MCC headquarters clarified that the agreement did not supersede Nepal's Constitution and had no military component, seeking to dispel growing suspicions ahead of a

visit by Fatema Z. Sumar, Vice President of the Millennium Challenge Corporation (Shrestha, 13 September 2021). Signed on September 14, 2017, the MCC Nepal Compact is a five-year, $500 million grant agreement between the Government of Nepal (GoN) and MCC. It obviously received extensive and diverse media coverage in Nepal, with varying perspectives. However, a closer analysis reveals several issues with how the Nepali media handled the debate over the MCC. While the media presented a range of arguments, many reports fail to meet professional standards of independence, fairness, and accuracy including their clear own perspective on the basis of national interest.

An examination of the relationship between politics and the media is required to assess the media's performance concerning any public issue. As Street (2001) argues, the relationship between politics and the media is complex; it is essential to determine who is exerting power between the two. There is the power over the media—what gets shown or reported—and there is the power of the media—what gets changed by the media. In other words, it is the power to undertake political communication, which includes, as Craig (2007) observes, a form of public communication undertaken by media personnel and citizens that might be addressed to politicians and political actors, or even a more general contribution to public debate, broadly including all public discourse. Hence, the relationship between political polarization and the performance of Nepali media institutions concerning U.S. development aid through MCC shows the lack of a constructive approach in Nepali newspapers. In this context, Noel Neuman's 'spiral of silence' (Griffin, 2006, pp. 408-19) influenced even communicators, who, fearing isolation, held back bold, independent arguments rooted in Nepal's national interest and benefits. Instead, they predominantly reported on either pro- or anti-MCC opinions and activities. McQuail (2000) quotes Krippendorf (1980) to present an approach for evaluating media performance. He describes the term "performance analysis" as research designed to find answers about the quality of

the media as judged by certain criteria. In this regard, McQuail (2000) recommends objectifiable indicators to judge the media in terms of principles such as media freedom, media equality, media diversity, information quality, social order and solidarity, and cultural quality. In the context of MCC coverage, such objective indicators were largely overlooked.

Theoretical Framework

The article is based on the theoretical premise of constructive journalism as interpreted by Jorgensen, Kristina Lund, and Risbro, Jakob (2021). They suggest three pillars to enable journalists to identify good stories: ones that build trust between the media and citizens, strengthen democratic dialogue, and foster community cohesion. The three pillars that uphold constructive journalism, aimed at contributing to democracy through critical engagement, are as follows: a) Focus on solutions, b) Cover nuances, and c) Promote democratic conversation.

While traditional news values often prioritize stories involving conflict, abnormality, current events, or the exposure of wrongdoing and anomalies among public officials, the first pillar of CJ not only exposes problems but also seeks out potential solutions. Unlike the traditional approach to news reporting, the second pillar of CJ focuses on covering nuances, which are subtle differences in meaning or expression. It aims to present the best obtainable version of the truth by considering various perspectives. The third pillar of CJ promotes democratic conversation by prioritizing news values that facilitate and engage in debates within the society.

Similar to the CI, the Bonn Institute also elucidates the three elements of CJ. In explaining the first pillar, it states that traditional journalism often concludes once a problem has been adequately identified or described. Unlike traditional journalism, CJ goes a step further: it also reports on solutions to societal problems, thus broadening the scope of journalistic inquiry. Hence, as the

Bonn Institute argues, "Who is doing it better?" is one of the central research questions that solutions-oriented journalists pose.

Regarding the second pillar, the Bonn I argues that journalism should have its sights focused on the diverse information interests of various segments of society. Journalism that incorporates a multitude of perspectives is considered relevant journalism. The concept of embracing diverse perspectives also entails examining systemic factors, whether they relate to the composition of personnel in a newsroom or department, or one's own blind spots and biases, and how to address them effectively. For instance, questions such as: "Is my perspective perhaps influenced by a tendency to focus on the negative?" or "Am I unconsciously seeking confirmation of my existing beliefs during research?" are essential for self-reflection. Furthermore, it's crucial to assess whether there is adequate diversity within our content-producing departments to authentically reflect the diversity present in society.

In describing the third pillar of CJ, the BI states that constructive dialogue is the third central element of CJ. Journalists are not only needed as mediators of relevant information and different perspectives but also as moderators between various societal groups. According to the BI, constructive dialogue is an important tool for organizing human understanding. It creates spaces, including digital ones, where people can exchange ideas, facilitates conversations between individuals from diverse backgrounds, and encourages and moderates peaceful, future-oriented debates on relevant societal issues, thereby making media a true public sphere. The BI believes that all of this foster progress and can significantly contribute to social cohesion, strengthen democracy, and mitigate corrosive polarization.

Methods, Materials and Discussion

The article is grounded in interpretive and analytic approaches to examine Nepali media products, particularly focusing on the content of print and online

media. Thus, it employs a qualitative approach. Several stories have been analyzed through the theoretical lens of CJ. The stories that were seemingly not based on the awareness of CJ have been analysed here. Furthermore the news stories that clarifies the rumor spread by some sort of media wrere also analysed to demonstrate the overall atmosphere of information ecosystem. The news media includes the major daily such as Kantipur daily, the Kathmandu Post daily, Khabarhub online, Himal media, The Rising Nepal daily, The Republica daily, and Setopati Online. These stories are examined using the indicators of all three pillars of CJ. In the case of the first pillar, the analysis attempted to assess the prominence given to potential solutions, the presentation of evidence supporting their effectiveness, the consideration of the transferability of approaches, and whether limitations and obstacles are adequately addressed within the stories.

Table 1

CJ is Journalism for Tomorrow

CJ: Nature	Breaking News	Investigative Journalism	Constructive news
Time	Now	Yesterday	Tomorrow
Goals	Speed	Blame	Inspiration
Questions	What? When?	Who? Why?	What now? How?
Style	Dramatic	Critical	Curious
Role	Police	Judge	Facilitator
Focus	Drama	Crooks & victims	Solution & best practice

Note. The information in the table was obtained from CI & IMS (2021).

As shown in Table 1, CJ focuses on "What now?" or "How" and tries to present solutions. It complements the traditions of both breaking news stories and investigative journalism. CI (2021) states that CJ responds to the news media's increasing tabloidization, sensationalism, and negativity bias.

Similarly, when assessing the state of the second pillar concerning multiple perspectives, the analysis aimed at examine diversity, complexity, angles, levels of detail, and self-reflection. Regarding the third pillar, four imperatives were used to evaluate the stories: prioritizing similarities over differences, fostering empathic interest, maintaining impartiality, and adopting a forward-looking perspective.

Table 2

CJ at a Glance

	Constructive journalism is	Constructive journalism is not
I.	Aiming to be crucial, objective and balanced	I. Promoting a specific agenda, crossing the line between journalism and politics
II.	Tackling important issues facing society	II. Uncritical or naïve
		III. Promoting heroes, governments or civil society
III.	Based on facts and unbiased	
IV.	Calm in its tone	IV. Obscuring critical viewpoints
V.	Does not give in to scandals and outrage	V. Activism in any shape or form
		VI. Dumbed-down, trivial or happy news
VI.	Bridging not polarizing	VII. Giving in to false equivalence/balance
VII.	Forward-looking and future-oriented	VIII. Advocating one solution over another
		IX. Oversimplifying complex problems or solutions to complex problems
VIII.	Nuanced and contextualized	

Note. The information on the table is obtained from Constructive Institute, Journalism for tomorrow (https://constructiveinstitute.org/why/>, 2024)

Table 2 contemplates the three pillars, namely solutions, nuance, and democratic conversation, as they form the foundation of a constructive approach in journalism.

Constructive journalism in the context of Nepal is scarcely reflected in the content of various media outlets. Take, for example, this headline: "Kathmandu Named World's Most Polluted City, Once Again." Published on April 10, 2024, in *The Kathmandu Post*, this news understandably alarms the general public.

However, the story falls short of providing adequate perspective. It fails to indicate any solutions to the environmental degradation it reports. Neither does this brief story adopt a solutions-oriented approach, nor does it explore proven and effective methods to address the issue. It lacks any useful insights or lessons for readers and does not present relevant ideas about potential solutions. Overall, it does not contribute meaningful insights that could benefit the people of Kathmandu or others affected by similar issues.

On April 23, 2024, *The Rising Nepal* featured five headlines. Two stories covered the Prime Minister's recent speech, while another focused on the Finance Minister's assurance regarding investment policy stability; both were formal and ceremonial in nature, lacking a constructive approach. Additionally, there was coverage of the Amir of Qatar's visit to Nepal. Out of these five stories, only one could have been approached with a constructive journalism perspective. The headline of the fifth news story was "Residents Alerted of Heat Waves in Tarai." This story, based on an alert issued by the Department of Hydrology and Meteorology of the Government of Nepal and subsequent conversations with a senior officer, warned readers about rising temperatures in the Kathmandu Valley and the entire Tarai region. While the story effectively alarmed readers, it failed to provide any suggestions for mitigating the adverse effects of temperature rise.

A story published in *Kantipur Daily* on April 22, 2024, reported on a protest rally organized by victims of cooperative scams in Pokhara. Given the rally's roots in a longstanding issue, the article could have delved deeper to provide a comprehensive understanding of the situation. It could have served as a platform to educate the public about cooperative scams by presenting nuanced details. However, the story titled "Cooperative Victims Rally in Pokhara" merely provided a straightforward account without fully capturing the complexities and context. Nepali media outlets often report on events and highlight problems but tend to shy away from discussing potential solutions. Likewise, a story published

on *Setopati online* on April 24th, 2024, discusses the operation of motorboats on the Narayani River. One noteworthy aspect of the story is figuring out the absence of laws regarding the export of Nepali-made motorboats to other countries, which could be viewed as a future perspective.

Beyond the previously mentioned incomplete news stories within the framework of constructive journalism, let's explore how rumors can spread when a constructive approach to reporting is lacking. An example of the media's failure to facilitate meaningful discourse and counter the spread of misinformation—and even baseless disinformation—was evident in the controversy surrounding Nepal's Millennium Challenge Corporation (MCC) Compact.

Fake news and misinformation surrounding the MCC largely overshadowed objective indicators in Nepali newspapers and news portals. BBC News Nepal (bbc.com/nepali/news-58547861), for example, reported in September 2021 that a fake agreement letter, purportedly signed by MCC officials, had spread on social media, including YouTube. The MCC office filed a complaint with Nepal Police regarding the forged signature. Similarly, *Khabarhub* (english.khabarhub.com/2020/03/7304) reported on the growing sophistication of fake news, with sensational headlines and false stories making it difficult for the public to discern fact from fiction. One particularly harmful rumor, reported by *The Republica* (myrepublica.nagariknetwork.com/news/fake-news-can-destroy-nepal-s-relations-with-india-china-and-the-us/), claimed that the U.S. planned to set up a military base in Nepal if the MCC was approved, further stoking fears of foreign military involvement.

Other Media Outlets, such as Ratopati

(https://www.ratopati.com/story/199278/2021/9/14/mcc-fake-document) and Himal Khabar (https://www.himalkhabar.com/news/125820), reported on similar incidents. Kanak Dixit, a prominent journalist and social activist, filed a case with Nepal Police's Cyber Bureau after his name was falsely linked to the distribution

of money to journalists in exchange for favorable coverage of the MCC. News of Nepal (https://newsofnepal.com/2021/09/10/434700/) also covered the incident involving a fake document with a forged signature of an MCC official.

The analysis of the news stories discussed above demonstratess that overall information ecosystem has been impacted by the news stories covered by the print and online news portal without constructive approach. The news on various issues mostly discussed problems and an attempt to present solutions are not made. Likewise, many a time news stories are being instrumental in spreading rumor. The information or more exactly misinformation over MCC represents one such case. The extensive spread of misinformation has created confusion and heightened tensions in Nepal's public discourse regarding the MCC. It underscores the need for responsible journalism that prioritizes fact-based reporting and upholds ethical standards, particularly when dealing with complex international agreements such as the MCC. CJ demands context, along with the avoidance of sensationalism and negative bias, in addition to upholding the traditional norms of fairness and accuracy. However, it is observed that stories in the Nepali media often dwell on past and present perspectives while overlooking future considerations.

Quoting psychotherapist Steve de Shazer, the BI emphasizes, "Problem talk creates problems, solution talk creates solutions," a principle to which CJ adheres. Given CJ's emphasis on systematic questioning techniques that foster forward-looking perspectives and the identification of potential solutions, Nepali media institutions' newsrooms need to engage in profound discourse focusing on solutions, covering nuances, and promoting democratic conversation. Constructive dialogue lies at the core of CJ, prompting it to prioritize questions like "to what end" and "where to" over "why" and "from where."

Any news story that aligns with the three pillars of constructive journalism—providing remedies, offering detailed analysis, and fostering public

discourse—upholds the spirit of responsible journalism. Today, it is more crucial than ever to understand that journalism is not merely about transmitting information; the role of interpretation has gained increasing importance. As such, the mass media's role in suggesting solutions, explaining the complexity of problems, and bringing issues into the public domain to foster dialogue has become paramount.

Conclusion

Today, across the world and within Nepal, on one hand, every individual is capable of spreading information and opinions, while on the other, misinformation and disinformation are increasingly difficult to tackle. The emergence of advanced information and communication technology, including the internet, as well as the trend of media convergence, has added more responsibilities to journalists. In this era, where journalism is not o be only a prominent actor in the information and communication domain, journalists must adopt a constructive approach to make the general public dependent on them. They also have responsibility to combat disinformation by providing verified facts in public domain.

In this context, Nepali media must not only inform people about current events but also elucidate important connections and provide actionable measures to foster broader public trust. Juxtaposition to the expectations of CJ analysis of the contents of the Nepali news media shows that the overall information ecosystem is not supporting the constructive approach. Public trust rests on journalism's ability to serve as the basis for informed individual decisions. In this regard, the Nepali media can contribute to create an overall atmosphere conducive to constructive approach. For the they need to refine the news values and way of news presentations. Practicing CJ guides media in this direction, as journalism flourishes by building trust among citizens, enhancing dialogue and discourse, and fostering societal cohesion. Thus, all forms of Nepali media need to endeavor

to adopt new news values beyond the traditional ones in order to internalize the constructive approach in the content production process.

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Remarkable Photocatalytic and Antimicrobial Activities of Iron Oxide Nanoparticles Synthesized through Green Route Using *Citrus maxima* Peel Extract

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Abstract

The present research work reports the successful synthesis of the iron oxide nanoparticles (IONPs) through green route, their characterization and their application for their antimicrobial and photocatalytic performance. The IONPs were prepared using *Citrus maxima* peel extract through green synthesis method. The peel extract was found to contain important phytochemicals such as polyphenols, flavonoids, and terpenoids, which facilitate the reduction of metal precursors and stabilize metal nanoparticles. This approach offers scalability, simplicity, and non-toxicity, making it a notable strategy in green nanotechnology for producing nanoparticles. The as-synthesized nanoparticles were applied for the antimicrobial and photocatalytic performance. It was found that the as-synthesized IONPs were excellent photocatalysts for the degradation of methylene blue solution with 98.13% degradation within the recorded time of 90 minutes in the presence of natural sunlight. Moreover, the IONPs demonstrated good anti-bacterial activity against *Bacillus subtilis* and *E. coli* and good anti-fungal activity against *Candida albicans*.

Keywords: Iron oxide nanoparticles, green synthesis, *Citrus maxima* peel extract, antimicrobial activity, photocatalytic activity

Remarkable Photocatalytic and Antimicrobial Activities of Iron Oxide Nanoparticles Synthesized through Green Route Using *Citrus maxima* Peel Extract

Nanotechnology focuses on creating and assembling materials at the scale of 1-100 nm (Adhikari et al., 2022). Metal nanoparticles are widely studied due to their unique physicochemical properties, including electronic, magnetic, catalytic, and antimicrobial activities. The field is advancing rapidly, with applications in catalysis, agriculture, electronics, and biomedical analysis (Caldeirao et al., 2021).

There are two main methods for nanoparticle synthesis: the top-down approach, which breaks down larger structures, and the bottom-up approach, where materials are built from atomic levels. Various chemical and biological methods are used for synthesis, with green synthesis emerging as an eco-friendly alternative that avoids toxic agents. Green synthesis uses biological materials like plants, bacteria, and fungi, which contain compounds that act as reducing and stabilizing agents in nanoparticle formation (Bhuiyan et al., 2020).

Carbon-based nanoparticles, such as fullerenes and carbon nanotubes, are valued for their electrical conductivity and structural properties. Fullerenes are globular, while nanotubes are tubular, and both are produced using processes like chemical vapor deposition. Green synthesis is seen as cost-effective, simple, and environmentally friendly, offering a sustainable approach to nanoparticle production without harmful by-products (Kumar et al., 2020; Sapkota et al., 2019).

Researchers are exploring plant extracts and other biomaterials to synthesize nanoparticles more sustainably. Plant-derived phytochemicals act as natural agents in nanoparticle formation, making green synthesis scalable and less toxic compared to conventional methods (Anchan et al., 2019).

Iron Oxide Nanoparticles

Iron oxide nanoparticles (IONPs) occur naturally and can be synthesized chemically for use in fields such as electronics, biomedicine, and environmental remediation. Hematite, maghemite, and magnetite are the most commonly studied iron oxides. Hematite is stable and has anti-ferromagnetic properties, making it useful in gas sensors and photocatalysts. Maghemite and magnetite are primarily employed in drug delivery and energy storage (Adhikari et al., 2022; Bibi et al., 2019).

Conventional synthesis methods like sol-gel, chemical vapor deposition, and pyrolysis involve toxic solvents and high temperatures, which can degrade magnetic properties. Using biological materials, green synthesis offers a cost-effective and eco-friendly alternative for producing iron oxide nanoparticles with desirable properties for biomedical and industrial applications. In this context, a greener, bottom-up method was used to create uniformly distributed spherical IONPs (Izadiyan et al., 2020; Kirdat et al., 2021).

The pomelo (*Citrus maxima*), a Southeast Asian fruit, is known for its nutritional and medicinal benefits. It boosts the immune system, helps regulate blood sugar, and has anti-aging properties. Different parts of the pomelo offer various health benefits, such as using the leaves to treat swelling, the seeds for coughs, and the fruit as a cardiotonic and digestive aid.

Figure 1

Some Phytochemicals Present in Citrus maxima Peel Extract (Zou et al., 2016)
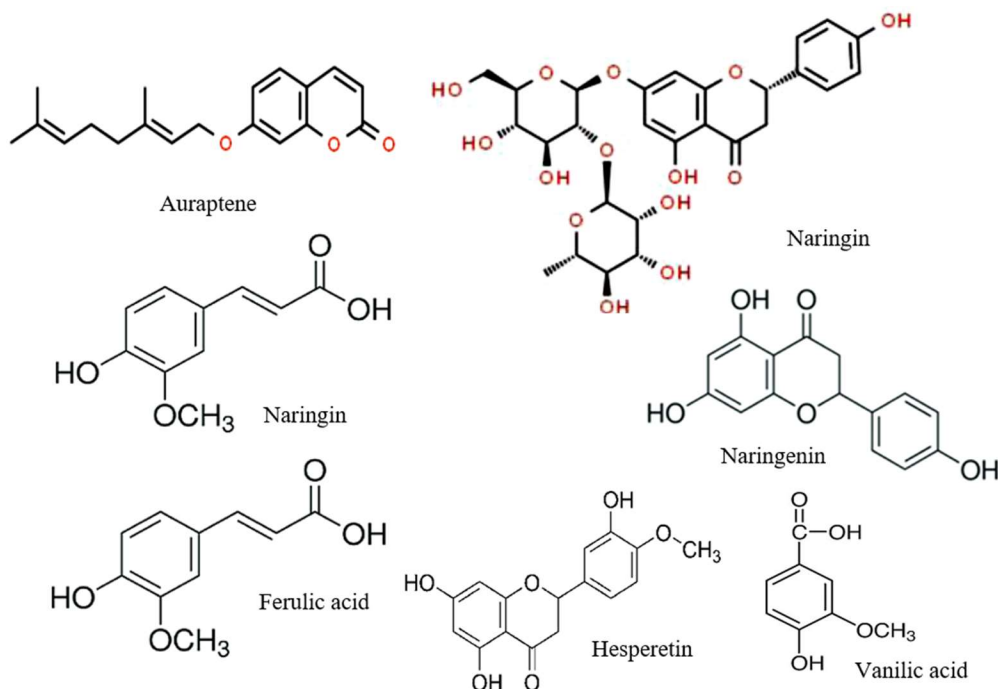
According to reports, *Citrus maxima* peel extract contains significant amounts of phenolic acids, coumarin flavonoids, rutin, and terpenoids (Figure 1). These substances are regarded as organic antioxidants. Furthermore, they can likewise function well as a reducing agent to create IONPs. Thus, IONPs were produced from this method are more biocompatible and appropriate for industrial and biomedical uses. Plant components (such as leaves, fruits, seeds, and bark) include various antibacterial components, such as antioxidants, phenolic substances, alkaloids, flavonoids, steroids, terpenoids, etc which is utilized for treatment (Yu *et al.*, 2016). Fresh pomelo fruit is eaten, whereas its peel is thrown away as biological waste. However, pomelo peel, which can make up to 30% of the fruit's weight, is regarded as a good source of important phytochemicals like pectin, cellulose, pectinoids, and essential oils. Pomelo peel extract contains flavonoids that can convert Fe^{3+} ions into metallic Fe(0) nanoparticles and additional use of other phytochemicals is possible to create films that are antibacterial and antioxidant used in medicine or food packaging.

It is hypothesized that iron oxide nanoparticles (IONPs) can be synthesized using *C. maxima* peel extract and these synthesized nanoparticles can be utilized for the photocatalytic degradation of organic dyes and it can also be employed for anti-microbial applications. However, there are still limited researches and comprehensive data on the biosynthetic process of synthesizing IONPs using *C. maxima* peel extract are not available. Moreover, limited applications have been explored. Some experiments have reported the synthesis of IONPs using *C. maxima* peel extract with applications in biomedical fields, catalysis, water purification, photocatalytic degradation of organic dyes and hazardous metal detection. However, detailed reports on the multiple applications of IONPs are still in high demand. Therefore, this research project will primarily focus on the synthesis of IONPs using *C. maxima* peel extract and their subsequent use in anti-microbial applications and photocatalytic degradation of dyes with the aid of a UV-visible spectrophotometer.

Materials and Methods

The research was conducted entirely through laboratory experiments, and the data obtained were analyzed using various spectroscopic techniques. The research followed a systematic approach based on objectivity, generality, and verifiability, relying on the experimental results.

Solvents and Chemicals

The chemicals and solvents used in this research work include Ferric chloride hexahydrate ($FeCl_3.6H_2O$) from Fisher Scientific, ethanol, distilled water, Whatman filter paper (No. 40), NaOH, and 30% H_2O_2 from Fisher Scientific. All these materials were obtained from the chemistry laboratory without further purification.

Plant Extract Preparation

C. maxima fruits were bought from the local market in Kathmandu. The fruits were washed with tap water and then with distilled water. Then, the peel was removed from fruit with the help of a knife and left for drying in sunlight for 7 days. The dried peels were ground to make a powder using an electrical blender and the remaining peels were stored in a polythene bag for future use. About 20 grams of the fine powder sample was heated in 600 mL of distilled water on a magnetic stirrer hot plate at 80°C for 30 minutes. The mixture was then filtered through Whatman Filter Paper after cooling and the collected filtrate was finally referred to as C. maxima peel extract. The extract was used for the experiments and the remaining extract was stored at 4°C in the refrigerator for further use.

Preparation of Ferric Chloride Hexahydrate (Iron Chloride) Solution

To maintain a 0.1M concentration of iron chloride solution, 6.8 grams of $FeCl_3.6H_2O$ were dissolved in 250 mL of distilled water. The resulting solution was then stored in a dark place away from sunlight.

Green Synthesis of Iron Oxide Nanoparticles

In the biosynthesis process, 50 mL of C. maxima peel extract was slowly added drop by drop to 50 mL of $FeCl_3.6H_2O$ in a 1:1 molar ratio at a temperature of 80°C on a magnetic stirrer hot plate. The mixture was stirred for one hour on a magnetic stirrer at a constant speed of 850 rotations per minute. The formation of a black-colored solution confirmed the synthesis of iron oxide nanoparticles (IONPs) as the color change was attributed to the surface plasmon resonance (SPR) effect and the conversion of Fe^{+3} ions to Fe_2O_3 NPs by the aqueous C. maxima peel extract. The initial yellow color was mainly due to the C. maxima peel extract which gradually faded away and turned black as the concentration of IONPs increased. Subsequently, 1M NaOH was added to the reaction mixture until the pH reached 11, as measured by a pH meter. The formation of nanoparticles was confirmed using a UV-visible spectrophotometer which exhibited a characteristic maximum peak at a wavelength of 368 nm. The

synthesized IONPs were then stored in the refrigerator for further uses in separation, purification and characterization.

Purification and Separation of Iron Oxide Nanoparticles

The synthesized IONPs were separated and purified through centrifugation at 8000 rpm for 10 minutes. The resulting pellet was washed 2-3 times with distilled water and then with ethanol to remove impurities. Finally, the nanoparticles were dried in a hot air oven at 80°C for 24 hours before being stored in a sealed container for subsequent characterization and applications.

Characterization of IONPs

Characterizing IONPs is a crucial step in identifying and understanding the properties of the nanoparticles. Various analytical techniques were employed to determine the nanoparticles' size, shape, structure, morphology, surface chemistry, surface charge, surface area, and disparity. UV-visible spectroscopy was employed to affirm the formation of IONPs from the precursor. Fourier Transform Infrared (FTIR) spectroscopy was used to confirm the presence of different functional groups attached to IONPs that were derived from phytochemicals. X-ray diffraction (XRD) analysis was employed for the study of phase structure and crystallinity of the as-synthesized nanoparticles.

Results and Discussions

The formation of IONPs was confirmed through the UV-vis spectroscopic analysis, FTIR spectroscopy and X-ray diffractometric analysis.

Formation of Iron Oxide (α-Fe$_2$O$_3$) Nanoparticles

The addition of 50 mL of *C. maxima* peel extract to a 50 mL solution of 0.1M FeCl$_3$.6H$_2$O in a 1:1 ratio resulted in the formation of IONPs, as evidenced by the change in color from brown to a darker shade. Such color change is attributed to the surface plasmon resonance (SPR) phenomenon typically observed in iron oxide nanoparticles and the conversion of Fe^{+3} ions to Fe^0 nanoparticles facilitated by the aqueous *C. maxima* peel extract. The optical

absorption spectrum of metal nanoparticles is influenced by factors such as particle size, shape, aggregation state, and the surrounding dielectric medium. Initially, the brown color is primarily attributed to the *C. maxima* peel extract, which gradually fades while undergoing magnetic stirring at 80 °C for 1 hour, resulting in a darker color as the concentration of IONPs increases. To maintain an appropriate pH for IONPs synthesis, the reaction mixture was adjusted to pH 11 using 1M NaOH, monitored by a pH meter, and confirmed by observing the absorbance of IONPs using a UV-visible spectrophotometer (Bhuiyan *et al.*, 2020; Mahlaule-Glory *et al.*, 2022; Adhikari *et al.*, 2022).

Analysis of Optical Properties of IONPs by UV-visible Spectroscopy

Based on the UV-visible spectra provided in figure 2, the presence of a distinctive UV absorption peaks at 337 nm and 353 nm at pH 11 confirms the formation of IONPs. Among the various IONPs mixtures, the sharp and intense peak observed at pH 11 indicates the presence of a maximum surface plasmon resonance (SPR) band centered at 353 nm. This observation suggests the reduction of Fe^{+3} ions to Fe^0 nanoparticles (Somchaidee *et al.*, 2018; Win *et al.*, 2021).

Figure 2

UV-visible Spectra of IONPs and Plant Extract
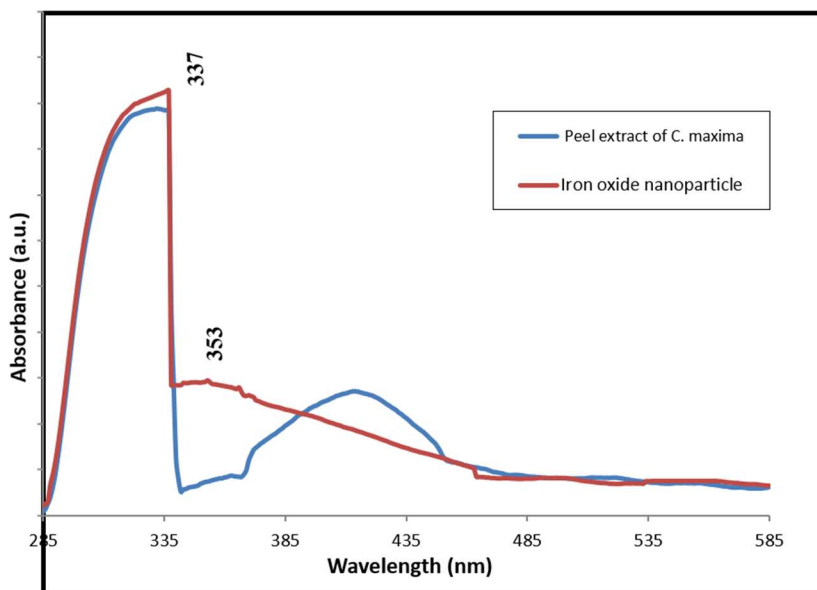
FTIR Analysis of *C. maxima* Peel Extract and IONPs

Fourier Transform Infrared Spectroscopy (FTIR) was utilized to detect the functional group present in the plant extract and the resulting nanoparticles. The study revealed that the reaction between phytochemical and metal ions indicated the formation of iron oxide nanoparticles. It was found that the phytochemicals reacted with the iron ions, leading to the formation of the nanoparticles, rather than reducing Fe^{3+} to Fe^0. The presence of biomolecules acting as capping agents confirmed the involvement of natural compounds in the synthesis and stability of IONPs. The FTIR analysis of the synthesized sample confirmed the synthesis of IONPs and the presence of various reducing agents, represented by the functional groups present in the *C. maxima* peel extract (Somchaidee *et al.*, 2018; Sundari *et al.*, 2017; Win *et al.*, 2021).

Figure 3

FTIR spectra of IONPs and Plant Extract
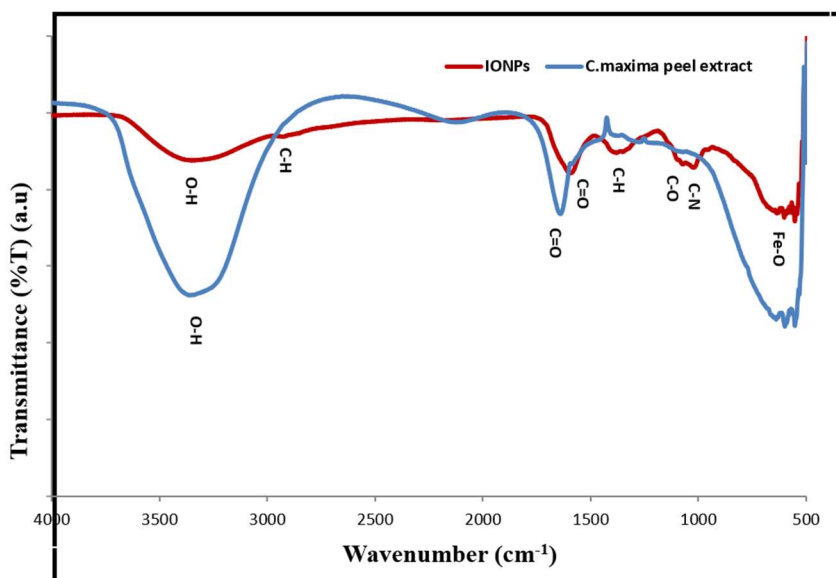
Polyphenols, present in the *C. maxima* peel extract as major constituents, play a significant role in the reduction of ferric ions into metallic nanoparticles due to their abundant –OH group, which release electrons to conveniently reduce Fe^{3+} to Fe^{0} nanoparticles upon absorption of visible light. During the reduction process, charge transfer occurs, and the initial chelation of Fe^{3+} ions by the aldehyde groups C=O in the *Citrus maxima* peel extract leads to the formation of ferric protein chain (HO^{-}….Fe^{3+}….) bonds and the subsequent formation of suspended ferric hydroxide, $Fe(OH)_3$. Over time, the ferric hydroxide core undergoes dehydration ($-H_2O$) and transforms into black-colored α-Fe_2O_3 nanoparticles. The protein chain in the *Citrus maxima* peel extract acts as a capping agent on the α-Fe_2O_3 surface through the chelation of COO^{-}……Fe^{3+}. By adjusting the pH to 11 with the addition of 1M NaOH solution to the reaction mixture, any remaining Fe^{3+} ions that were not converted to Fe_2O_3 nanoparticles

form suspended ferric hydroxide, $Fe(OH)_3$, contributing to the formation of α-Fe_2O_3 (commonest form of Fe(III) oxide) nanoparticles.

The FTIR spectra of IONPs and *C. maxima* peel extract as shown in figure 3 exhibit distinct peaks corresponding to characteristic functional groups at specific wavelengths ranging from (400-4000 cm^{-1}). These functional groups existed in plant extracts act as reducing and stabilizing agents in the nanoparticle synthesis. The peaks observed at 477.28 cm^{-1}, 553.11 cm^{-1} and 639.95 cm^{-1} indicate the presence of Fe-O bond in the sample. The peak observed at 3358.45 cm^{-1} represents O-H bond stretching (H-bonded) which may be phenolic groups present in polyphenolic compounds. The peak at 2927.58 cm^{-1} is due to the C-H stretching vibration present in fatty acids. Again, the stretching vibration of C=O at 1640.60 cm^{-1} represents the aldehydes and ketones indicating the presence of phenolic acids and terpenoids. The C-O stretching vibration at 1277.58 cm^{-1} suggests the presence of secondary alcohol in the plant extract. Likewise, the peaks observed at 1380.25 cm^{-1} and 1024.07 cm^{-1} represents the C-H bending vibration and C-N stretching vibration respectively indicating the presence of phenols and aliphatic amines. Therefore, the shift in peak position in the range of 400-4000 cm^{-1} suggests that these functional groups containing compounds present in the plant extract are bound to the iron oxide surface (Bhuiyan *et al.*, 2020; Mahlaule-Glory *et al.*, 2022; Adhikari *et al.*, 2022).

X-Ray Diffractometric Analysis

The analysis of the X-ray diffraction (XRD pattern reveals distinct peaks at specific 2θ values: 31.63°, 45.52°, 56.47°, 75.44° and 83.98° corresponding to the lattice plane values of (311), (400), (511), (440) and (533), respectively (Figure 4). These peak positions indicate the cubic crystalline structure of the synthesized IONPs, which resembles the crystals formed in the previous researches (Adhikari *et al.*, 2022; Somchaidee *et al.*, 2018). Therefore, based on

the XRD pattern, it is confirmed that the IONPs synthesized with the assistance of *C. maxima* are crystalline. These finding are consistent with previously reported results (Qasim *et al.*, 2020; Somchaidee *et al.*, 2018). Furthermore, utilizing the Scherrer equation and the full width at half maximum (FWHM) value, the average crystallite size was calculated to be 8.70 nm. In addition to these, there are additional smaller peaks observed in the XRD pattern, which could be attributed to the presence of the crystalline bio-organic phase (capping agent) on the surface of the IONPs.

Figure 4

XRD Pattern of Iron Oxide Nanoparticles
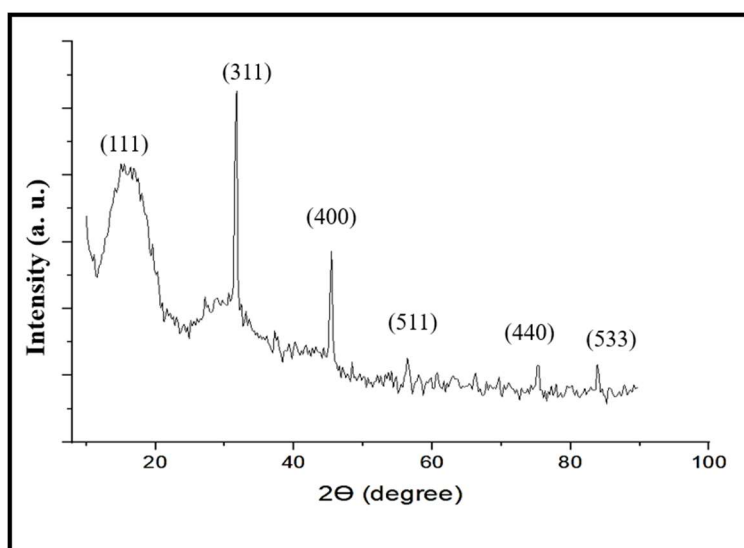
It is also possible that the characteristic peaks arise from the partial oxidation of iron, resulting in the observed features.

Photocatalytic Degradation of Methylene Blue

The methylene blue of 10 ppm concentration has intense blue color before adding IONPs and H_2O_2. After the addition of 0.2 mL H_2O_2 and 10 mg of IONPs, the blue color of the MB solution fades away to some extent (Adhikari *et al.*, 2022). After 90 minutes, it became a colorless solution as shown in the figure 5.

The objective of this experiment was to assess the effectiveness of synthesized IONPs for the oxidative degradation of MB. The UV-vis spectrum of the MB solution, in the presence of IONPs and H_2O_2, was recorded at various time intervals while continuously stirring on a magnetic stirrer in sunlight. Small samples were taken at specific time intervals to measure the absorbance of the solution.

Figure 5

Photographic Image of the MB Dye Degradation Photocatalytically at Different Intervals of Time by Plant-mediated Synthesized IONPs

Initially, the SPR band of MB was observed at 663 nm with an absorbance of 0.594 nm accompanied by a hump at 620 nm, which is attributed to $\pi \rightarrow \pi^*$ and $n \rightarrow \pi^*$ transitions. Over time, the SPR band gradually decreased from its maximum value of 0.594 at 664 nm due to continuous exposure to sunlight, resulting in a fading of the intense blue color of MB. The decline in the SPR band of the solution, as depicted in the figure 6, continued until 1.5 hours, and eventually, the solution became colorless after 1.5 hours.

Figure 6

Photocatalytic Degradation of MB at Different Intervals of Time by 5 mg Dose of IONPs
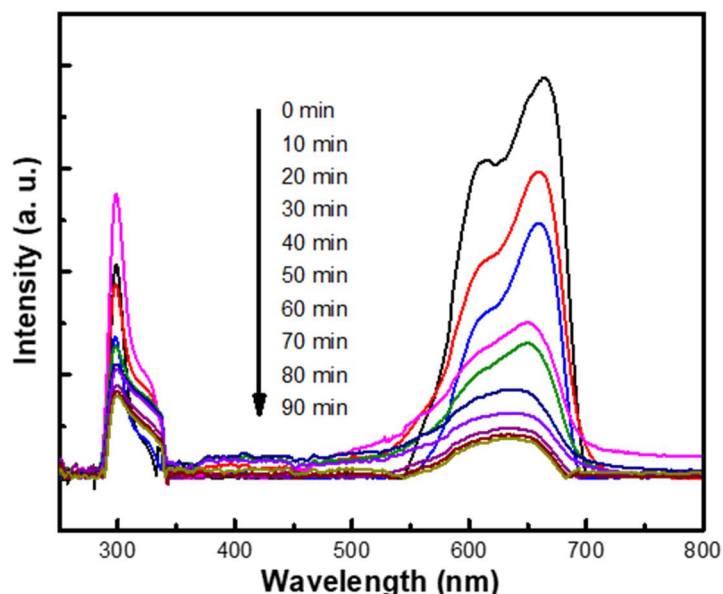
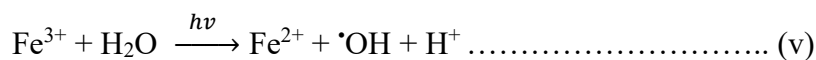*The complete degradation of methylene blue (MB) was confirmed by the UV-visible spectrophotometer, which exhibited an intense peak at 664 nm. The degradation efficiency of the dye was calculated using the following formula:*

Efficiency (%) = (A_0 – A_t) / A_0 x 100

Where, efficiency (%) represents the degradation efficiency of the dye, A_0 corresponds to the absorbance of the dye solution at the beginning (zero time), and A_t represents the absorbance of the dye solution in suspension after time t. The reactions involved in the degradation process are as follows:

$$Fe^{2+} + H_2O_2 \rightarrow {}^{\bullet}OH + Fe^{3+} + OH^- \dots\dots\dots\dots\dots\dots\dots\dots \text{(i)}$$

$$Fe^{3+} + H_2O_2 \rightarrow Fe^{2+} + {}^{\bullet}OOH + H^+ \dots\dots\dots\dots\dots\dots\dots\dots \text{(ii)}$$

$$Fe^{2+} + {}^{\bullet}OH \rightarrow Fe^{3+} + OH^- \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \text{(iii)}$$

$$H_2O_2 + hv \rightarrow {}^{\bullet}OH + OH^- \dots\dots\dots\dots\dots\dots\dots..\dots\dots \text{(iv)}$$

$$Fe^{3+} + H_2O \xrightarrow{hv} Fe^{2+} + {}^{\bullet}OH + H^+ \dots\dots\dots\dots\dots\dots\dots\dots \text{(v)}$$
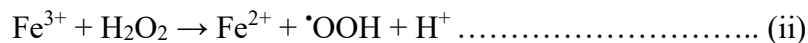
Equations (i) and (ii) demonstrate that the reaction is initiated by hydrogen peroxide, resulting in the generation of hydroxyl radicals that attack and degrade methylene blue (MB). These hydroxyl radicals also target the bonds in MB whether they are in solution or adsorbed on the surface of IONPs. Previous literatures (Shafreen *et al.*, 2017; Wanakai *et al.*, 2019) indicates that H_2O_2 alone does not cause significant degradation. However, when IONPs are combined with H_2O_2, the color of MB disappears with an efficiency of 90.06%, 98.31% and 93.08% for 5 mg, 10 mg and 20 mg of IONPs respectively, after 90 minutes. No significant changes are observed beyond 90 minutes. Incubating MB in an aqueous solution of IONPs and H_2O_2 for 5 minutes results in a red shift of the spectral band from 620 nm to 664 nm, which can be attributed to MB protonation (Shahwan *et al.*, 2011).

Figure 7

Photocatalytic Degradation of MB at Different Intervals of Time by 10 mg Dose of IONPs
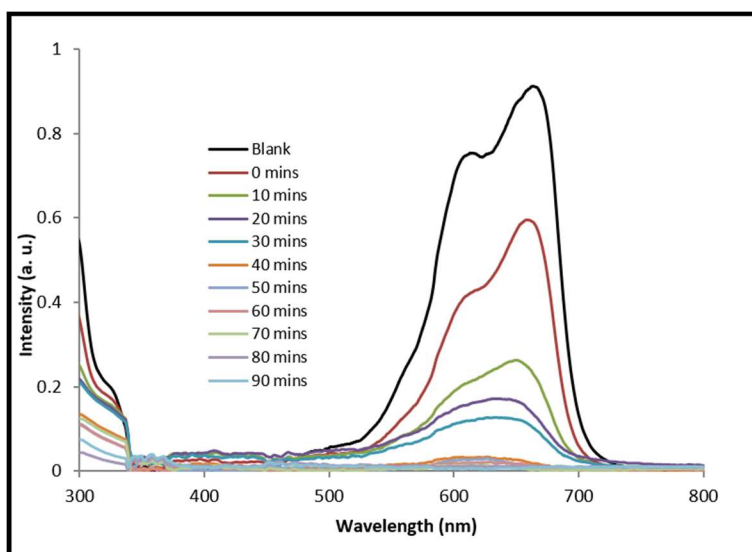
Consequently, MB undergoes oxidation and decolorization through a Fenton-like reaction, facilitated by IONPs providing ferrous ions. Similar findings

have been reported by Adhikari *et al.,* (2022), who synthesized IONPs using the sol-gel method and have demonstrated the potential of green-synthesized IONPs for organic dye degradation. Therefore, the synthesized IONPs can be utilized as heterogeneous Fenton-like oxidants for the degradation of MB in an aqueous medium.

Figure 8

Photocatalytic Degradation of MB at Different Intervals of Time by 20 mg Dose of IONPs
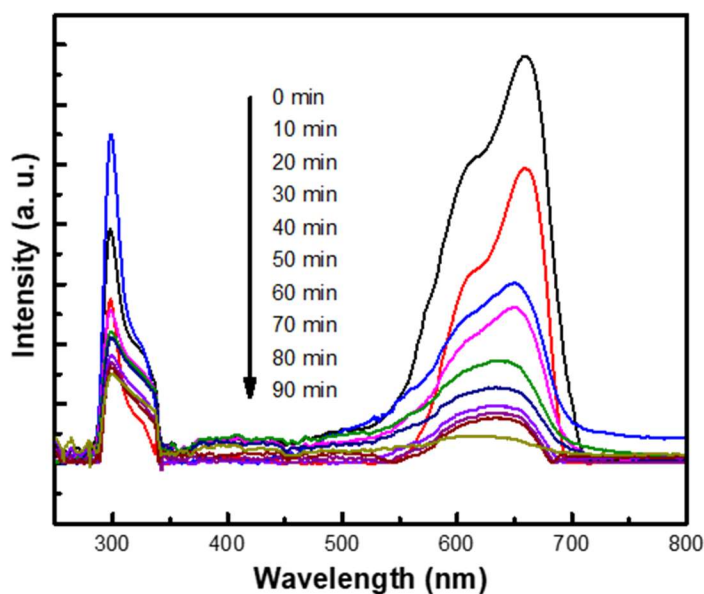
Degradation Kinetics of Methylene Blue

The estimation of dye photodegradation's kinetic constants is commonly done by utilizing equations that represent pseudo-first-order and second-order reaction rates (Eq. (vi) and (vii)). The equations for the reaction rate are as follows:

$$\ln(A_0/A_t) = K_1\, t \quad\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(vi)}$$

$$1/A_0 - 1/A_t = K_2\, t \quad\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(vii)}$$

In these equations, t represents the reaction time in minutes, A_0 is the initial concentration, A_t is the concentration at time t, and K_1 (hr^{-1}) represents the first-order reaction rate constant. The rate constant (K) of the first-order reaction is determined by plotting $\ln(A_0/A_t)$ against the reaction time, t. The slowest degradation rate was observed at 30 minutes for a sample, with a rate constant of 0.00634 min^{-1}, 0.0151 min^{-1} and 0.02751 min^{-1} for 5 mg, 10 mg and 20 mg of IONPs, respectively. This rate increased to 0.01172 min^{-1}, 0.0185 min^{-1} and 0.03157 min^{-1} for 5 mg, 10 mg and 20 mg of IONPs at 90 minutes due to redox reactions occurring between IONPs (Iron Oxide Nanoparticles) and MB (Methylene Blue), resulting in the generation of oxidative free radicals that bind with photocatalysts and trap the molecules of MB, ultimately removing them from polluted water.

Figure 9

Rate of Degradation of Methylene Blue by Different Doses of IONPs at Different Time Intervals
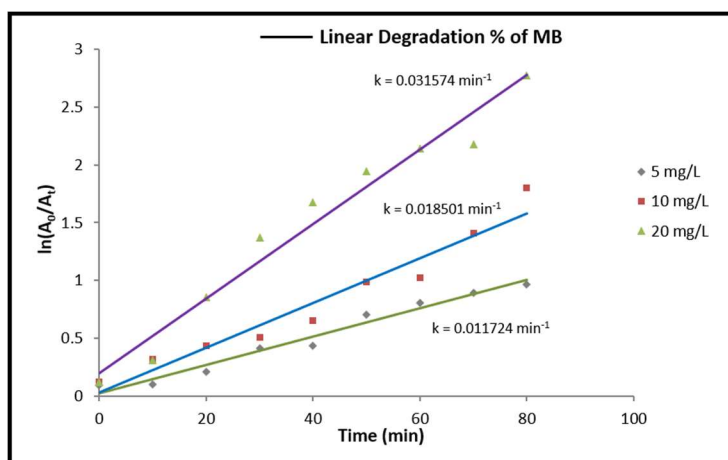

This indicates that the reaction rate is significantly higher at different time intervals with a slope of 0.01172 min^{-1}, 0.0185 min^{-1} and 0.03157 min^{-1} for 5 mg, 10 mg and 20 mg of IONPs, respectively. The dye degradation reached half of its

initial value within 45 minutes, corresponding to a reaction rate of 0.00922 min^{-1}, 0.01298 min^{-1} and 0.03626 min^{-1} for 5 mg, 10 mg and 20 mg of IONPs, respectively. The relative degradation kinetics of IONPs has been reported in published researches (Bhuiyan *et al.*, 2020; Adhikari *et al.*, 2022). Ultimately, within 90 minutes, 90.06%, 98.31% and 93.08% of MB dye degradation was achieved using 5mg, 10 mg and 20 mg of IONPs which continuously produce hydroxyl radicals (OH$^-$) under sunlight radiation, along with H_2O_2. These compounds are responsible for the degradation of the MB dye and a probable degradation percentage is given in the figures 6, 7 and 8.

Figure 10

Degradation Efficiency Different Doses (5 mg, 10mg & 20 mg) of IONPs
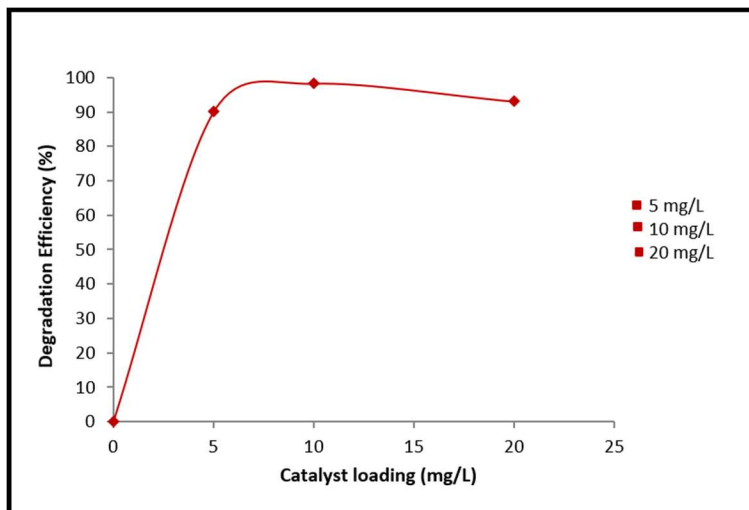
In general, when nanoparticles (NPs) are irradiated by sunlight, an electron (e$^-$) and a hole (h$^+$) pair are generated (Varadavenkatesan *et al.*, 2019). The electron is excited from the valence band to the conduction band, leaving the hole (H$^+$) in the valence band. These holes are responsible for the conversion of water into hydroxyl radicals, which then oxidatively degrade the dye. On the other hand, the electron combines with molecular oxygen to form a superoxide radical. The superoxide radical further converts into a hydroxyl radical, a strong oxidizing

agent that degrades the dye into harmless end products (Kamaraj *et al.*, 2019). Additionally, the highly oxidizing holes generated by NPs, after absorbing sunlight, directly oxidize the dyes and release H^+ ions, which then combine with water to produce reactive oxygen species and OH^- ions. These species contribute to the degradation of the dye. Furthermore, the various biomolecules present in plant extract and even in the NPs surface act like catalysts to boost the photocatalytic activity and the subsequent enriched degradation of dye molecules (Haritha *et al.*, 2016).

Anti-microbial Activity of IONPs

The disc diffusion method was used to investigate the antibacterial effects of IONPs against both Gram-positive (*Bacillus subtilis*) and Gram-negative (*Escherichia coli*) bacteria. The IONPs synthesized through biosynthesis exhibited superior antibacterial activity, as evidenced by larger zones of inhibition, against *B. subtilis* and *E. coli*. A comparison between *B. subtilis* and *E. coli* demonstrated that the green-synthesized IONPs displayed effective antibacterial activity, with a zone of inhibition measuring 15 mm for *B. subtilis* and 7 mm for *E. coli* (Figure 11 and 12). These findings suggest that the biosynthesized IONPs can convert dissolved oxygen molecules into superoxide radical anions (O_2^-) (Das *et al.*, 2020; Ismail *et al.*, 2015), resulting in the production of free radicals such as $^.O_2$ and OH^-. These radicals can depolymerize polysaccharides, induce DNA strand breaks, initiate lipid peroxidation, and deactivate enzymes, ultimately leading to cell death. Additionally, it is plausible that the interaction between nanoparticles and cell membrane proteins through electrostatic interactions, as well as the accumulation of nanoparticles in the cytoplasm or periplasmic region, disrupts cellular function and causes membrane disruption and disorganization (Rufus *et al.*, 2016).

Figure 11

Antimicrobial Performance of IONPs against the bacterial strains: (a) B. Subtilis, (b) E. coli, and (c) fungal strain C. albicans
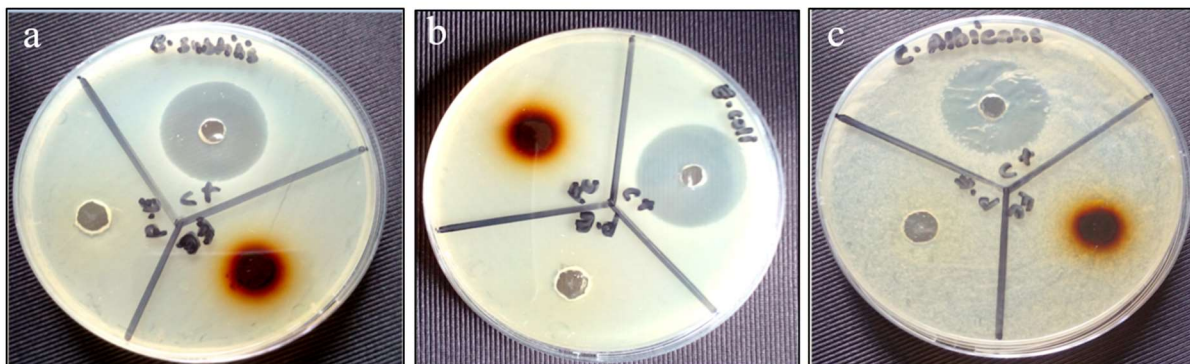
The antifungal activity of IONPs against *Candida albicans* was evaluated using the Agar Well Disc Diffusion method. The green-synthesized IONPs exhibited notable antifungal activity against *C. albicans*, with a zone of inhibition measuring 6 mm (Figure 11 and 12)**.** These findings align with previously published results (Seddighi *et al.*, 2017). Previous research has proposed two possible mechanisms for the interaction between nanoparticles and bacteria/fungi. One mechanism involves the increased production of reactive oxygen species (ROS) such as hydroxyl radicals ($^{\bullet}OH$), singlet oxygen ($^{\bullet}O_2$), and hydrogen peroxide (H_2O_2) (Caldeiro *et al.*, 2021). When IONPs with defects are activated by UV or visible light, electron-hole pairs are formed. The resulting holes can split H_2O molecules into OH^- and H^+. Additionally, the addition of electrons converts dissolved oxygen molecules into superoxide radical anions (O_2^-). These free radicals are consistent with results reported elsewhere (Das *et al.*, 2020; Rufus *et al.*, 2016).

Figure 12

Effectiveness of IONPs against Microbes in Comparison to Antibiotic Controls

(a)

Zone of Inhibition (mm)

■ Neomycin (C+) (20μL)   ■ IONPs (Fe) (20μL)   ■ Plant extract (PE) (20μL)

(b)

Zone of Inhibition (mm)

■ Clotrimazole(C+) (20μL)   ■ IONPs (Fe) (20μL)   ■ Plant extract (PE) (20μL)
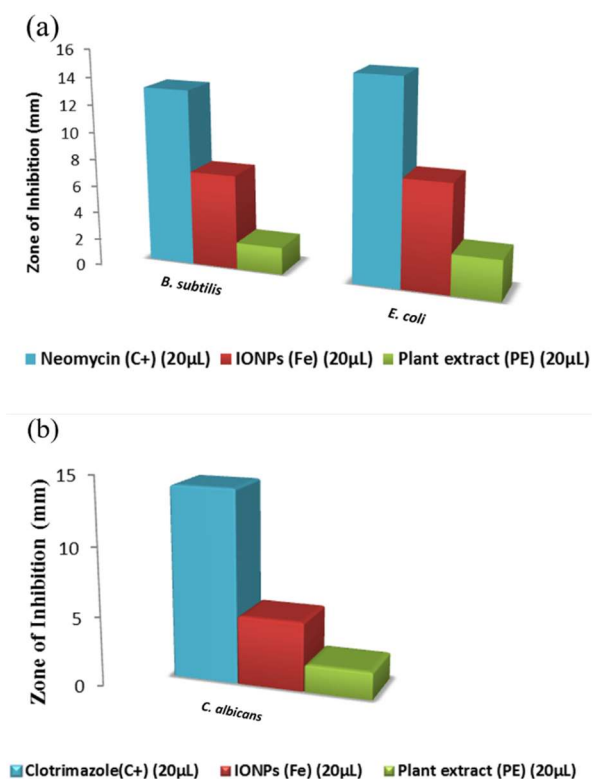
The anti-microbial activity of synthesized IONPs was carried out at Himalaya Research Institute of Biotechnology Pvt. Ltd., Srijananagar, Bhaktapur, Nepal.

Conclusions

Green synthesis of iron oxide nanoparticles using *C. maxima* peel extract was completed and confirmed by the color change and surface plasmon resonance (SPR) spectra of the solution. The maximum absorption peaks were in the range of 337 and 353 nm in the UV-vis spectra. It was affirmed that the *C. maxima* peel extract has the special property to reduce Fe^{+3} ion to Fe^{0}, the IONPs, and the average size of IONPs was calculated to be 8.70 nm from the most intense XRD peak using Scherrer's equation. FTIR spectra of the as-synthesized IONPs assured

that the reducing and capping agents are polyphenolic compounds present in the extract.

The as-synthesized IONPs were found to play a vital role in the degradation of harmful organic dyes like methylene blue from polluted water photocatalytically in 90 minutes with 90.06%, 98.31% and 93.08% efficiency by the dose of 5 mg, 10 mg and 20 mg of IONPs per 100 mL of 10 ppm dye solution, respectively. Such results can be crucial in the field of industry for commercial use. Likewise, in vitro study of the IONPs also demonstrated good anti-bacterial activity against *Bacillus subtilis* and *Escherichia coli* and good anti-fungal activity in vitro against *Candida albicans* demonstrating the possibility for topical administration against these bacterial and fungal infections. Furthermore, the green synthesis of IONPs using peels of *C. maxima* may be helpful in the field of nanotechnology which has a potential contribution to the field of research and the protection of the environment.

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Kohbar Painting of Mithila, Nepal: A Study of Intangible Cultural Heritage

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Abstract

Kohbar is a kind of painting that was created specifically on the wall and the floor of homes, and other monuments in the Mithila region. For this reason, it is regarded as an incredible piece of Maithili cultural art history. Thus, this paper has been produced to address the gaps and issues with the major goal to examine and highlight the idea of Kohbar painting, as well as its history, practices, creation techniques, types of materials, typologies, symbols, significance and an intangible cultural heritage unique to Mithila region and Nepal. The cultural importance and symbolic connotations that are woven into the elaborate patterns and motifs of Kohbar art have been explored in this study. Likewise, this study investigates the historical development, socio-cultural background, and ceremonial elements connected to Kohbar art using an interdisciplinary approach that combines art history, anthropology, and intangible cultural studies. Furthermore, this study looks at the relevance and difficulties that Kohbar art still faces today in the context of modernity and globalization, highlighting the importance of cultural revitalization and preservation initiatives. This article bases on qualitative information acquired in the form of both the primary and secondary data. The primary data have been collected from the Janakpur arts and culturally related stakeholders by using interview and group discussion whereas the secondary information has generated through the literature review.

Keywords: folk artists and craftsmanship, history and practices, intangible cultural heritage, Kohbar art, Mithila culture

Kohbar Painting of Mithila, Nepal: A Study of Intangible Cultural Heritage

Kohbar painting is one of the important art forms of *Mithila* culture of Nepal. *Mithila* region is home to the flourishing as nuptial chamber art scene, often known as *Kohbar* painting or *Kohbar ghar*. *Mithila* is a region known for its rich cultural legacy and artistic traditions. It includes a wide variety of artistic manifestations, with *Kohbar* art being one of its most notable genres. *Kohbar* art has centuries-old roots that are intricately entwined with the socio-cultural fabric and ritualistic customs of the area.

It is obvious that human settlement, culture, and civilization have a long history in *Mithila* region. *Mithila* region was first referenced by *Satapatha Brahman*. Later it is described as a sacred site and distinct kingdom of *Videha* in other Sanskrit, Buddhist, and Jain literatures (Dulal, et al., 2023). *Satapatha Brahman*a religious text claims that in the past, non-Aryan peoples lived there and the area was covered in woods and waiting land (Jha, 1983). In the past, the Kingdom of *Mithila* stretched between the *Koshi* and *Gandaki* rivers and from the Himalayas in the north to the Ganges in the south. The area of *Mithila* was watered by fifteen rivers, according to ancient sources. The kingdom was called *Tirabhukti*, also known as *Tirhut, Videh,* and *Yajnakhsetra* (Pandey, 2008).

Particularly in *Pauranic* literature Nimi was the founder and ruler who gave the *Videha* kingdom its name, according to the *Vishnu Puran*. The Nimi dynasty's 22nd descendant was Janak, son of Rasworoma (Thakur, 1956, p. 30). The city of *Janakpur* is thought to be the birthplace of Goddess Sita as well as the location of her marriage to Lord Ram (Jha, 1983). *Mithila* has an impact on patriarchal *Vedic* culture (Rana, 2021). Currently, in *Mithila* region there includes many territories such as *Madhubani, Darbhanga, Sitamadi, Mujefarpur, Saharsa, Bhagalpur, Purniya, North Munger, Jharkhanda*, India, and *Morang, Sunsari, Saptari, Siraha, Sarlahi, Dhanusha,* and *Mahottari* of Nepal (Bimal, 2070).

During the reign of king Janak, the capital was *Janakpur*. With a variety of handicrafts and designs etched onto the walls of Janaki Temple, *Mithila* is recognizes one of the important destination of cultural, traditional, and religious illumination. The eastern area, which includes parts of India that hug the border, is known as the *Mithila* region and includes the *Siraha, Saptari, Dhanusha, Sarlahi,* and*Mahottari*.

Mithila region is as an important cultural centre. It has also identified *Mithila* painting in the forms of *Kohbar* and *Aripana* arts (Bimal, 2070). Among them, the *kohbar* or *puren*, one of these rituals painting that are most well-known and iconic. Originally, these were painted in the nuptial chamber i.e. in *kohbar ghar*, where the bride and groom consummate their marriage. The most brightly painted room in the house is the one where the newlyweds spend their first four nights together. The primary themes of these *Kohbar* paintings are prosperity and love. *Kohbar*, as the *Kayast has* called it, is depicted in most renditions with faces hidden behind the lotus circles.

Kohbar painting is a multifaceted cultural legacy in the *Mithila* region, but adequate studies on different issues are still remaining under research. All of these concerns have been recognized as the study based on literature review. Therefore, the researchers aim to minimally bridge to address the aforementioned research gaps and issues through the paper entitled *Kohbar Painting of Mithila, Nepal: A Study of Intangible Cultural Heritage.*

Research Problem and Gaps

Numerous studies have been done on various art forms, particularly painting, but none have focused specifically on the *Kohbar* floor painting of the Maithili civilization of the *Mithila* region as an intangible cultural asset. Many facets of *Kohbar's* painting including what exactly is *Kohbar* painting? What is its history? Why and how is it made? What supplies and techniques are employed in

the making of these paintings? To what extent is the *Mithila* region's intangible cultural heritage recognized? are still untapped. The aforementioned concerns are recognized as study gaps and problems that consistently motivate scholars to conduct this research.

Research Objectives

The primary objective of this study is to delve into the cultural significance encapsulated within *Kohbar* art, a distinctive form of visual expression originating from the *Mithila* region in Nepal. To achieve this, the study will focus on two specific objectives: comprehensive documentation and analysis of *Kohbar* art, and the development of advocacy and preservation strategies for this unique art form. By addressing these goals, the study hopes to advance knowledge of *Kohbar* art as a cultural phenomenon and emphasize its importance concerning Nepal's *Mithila* culture.

Methodology

This study employs a qualitative research approach, utilizing both primary and secondary data sources. The primary data collection took place in the *Janakpur* area, focusing on local and culturally embedded stakeholders. Researchers conducted observations and semi-structured interviews in both group settings and individual interactions to gather in-depth insights. Observations included documenting artistic processes, materials used, and environmental influences during the creation of *Mithila* paintings. The interviews were conducted with local artists, community members, and representatives from the *Janakpur* Women's Development Center (JWDC). Topics covered included traditional techniques, symbolism in *Mithila* art, and the socio-economic impact of their work. These interviews were complemented by focus group discussions to capture diverse perspectives and collective experiences. Fieldwork extended to multiple villages like *Kuwa, Kapileshwor* and *Matsyagandha* within *Janakpur* Municipality, selected for their historical and cultural significance in *Mithila* art.

The selection process was informed by recommendations from local scholars and community leaders to ensure representative and meaningful engagement with the community. Secondary data included a review of existing literature, historical records, and prior research on *Mithila* art. This data was used to validate and contextualize the primary findings. Thematic analysis was employed to identify recurring patterns, cultural symbols, and emerging themes relevant to the research questions.

Conceptual Framework

This paper clarifies the concept of *Kohbar* and aids in the exploration of its symbols and meaning, history and customs, causes of creation, types and typology, folk artists and their craftsmanship, techniques and materials, objects and motifs connected to this *Mithila* region's and as an intangible cultural heritage. For addressing the above-mentioned research gaps and problems as well as fulfilling the determined objectives, this paper has been prepared by applying the conceptual framework as shown in Figure 1.

Figure 1

Conceptual Framework for the Paper
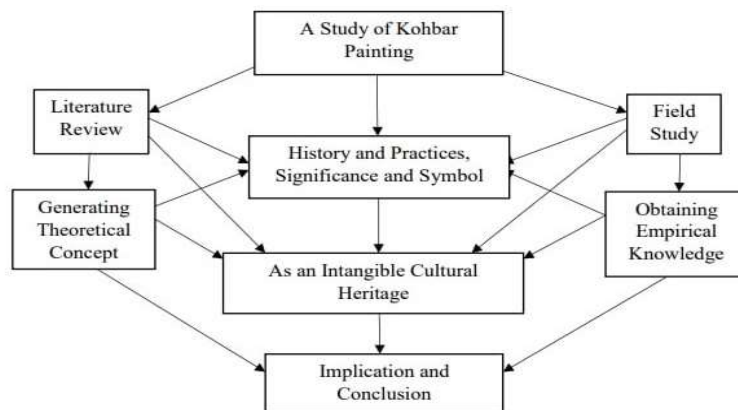
Discussion and Results

Based on research objectives, researchers have asked about traces of the historical evolution and traditional practices of *Kohbar* painting, including its symbolic motifs, ritualistic aspects, and socio-cultural significance and as an intangible cultural heritage within the *Mithila* region. It is looking forward to analyze of the symbolic motifs and designs of *Kohbar* art to understand their cultural meanings and ritualistic significance, examining the methods, materials used, and reasons behind their creation. Finally, after completing the field survey the discussion and findings of this paper has presented including the concept, history and tradition, using methods and materials, types and typology, objects and motifs, tantric influence, folk artists and craftsmanship and symbolic meaning, significance and as an intangible cultural heritage as well in chronological order. After doing critical discussion of aforementioned issues, conclusion of the paper has been drawn.

Concept of Kohbar Art

The concept of *Kohbar* art is deeply rooted in the cultural traditions of the *Mithila* region, primarily found in Nepal and parts of India. *Kohbar* art, also known as *Kohbar* painting or *Kohbar ghar*, holds significant cultural and ritualistic importance within the *Mithila* community (Jain, 1994). The Maithili word "*kohvar*," which refers to the wedding or bridal chamber, is where the term "*Kohbar*" originates (Archer, 1949). The themes in *Kohbar* art have been derived from ordinary life, regional folklore, and Hindu mythology, and they represent the *Mithila* community's religious and cultural values (Madhok, 2005). Traditionally, the wedding chamber's walls were covered in murals that acted as lucky charms to bestow fertility, prosperity, and marital bliss and happiness upon the newlyweds. With time, *Kohbar* painting transcended its ceremonial setting and developed into an important visual storytelling medium that portrayed

folktales, depicting mythological narratives, and cultural themes and motifs that were passed down through the generations.

Note. The picture depicts Traditional Kohbar Art and was obtained through field research.

Kohbar painting is characterized by its bold lines, vibrant colors, and intricate patterns, often executed using natural pigments and brushes made from bamboo sticks. The motifs found in *Kohbar* art are deeply symbolic, drawing inspiration from Hindu mythology, local folklore, and everyday life. Common motifs include peacocks, fish, lotus flowers, and geometric patterns, each carrying specific meanings and auspicious symbolism. *Kohbar* painting plays a central role in various ritualistic practices and ceremonies within the *Mithila* community, symbolizing blessings, protection, and prosperity.

During weddings, *Kohbar* paintings are created to bless the couple and ensure a harmonious and prosperous married life. Similarly, during childbirth, *Kohbar* art is used to invoke blessings for the mother and child. It is traditionally passed down through generations within families, with techniques and motifs

often inherited and taught from mothers to daughters. Overall, the concept of *Kohbar* art embodies the rich cultural heritage and artistic traditions of the *Mithila* community, serving as a testament to the enduring legacy of this vibrant art form.

History of Kohbar Painting

As the mother of all other sculpture art, the history of creation of painting is old than other forms of arts. Archaeological findings discovered from the different prehistoric caves of France, Spain and elsewhere suggest that the people of prehistoric culture were skilled to create beautiful and wonderful art specimens as the form of paintings (Dulal, 2019). According to Burkitt (1992, p. 237):

> when excavating an upper Paleolithic home site in the mouth of a cave or rock-shelter, one frequently comes across bone tools, portions of which have been carved into the shapes of animals heads or have had their surface covered with engravings of animals or signs or patterns: often too there are fragments of bone or suitable pieces of stone that are similarly engraved. It is safe to say that there is no one person in a thousand in this country today who would be capable even after some drawing lessons of emulating the works of art that were made by these old folk so many thousands of years ago.

The *Upanishadic* way of life and the era of the *Brahmanas* did not promote art in the *Mithila* region. The region was only considered a source of sexual pleasure under the reign of King Janak (Thakur, 1956).The most ancient folk and indigenous art of the Maithili household work in the *Mithila* region, Southern *Terai* of Nepal, is known as *Mithila* art, which is a distinctive feature of *Mithila* culture. The origin of *Mithila* arts are thought to date back around three thousand years, to the time when the great Aryans arrived and settled in this area and began painting murals on the walls for ornamentation (Chaudhary, 1976).

      Kohbar art has a rich history that dates back centuries in the *Mithila* region, encompassing present day Nepal and parts of India. Over time, it evolved into a distinct artistic tradition with symbolic motifs and ritualistic significance. It is considered auspicious and is believed to bring blessings, prosperity, and marital bliss to the newlywed couple. The intricate designs and symbolic motifs serve as visual blessings for the couple's future life together. The tradition of painting the nuptial chamber, or *Kohbar Ghar*, dates back around 2500 years, when it was painted at the *Mithila* palace in *Janakpur* to represent bride Sita and groom Ram's happy married life. Ever then, it has been common to have what is called *Kohbar* painting on the walls of the nuptial chamber during the solemnization of marriage in *Mithila*. In this picture, the *Navgraha* i.e. nine planets are also given space to bestow blessings onto the newlyweds.

Note. The picture depicts worshipping Kobhar at the time of marriage. It was obtained from field data.

The first critic to understand the tortoises are the diagrammatic of the lovers union and the bamboo tree and the ring of lotuses as schematics of the sexual organs (Archer, 1949). Since then, the majority of Western commentators have interpreted the *Khobar* painting as a sexual performance (Vequaud, 1977). The *Kohbar's* basic design and composition is heavily charged with tantric symbolism. Another example is the yoni, which is often drawn as a fully-opened lotus.

Some scholars reject the aforementioned criticism, and calling it is a free-floating symbolic interpretation (Brown, 1996). Sexual interpretation, interprets the lotus in the *Kohbar* painting that has been pierced by a shaft as a symbol of fecundity (Jain, 1997). Many scholars have confused lotus leaves for two flowers due of their flowery shape. Similar to this, the "stem and roots" of the lotus plant are intended to be seen as the center vertical stem cutting across the ring of lotus leaves, not a bamboo shaft (Burkert & Sethi, n.d.).

There is assumption moved forward that women-artists of *Mithila* cannot keep themselves immune from the patriarchal discourse on *tantra* which has influenced *Mithila* art, but they also bring their agency of wifehood and fertility into the foreground. Later on, as a creative sensibility developed gradually, a large number of religious and secular art pieces that are now known as *Mithila* art were produced in this area.

Note. The figure represents Ardhanarishwara Shiva and Parvati. Painted by Hira Devi, it was retrieved from https://www.exoticindiaart.com

This androgynous manifestation of Shiva and Parvati valorizes the union of female and male energies as the root and womb of all creation. The Hindu doctrine of *tantra*a patriarchal discourse on the creative and destructive force of Gauri is the basis for the aesthetics of *Kohbar* paintings (Jha, n.d.). However, *Maithil* women painters draw from this tradition while also departing from it. While the geometrical lines in *Kohbar* paintings are similar to those in *Aripana* and represent the sexual potency of males (Shiva) and females (Shakti), the modifications created by female artists change the emphasis from sexual pleasure to conjugal fondness, fertility, and prosperity. Hence, wifehood and motherhood are the feminine ideals that *Kohbar* paintings elevate, departing from the patriarchal view that a woman's sexuality is both creative and destructive.

Kohbar painting is characterized by detailed designs, brilliant colors, and significant themes. The use of visual components, motifs, and patterns to elucidate deeper meanings and cultural importance is known as symbolism in *Kohbar* art. Aspects of Hindu mythology, regional folklore, religious convictions, and societal mores could all be represented by these symbols (Thames & Rekha, 2010).
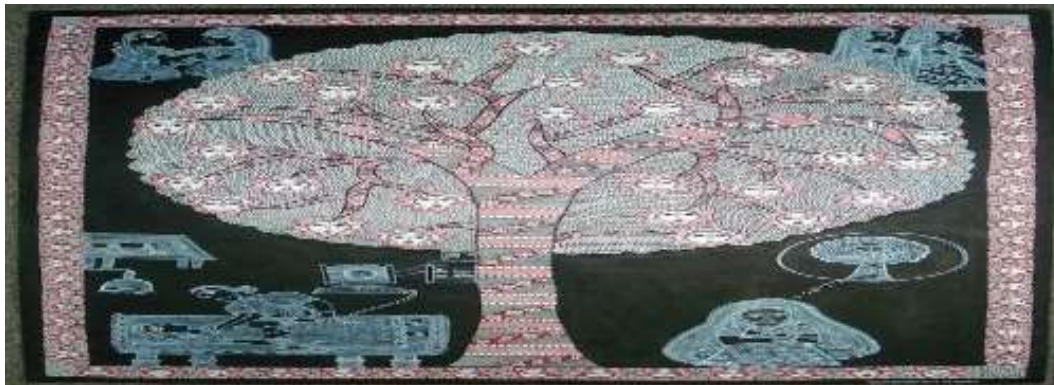
Note. The painting by Gunjeshwar Kumari represents the theme 'Better a tree than a girl.' It was retrieved from https://elibrary.tucl.edu.np/bitstream

The logonomic system in tolerates the forced abortion of girl babies. Set against a black background, the incised white images, like specters in a nightmare, tell the story of a marriage and the young mother's reluctant abortion of her female fetus. In her sorrow, she sees a tree blossom with pink flowers and imagines the flowers to be the spirits of all the aborted baby girls.

Types and Typologies

Mithila arts are interpreted outside of the context of the region's social semiotics, issues can develop. The authenticity and authentic meanings of Maithili arts are lost when seen under the prism of Freudian psychoanalysis. It has also demonstrated how western academicians romanticized history by interpreting *Maithil* art through lenses from other planets. In the process, the voices of women were muted. Our comprehension of *Maithil's* art is complicated by interpretations that the artists themselves internalized and expressed. *Kohbar* painting one of the forms of *Mithila* art, originating from the *Mithila* region in Nepal and parts of India, encompasses various types and typologies characterized by their motifs, themes, and cultural significance.

Wedding Kohbar Art

This type of Kohbar art is created to adorn the bridal chamber (Kohbar) during weddings. It is characterized by elaborate designs and symbolic motifs intended to bless the newlywed couple and ensure marital bliss, fertility, and prosperity. Common motifs include images of the bride and groom, peacocks (symbolizing fertility and beauty), lotus flowers (symbolizing purity and auspiciousness), elephants (symbolizing strength and stability), and geometric patterns.

Note. Ram Sita wedding by Vidyanath Jha, retrieved from <u>heartforartonline.com</u>

Festival Kohbar Art

During religious festivals and cultural celebrations, *Kohbar* art may be created as part of the decorative displays in homes and community spaces. These artworks often feature motifs and symbols associated with the specific festival or occasion, such as images of gods and goddesses, sacred animals, religious symbols, and auspicious patterns.

Narrative Kohbar Art

Narrative *Kohbar* art depicts mythological stories, folk tales, and historical events through intricate paintings. Artists use *Kohbar* art as a medium for storytelling, conveying moral lessons, cultural values, and historical narratives through visual representations and symbolic imagery.

Contemporary Kohbar Art

In recent years, artists have been exploring new themes, styles, and mediums within the realm of *Kohbar* art, adapting traditional techniques to contemporary contexts.

Note. Saree with Kohbar design, retrieved from

https://www.madhubanipaints.com

This *saree* has a depiction of *Kohbar* design from *maithil* culture on centre surrounded by swaymabar design, borders have bride groom seen doing a *viddha* from marriage ceremony. Contemporary *Kohbar* art may feature innovative interpretations of traditional motifs, experimentation with color palettes and compositions, and integration of modern themes and cultural influences.

Regional Variations

Kohbar art exhibits regional variations within the *Mithila* region, with distinct styles and motifs influenced by local customs, traditions, and artistic practices. For example, the *Kohbar* art of *Madhubani* in India may have different motifs and color schemes compared to the *Kohbar* art of *Janakpur* in Nepal, reflecting the unique cultural heritage of each locality. These types and typologies of *Kohbar* art reflect this vibrant artistic tradition's diversity, creativity, and cultural significance within the *Mithila* community.

Note. Mithila Painting in Godana Style, retrieved from https://itokri.com

Objects and Motifs

The study has provided valuable insights into the rich cultural heritage and artistic traditions of *Kohbar* painting within the *Mithila* culture in Nepal. *Kohbar* painting, originating from the *Mithila* region of Nepal and India, is characterized by a rich array of symbolic motifs and objects that convey auspicious meanings and blessings. The following are some of the common objects and motifs found in *Kohbar* painting:

Peacock: The peacock symbolizes beauty, fertility, and abundance, reflecting its cultural significance across South Asian art traditions (Krishna & Singh, 2017). It is often depicted with vibrant plumage and graceful poses, representing prosperity and auspiciousness.

Lotus Flower: Scholars such as Misra (2014) emphasize the lotus flower holds deep symbolic significance in Hindu culture and is a common motif in *Kohbar* art. It symbolizes purity, enlightenment, and spiritual growth, often depicted in full bloom with intricate petals and vibrant colors.

Note. Lord Vishnu on a reclining pose, retrieved from https://elibrary.tucl.edu.np

Elephant: The elephant is a symbol of strength, wisdom, and prosperity in Hindu mythology. Scholars like Pant (2019) note its presence in traditional Mithila paintings as a symbol of stability and prosperity, often adorned to signify its auspicious role.In *Kohbar*painting, elephants are depicted with decorative adornments, carrying auspicious connotations and blessings for the viewer.

Fish: Fish are often depicted in *Kohbar* painting as symbols of fertility, abundance, and prosperity. They represent the cycle of life, growth, and renewal, and are associated with blessings for marital harmony and reproductive success. This symbolism has been highlighted in comparative studies of *Mithila* and Bengali art traditions, underscoring their shared cultural meanings (Das, 2015).

Swans: Swans are revered in Hindu mythology as symbols of purity, grace, and beauty. In *Kohbar* painting, swans are depicted gracefully swimming in pairs, symbolizing love, devotion, and marital bliss. Researchers like Jha (2018) explore their role as symbolic representations of love and devotion, adding depth to their portrayal in *Kohbar* paintings.

Sun and Moon: The sun and moon are celestial symbols commonly found in *Kohbar* art, representing light, energy, and cosmic balance. They symbolize the divine forces of creation and renewal, bestowing blessings for prosperity and

harmony. These themes have parallels in broader Indian artistic traditions, as explored by Singh and Sharma (2020).

Note. Brahmin style in bright colours by Sita Devi, retrieved from

https://goodcssm.live/product

Trees and Plants: Trees and plants are recurring motifs in *Kohbar* art, representing growth, abundance, and fertility. Floral patterns, fruit-bearing trees, and lush vegetation symbolize the fecundity of nature and blessings for prosperity and well-being. Their recurrence in *Kohbar* art aligns with ecological and cultural interpretations by environmental art scholars (Mitra, 2016).

Mandalas and Geometric Patterns: *Mandalas* and geometric patterns are intricately woven into *Kohbar* art, symbolizing unity, harmony, and cosmic order has been extensively studied by scholars like Tripathi (2017). These symmetrical designs invoke blessings for balance, symmetry, and spiritual harmony.

Gods and Goddesses: Depictions of Hindu gods and goddesses, such as Ganesha, Lakshmi, Saraswati, and Shiva, are common in *Kohbar* art. Studies in South Asian religious art, such as those by Dasgupta (2018), emphasize the dual aesthetic and devotional purposes of these motifs. These divine figures embody auspicious qualities and blessings associated with wealth, wisdom, and divine protection.

Note. Goddess Kali standing on Lord Shiva, retrieved from

https://market.unicefusa.org

Wedding Scenes: *Kohbar* art often includes depictions of traditional wedding scenes, featuring the bride and groom, marriage rituals, and festive celebrations. Scholar such as Chaudhary (2021) symbolizes the art of love, unity, and the sacred bond of marriage, invoking blessings for marital happiness and prosperity.

Note. Sita performing Gauri puja at the time of her wedding, retrieved from

https://indianfolkart.org

These objects and motifs in *Kohbar* art serve as visual blessings, conveying auspicious meanings and blessings for fertility, prosperity, marital harmony, and spiritual well-being within the *Mithila* community.

Tantric Influence in Kohbar Art

The influence of *Tantra* in *Kohbar* art is an intriguing aspect that reveals deeper layers of symbolism and spiritual significance within this traditional art form. While *Kohbar* art is primarily associated with auspicious blessings and cultural traditions, it also reflects underlying Tantric principles and motifs.

Sacred Symbols and Yantras: As noted by Vequaud (1977) and Rana (2021), *Tantra* incorporates a rich array of sacred symbols and geometric diagrams known as *Yantras*, which represent cosmic energies and divine principles. These symbols are often integrated into *Kohbar* art, infusing it with deeper spiritual meanings and transformative power. *Yantras* such as Sri *Yantra*, representing the divine feminine energy, and *Shri Shri Yantra*, symbolizing cosmic harmony, may appear in *Kohbar* paintings, enhancing their potency as spiritual tools. Artwork by Vidyanath Jha (available at Exotic India Art) presents Kali as one of the most important *tantric Dasamahavidyas*, as a conglomeration of terrifying elements.

Note. Kali with her *Yantra* by Vidyanath Jha, retrieved from
https://www.exoticindiaart.com/

Mantras and Sacred Texts: Tantra emphasizes the use of sacred sounds and chants (Mantras) as vehicles for spiritual transformation and divine communion as described by Dulal (2019). *Kohbar* art may incorporate written or visual representations of Sanskrit mantras, prayers, or sacred texts, invoking divine blessings and protection. As documented by Jha (1983) and others, the

inclusion of mantras in Kohbar art not only enhances its spiritual significance but also serves as a form of devotional practice, imbuing the artwork with vibration energy and potency.

Goddess Worship and Shakti: *Tantra* places a strong emphasis on the worship of the divine feminine principle, known as *Shakti*, as the creative force of the universe. *Kohbar* art often features depictions of goddesses such as *Durga, Kali,* or *Lakshmi,* embodying various aspects of *Shakti*. The portrayal of goddesses in *Kohbar* art invokes blessings for empowerment, protection, and abundance, drawing upon Tantric teachings of divine feminine energy and its transformative potential as highlighted by Archer (1949). .

Ritualistic Practices and Yantra Puja: *Tantra* emphasizes ritualistic *puja i.e.* practices as a means of connecting with divine energies and invoking their blessings. *Yantra Puja*, the worship of *Yantras*, is a common Tantric practice performed to harness cosmic energies and fulfill spiritual goals. *Kohbar* art may be used as a focal point for *Yantra Puja*, with practitioners meditating upon the sacred symbols and visual representations to deepen their spiritual connection and receive blessings.

Subtle Energy and Chakra Activation: *Tantra* views the human body as a microcosm of the universe, with subtle energy centers known as Chakras that govern physical, emotional, and spiritual well-being. *Kohbar* art may incorporate subtle energy patterns and Chakra symbolism, facilitating energetic healing and balance. Dulal, KC, & Singh (2023) have documented this concept, noting its representation in Mithila art. The visual representation of Chakras and subtle energy channels in *Kohbar* art serves as a catalyst for Chakra activation and spiritual awakening, aligning the practitioner with higher states of consciousness and spiritual evolution.

Note. Krishna Radha romance by NupurNishith, Sretrieved from

https://www.creativemithila.com

Overall, the influence of *Tantra* in *Kohbar* art adds layers of spiritual depth and transformative power, enriching its symbolic meanings and cultural significance within the *Mithila* community. Through the integration of sacred symbols, mantras, goddess worship, ritualistic practices, and subtle energy principles, *Kohbar* art becomes not only a visual expression of cultural traditions but also a potent tool for spiritual growth and enlightenment.

Using Materials, Tools and Techniques

Based on the research and literature review, *Mithila* art is created on handcrafted cotton fabrics and *Lokta* papers. Researchers, including Archer (1949), Thakur (1956), Vequaud (1977), and Jain (1997), have documented that acrylic paints and contemporary brushes are used to create these works of art. According to researchers including Chaudhary (1976) and Jha (1983) prominent colours include pink, parrot green, red, copper blue, sulphate blue, yellow and dark blue. Double borders and a black outline are compulsory. The colours were derived from natural sources like plants, charcoal soot, ochre etc. Black colour was obtained by mixing soot with cow dung while yellow colour was made by mixing turmeric, pollen or lime with the milk of banyan leaves. Red colour was derived from the *Kusum* flower juice or red sandalwood. Meanwhile, leaves of

apple trees were used to obtain green colour, rice powder for white colour and *palasha* flowers were used to get orange colour.

According to Dulal, KC, and Singh (2023), and our field observations, bold lines, vivid colors, and intricate patterns are characteristics of the artistic style of *Kohbar* painting. Natural paints and brushes made of bamboo sticks are frequently used in their execution. *Kohbar* art is characterized by its vibrant colors, bold lines, and intricate patterns, often depicting a wide range of symbolic motifs. Traditional materials such as handmade paper or cloth serve as the canvas for *Kohbar* paintings, providing a textured surface that enhances the richness and depth of colors. Traditionally, these paintings were done with fingers or using twigs, brushes, nib pens, and matchsticks on freshly plastered mud walls of huts as described by Rana (2021) and others. Now, these are also done on cloth, hand-made paper, wood and canvas.

Folk Artists and Craftsmanship

Kohbar art is traditionally practiced by women and is closely associated with auspicious occasions such as weddings, and other ceremonial events within the *Mithila* community. The creation of *Kohbar* art involves the skilled craftsmanship of folk artists within the *Mithila* community. These artists, often women, possess a deep understanding of traditional techniques, motifs, and cultural symbolism associated with *Kohbar* art. It is often passed down through generations within families, with techniques and motifs inherited and taught from mothers to daughters. Folk artists learn the art of *Kohbar* painting from a young age, observing elders and practicing traditional techniques to hone their skills over time. Folk artists possess a deep knowledge of symbolic motifs and cultural imagery associated with *Kohbar* art, drawing inspiration from Hindu mythology,

folklore, and everyday life in the *Mithila* region.
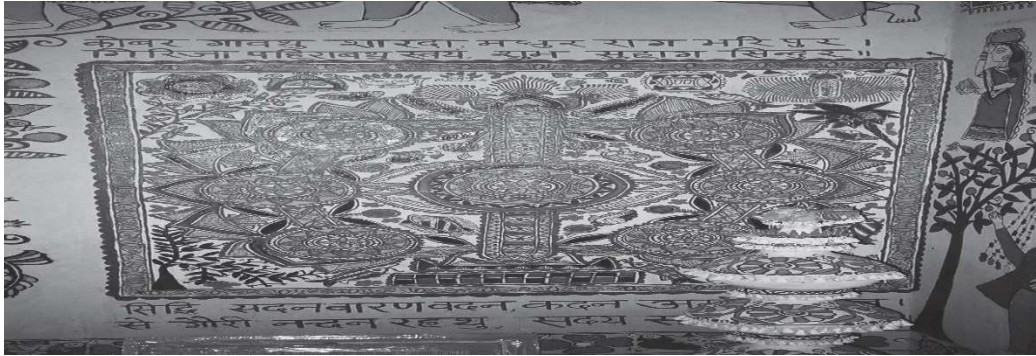
Note. Kayastha wall painting (Kohbar) retrieved from https://medium.com

Folk artists share techniques, motifs, and cultural knowledge with one another, fostering a sense of camaraderie and cultural continuity within the community. While rooted in tradition, folk artists also demonstrate a willingness to innovate and adapt *Kohbar* art to contemporary contexts, experimenting with new themes, styles, and mediums to ensure its relevance in today's world. Overall, the craftsmanship of folk artists is central to the creation and preservation of *Kohbar* art, ensuring that this vibrant artistic tradition continues to thrive within the *Mithila* community for generations to come.

Kohbar Painting as an Intangible Cultural Heritage

On the basis of structures, cultural heritage can be classified into tangible and intangible forms. Tangible cultural heritage have physical appearance whereas; intangible culture cannot be seen in the form of materials. It can only be observed by the inner feelings of human beings. The UNESCO convention for the safeguarding of the intangible cultural heritage 2003 classified intangible cultural heritage in five different domains which are oral traditions and expressions, including language as a vehicle of the intangible cultural heritage; performing arts; social practices, rituals and festive events; knowledge and practices concerning nature and the universe; and traditional craftsmanship (UNESCO, 2003, p. 8). What the UNESCO classified all domains are their own specific

significance and features, which are known as the fundamental tools of establishing indigenous identity of the owner groups and communities as well. Out of the five domains, art, painting and making skill can be categorized under the traditional craftsmanship.

By examining the above mentioned different aspects such as folk tales and legends, beliefs associate with this folk art, tantric influence, folk artists and craftsmanship, using materials, tools and techniques researchers can conclude to the *Kohbar* art as an intangible cultural heritage of *Mithila* region. It provides social and historical contexts, enriching our understanding of its significance within the *Mithila* community in Nepal. Finally, by incorporating the meaning and types of intangible cultural heritage prescribed by UNESCO https://ich.unesco.org/), scholars can critically analyze and interpret *Kohbar* art within broader intangible cultural heritage of *Mithila* community in Nepal.

Conclusion

The findings highlight the intricate symbols adjourned with the *Kohbar* painting artistic craftsmanship, and ritualistic significance embedded within *Kohbar* painting, underscoring its role in conveying blessings, fostering community cohesion, and celebrating life's milestones. *Mithila* culture is not only limited to historical stories, beliefs, arts and crafts but also depicts a different life style with its unique features, rites and cultures which are expressed by all the big and small activities performed everyday by the people. Not only daily activities but whole life process of a person also expresses the rituals and culture of the *Mithila* and describes how community functions. People are forgetting these things with the modern lifestyle.

It is necessary to preserve *Mithila* painting from disappearing as it is an indigenous art and carries cultural background of Maithili people. The resilience, creativity, and cultural vitality of the *Mithila* community is reflected in the timeless beauty and enduring legacy of *Kohbar* painting. By honoring and

celebrating this vibrant artistic tradition, one can forge stronger connections between past, present, and future generations, ensuring that *Kohbar* art continues to inspire and enrich lives for years to come.

Implications

The implications of findings extend beyond academic discourse to encompass broader socio-cultural, economic, and policy dimensions. Researchers call for concerted efforts to preserve, promote, and sustain *Kohbar* art as a vital component of *Mithila* cultural heritage, through initiatives such as educational outreach, community empowerment, and policy support. Looking ahead, future research should explore interdisciplinary approaches, comparative studies, and participatory methodologies to deepen the understanding of *Kohbar* art's cultural significance and socio-economic implications.

Acknowledgements

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A Review of an In-depth Interview on Urban Planning and Development

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Abstract

An in-depth interview is an effective and widely employed tool in qualitative research for collecting information. The research used an in-depth interview on urban planning and development. Different journal articles were thoroughly studied, and new knowledge was found. In-depth interview methodology was reviewed and applied in the context of data collection for urban planning and development. Urban planning is relevant today as people swiftly transition from rural to urban areas to meet their growing needs. In-depth interviews are a crucial method in urban studies, providing valuable insights into the lived experiences of residents and the impact of urban planning. These interviews allow in-depth exploration of complex issues while considering ethical guidelines and rigorous data analysis. Though time-consuming and costly, they offer rich data for descriptive research across various fields, contributing significantly to the advancement of urban research. However, there is a lack of essential infrastructure, i.e., transportation, which may limit the generalizability of its findings to other areas. Due to a lack of skilled interviewers and interview materials, as well as location and favourable time constraints, participants may not be ready to discuss sensitive ethical issues. This approach proves highly effective in uncovering valuable data. Thematic analysis organized all significant qualitative research findings into valuable and insightful themes for future urban planning and development research.

Keywords: development, in-depth interview, qualitative research, urban planning

A Review of an In-depth Interview on Urban Planning and Development

In qualitative research, the in-depth interview method is a powerful technique for conducting comprehensive interviews. These interviews aim to gather rich and detailed data for further investigation and descriptive analysis (Adams & Cox, 2008). It is a popular data collection method in qualitative research, particularly in urban studies and health profession education. It also allows for flexibility in exploring emergent topics (Eppich et al., 2019). In-depth interviews are one of the methods to determine the usability of both commercial and academic research (Adams & Cox, 2008). They can be employed to gain insights into an individual's or a small group's perspectives on a limited set of topics (Brounéus, 2011). With widespread acceptance and popularity as a data collection method in qualitative research, it is also valuable in social science studies (Golam Azam, 2022). It offers various applications, including needs assessment, program refinement, issue identification, and strategic planning (Guion et al., 2011). In-depth interviews are also referred to as unstructured interviews and are a primary approach for gathering data in qualitative research (Robin et al., 2003).

In-depth interviews involve thorough interviews with a limited number of participants, making them a powerful tool in qualitative research (Rutledge & Hogg, 2020). This quantitative research technique entails conducting intensive individual interviews with fewer respondents to explore their perspectives on a particular idea (Boyce & Neale, 2006). In this individual interview method, interviewees are encouraged to express themselves freely in response to the questions and guidelines. All conversations are recorded and subsequently transcribed verbatim (Palacios-Ceña et al., 2023). Qualitative research offers a valuable means of gathering authentic, real-world data from the participant, serving as a complementary and enriching approach (Palacios-Ceña et al., 2023). Audio recordings have become widely accepted for producing transcripts of in-

depth interviews and group discussions (Oxholm & Glaser, 2023a; Rutakumwa et al., 2020a).

In social science research, in-depth interviews have become a standard method for gathering comprehensive insights into individuals' perspectives and experiences. These interviews play a pivotal role in diverse research areas, including media psychology (Rutledge & Hogg, 2020) and health professions education (Eppich et al., 2019), providing a flexible approach that enables researchers to explore a wide range of themes. They have proven invaluable in peace research, urban studies, healthcare, and climate change attitudes, allowing for a deeper understanding of complex issues (Brounéus, 2011; Lucas & Davison, 2019; Osborne & Grant-Smith, 2021b). Additionally, in-depth interviews have been instrumental in examining human factors, enablers, and barriers in various contexts, including anesthesia teams (Schnittker et al., 2018). Their applications extend to needs assessment, program refinement, issue identification, and strategic planning (Guion et al., 2011), making them a versatile qualitative data collection method. In Nepal's rapid urbanization context, these interviews offer vital insights for policymakers and urban planners (Devkota et al., 2023), helping to address the challenges of unplanned urban expansion and climate change (Pandey, 2023).

In the context of Nepal, the rapid migration of the rural population to urban areas is driven by factors such as infrastructure, healthcare, education, employment, and information communication technology (ICT), as well as the need to fulfill administrative requirements, representing a response to structural changes in the economy, particularly the shift from agriculture to non-agricultural pursuits (Sharma, 2003). Urbanization can be described as a phenomenon that becomes apparent through shifts over time, changes in location, and alterations across various societal sectors. These transformations encompass demographic, social, economic, technological, and environmental facets of life within that

specific society (Narayan, 2014). However, rapid urbanization, increased energy demand, and deterioration of air quality need primary research focusing on urbanization and air quality as well as mitigation of air pollution (Progiou et al., 2023).

Modernists believe that urbanization is a natural progression from a traditional or agrarian society to a modern or industrialized nation. They also consider urbanization a necessary condition for modernization, which leads to the development of new technologies and industries and new social and cultural institutions (Njoh, 2003). The classification of certain human settlements as new urban areas by the Nepal government has raised questions regarding the validity of the criteria applied in this delineation process (Bhattarai et al., 2023). Unplanned urbanization stands out as a prominent challenge confronting many developing nations. This issue is compounded by factors such as rapid population growth, increased economic activities, and the impacts of climate change (Nepal et al., 2023). Urbanization poses a significant challenge to the preservation of agricultural heritage systems. The core tenet of conserving agricultural heritage systems lies in the imperative to foster sustainable development within urban areas (Zhao et al., 2023). This trend is primarily attributed to the rapid urbanization, population expansion, and the repercussions of climate change. Research in sub-Saharan Africa has revealed a pattern of circular migration, with migrants often returning to their rural villages after short stints in urban areas (Suckall et al., 2015).

Land is a multifaceted entity encompassing production, income generation, valuable property, and a fundamental space for livelihoods. When the state exercises its authority to acquire land for development endeavors, it triggers various responses from farmers who strive to safeguard their land-related advantages (Nguyen, 2023). Moreover, ethical considerations are paramount, emphasizing the need to establish clear expectations and maintain confidentiality

in the research process. The reviewed literature underscores the significance of in-depth interviews as a robust and adaptable method for gaining valuable insights across many research domains, providing a complementary approach to understanding complex phenomena.

Nepal stands out as one of the fastest urbanizing nations in South Asia, with an annual urban population growth rate of 6% (Dixit & Shaw, 2023). Nepal navigates this transformative urbanization process, it becomes imperative to evaluate existing government policies and strategies for urbanization and innovative city initiatives (Dixit & Shaw, 2023). Nepal, among the world's fastest urbanizing nations, has experienced haphazard urban growth in recent years. Policymakers, urban planners, and local authorities must work to create sustainable urban development strategies and blueprints while preserving green areas to maintain uninterrupted access (Devkota et al., 2023).

In-depth interviews offer a powerful approach to data collection for urban planning and development. Whether used to uncover individual perspectives, understand social dynamics, or identify barriers and enablers in different contexts, they offer a powerful approach to data collection. This research synthesizes findings from a comprehensive review of literature spanning urban planning and development and related disciplines. It examines diverse methodological approaches and identifies key research themes employed by scholars in this field. The insights gleaned from this review contribute valuable knowledge that can inform future research endeavors.

Methods and Materials

The methodology employed for this study involved conducting a comprehensive literature review with a focus on urban planning and development. A systematic search strategy was adopted, utilizing keywords closely aligned with the subject matter, including "in-depth," "interview," "urban," and "planning." General keywords, phrases, synonyms, and Boolean operators were used in the

search strategy. The search was limited to general articles with an introduction, research methodology, discussion, and conclusion. Only peer-reviewed journal articles with at least one citation were included. Advanced search features were utilized to prioritize recent articles published within the last 5-10 years.

The primary data collection method consisted of performing an extensive Google search, and research gate which identified and retrieved 47 journal articles and books relevant to the study's objectives. Six articles were subsequently excluded from the dataset due to either being in a language other than English or not having full-text availability. This process left us with 41 articles thoroughly examined and utilized as valuable resources for our study. The collected information was drawn from a combination of sources. They used Google Scholar PubMed to extract secondary data from the reviewed journal articles and books. These sources collectively provided a broad spectrum of information to underpin this research.

Table 1

Summary Table for Reviewed Articles

Researchers	Data Collection Methods	Field of Study
Rutledge and Hogg (2020)	In-depth Interviews, primarily open-ended questions, multi-method design	Social Sciences, Media, Psychology
Guion et al. (2011)	In-depth interview, Open-ended & Semi-structured Questions, Audio Recordings, Written Field Notes	Various purposes: Need Assessments, Program Development, Strategies Planning
Adams & Cox, (2008)	In-depth Interview, Paper-based Questionnaires (Various Types)	Human Interaction, Commercial Usability, Research
Eppich et al. (2019)	In-depth interviews, Unstructured and semi-structured Questionnaires	Health professions Education.
Lucas and Davison (2019)	In-depth interviews, Public Surveys, Valuable Questionnaires	Views on Social Issues, climate change.

Brounéus (2011)	Semi-structured Questionnaires, In-depth Interview	Conflict and Peace Process Research
Osborne and Grant-Smith (2021)	Semi-structured & Unstructured Questionnaires	Urban Research and Analysis
Showkat and Parveen (2017)	Qualitative In-depth Interviews (Open-ended & Semi-structured)	Media and Communication Studies
Golam Azam (2022)	In-depth Interviews from focus respondents.	Various Disciplines in the Social Sciences on relevant issues
Zhang and Chu (2020)	In-depth Interview., Semi-structured Questionnaires from University Teachers	ICT in Higher Education Teaching
Schnittker et al. (2018)	Sixteen Techniques for Identifying Human Factors Enables	Management of Airway Challenges
Zhao et al. (2023)	Field Surveys, In-depth Interviews, Literature Review	Sustainable Development in intra -urban Areas, Ecological Conservation, Urban Sprawl
Palacios-Cena et al. (2023)	Qualitative, descriptive, and exploratory research are individuals' own words.	Relevance Issues
Progiou et al. (2023)	Literature Review with Qualitative Methods, Sector-specific Emission Calculations, Structured Interviews	Air Quality Modeling System, Smart City, Improvement of Quality Life.
Dixit and Shaw (2023)	Literature Review, Key Informant Interviews	Urban Planning
Poudel and Pant (2023)	Comprehensive Literature Review	Urban Public Spaces, Public Health
Oxholm & Glaser (2023a)	In-depth Interviews, Community Interaction	Interaction to Police-Community Relations
Rutakumwa et al. (2020a)	In-depth Interview, Comparative Analysis of Audio-recorded Transcripts	In-depth Interviews, Group Discussions
Pandey (2021)	In-depth Interviews	Urban Water Security
Devkota et al. (2023)	In-depth Interviews Land Set Satellite Image	Urban Changes in Nepal
Narayan (2014)	Data from Population Census, Per Capita Income Data	Urbanization, Economic Growth

Wong (2023)	Mixed Methods: Surveys, In-depth Interviews	School Students for Online Learning Needs
Suckall et al. (2015)	Mixed Methods: Surveys, In-depth Interviews	Climate change, migration, and worsening environment in urban areas
Lau (2023)	Mixed Methods, combination of secondary data and qualitative, in-depth interview	Changing patterns of residential age segregation
Madonsela et al. (2019)	Cape Town based on In-depth interviews	Water management, Urban water challenges
Boyce & Neale (2006)	Individual interviews with a limited number of respondents	experiences during the early 20th century
Sharma (2003)	In-depth interviews	Dynamics of urbanization and development
Njoh (2003)	Qualitative In-depth Interviews	Relationship between Urbanization and Development
Bhattarai et al. (2023)	Analysis of Land Use and Cover Changes, Sentinel Satellite	Urban Growth
Nepal et al. (2023)	Cluster Randomized Controlled Trial	Intervention Study
Robin et al. (2003)	In-depth Unstructured Interviews	Varied Perspectives, Expressive Power of Language
Moulaert and MacCallum (2019)	In-depth Interviews	Urban and Regional Planning
Ruszczyk (2021)	In-depth Interviews, Essay types Questions	Urbanization and Land Use Planning
Tiwari (2008)	Secondary Data from Census and Surveys	District and Municipalities level
Liu and Liu (2019)	Pilot Study with In-depth Interviews	Older Individuals' Responses
Brown (2024)	In-depth interview, case study, comparative analysis	Rural-urban change
Osborne & Grant-Smith (2021)	Primary Method: In-depth Interview, Gather rich qualitative Data	Urban research and analysis
Næss (2020)	Qualitative Interviews, case studies, validation Explanatory qualitative Research, and mixed methods	Environment characteristics on travel behavior
Wojnowska-Heciak et al. (2022)	In-depth In-depth Interviews; walk and Talk Interview Sessions	Investigated how city residents with mobility limitations perceive Uban parks

Sun and Dai (2024)	Primary method: An In-depth Interview with Dr. Chen Yixin, Historical Analysis	Urban Planning and Development
Zanudin et al. (2022)	An In-depth primary research method; one -one interaction with participants to gather detailed insights	Investigating the effectiveness of community participation in decision-making processes for planning and operations.

Results

Rutledge and Hogg (2020) conducted in-depth interviews with primarily open-ended questions. This led to a discovery-oriented approach, a common method in social sciences, media, and psychology. Guion et al. (2011) used a mix of open-ended and semi-structured questions, audio recordings, and written field notes for various purposes, such as need assessments, program and refinement issue identification, and strategies planning. Adams & Cox (2008) employed paper-based questionnaires with different questions, including simple factual questions, opinion-based yes or no questions, complex factual questions, and attitudinal questions. They used these methods in human interaction issues and focus groups in commercial usability and research contexts. Eppich et al. (2019) utilized unstructured or semi-structured questionnaires for data collection, with the latter being the more prevalent approach. Lucas and Davison (2019) initially conducted a study through participation in a public survey in Tasmania, Australia, interviewing seven participants eight times at fortnightly intervals over six months, focusing on the survey using valuable questionnaires to gather views on social issues.

Brounéus (2011) used questionnaires with a semi-structured format for each in-depth interview in the field of peace research. Osborne and Grant-Smith (2021) employed semi-structured and unstructured questionnaires in in-depth interviews, applying this approach to urban resource analysis. Showkat and Parveen (2017) conducted qualitative, in-depth interviews with open-ended and semi-structured questionnaires, facilitating detailed data collection in media and

communication studies. Golam Azam (2022) discussed the use of in-depth interviews for comprehensive data collection from focused respondents, addressing relevant issues across various disciplines within the field of social science. Zhang and Chu (2020) used semi-structured questionnaires to collect data from university teachers regarding information and communication technology (ICT) in higher education teaching in China. Schnittker et al. (2018) employed sixteen techniques to identify human factors affecting the management of significant airway challenges.

The recruitment of anesthetic consultants and anesthetic nurses initially involved email invitations. It was later supplemented by word-of-mouth referrals within the Melbourne area. Zhao et al. (2023) conducted field surveys and in-depth interviews in China, supported by comprehensive literature collection and review, addressing sustainable development in intra-urban areas, ecological conservation, and urban sprawl. Palacios-Cena et al. (2023) adopted a qualitative, descriptive, and exploratory research approach founded on interpretive methods, strictly following ethical protocols and securing written informed consent. Non-probabilistic purposeful sampling was applied based on the relevance of participants to the research questions, with data collection executed in strict accordance with the predefined inclusion and exclusion criteria.

Progiou et al. (2023) undertook a research project encompassing a multifaceted approach, including sector-specific emission calculations integrated into an air quality modeling system. Furthermore, a qualitative methodology was utilized, complemented by structured and information-rich interviews to gather essential data. Dixit and Shaw (2023) adopted a multifaceted data collection approach, including a literature review and key informant interviews, with an extensive web search using keywords such as 'Smart City Nepal' to access pertinent literature. Poudel and Pant (2023) conducted a comprehensive literature review of urban public spaces, employing a scoping review methodology. They

assessed studies published between 1990 and 2023, emphasizing open spaces and their implications for public health, social cohesion, and overall social life.

Oxholm Glaser (2023a) used in-depth interviews to explore the perceptions of police officers regarding police-community relations and their interactions with community members. Rutakumwa et al. 2020a) conducted a comparative analysis during the interview period, involving the examination of audio-recorded transcripts and interview notes converted into scripts to streamline the process of generating transcripts for both in-depth interviews and group discussions. Pandey (2021) conducted in-depth interviews to enhance the management of urban water security. Devkota et al. (2023) utilized in-depth interviews to investigate urban changes in 12 rapidly urbanizing cities of Nepal. Data acquisition and image preprocessing involved using land-set satellite images from various periods. Narayan (2014) collected data from various rounds of population census in India to assess urbanization levels. Information on state per capita income growth was extracted from statistical sources related to the Indian economy.

Wong (2023) used a mixed-methods approach, evaluating the fulfillment of fundamental learning needs among school students. This study involved validated questionnaires and individual in-depth interviews with students to examine online learning needs. Suckall et al. (2015) used surveys and in-depth interviews for data collection in rural and urban settings, exploring the impact of climate change, migration, and worsening environmental conditions in urban areas. Lau (2023) employed surveys and in-depth interviews to gather data from rural and urban areas to explore the consequences of climate change, migration, and declining environmental conditions in urban areas. Nguyen (2023) used qualitative and quantitative research methods to focus on strategies employed by farmers to safeguard their land for agricultural development.

Madonsela et al. (2019) adopted the city blueprint approach as indicators for their study, focusing on Cape Town. They used in-depth interviews to assess the importance of alternative water management technologies in tackling urban water challenges in South Africa. Boyce and Neale (2006) utilized in-depth qualitative research techniques, specifically individual interviews with a limited number of respondents, to comprehensively explore their perspectives, ideas, and experiences during the early 20th century. Sharma (2003) conducted in-depth interviews to explore the dynamics of urbanization and development, investigating the connection between higher levels of urbanization and resulting economic structural shifts in urban areas.

Njoh (2003) used qualitative in-depth interviews as a data collection method in sub-Saharan Africa, aiming to investigate the positive correlation between urbanization and development. (Bhattarai et al., 2023) presented a thorough analysis of land use and cover changes occurring between 2017 and 2021, utilizing 10x10 meter Sentinel satellite imagery to highlight the growth of new urban areas and road networks. Nepal et al. (2023) conducted a cluster randomized controlled trial in Bhaktapur, Nepal, comparing households that received a cost-effective intervention to those that did not receive any intervention. Zhao et al. (2023) utilized a multi-faceted approach in China, combining literature collection and review, field surveys, and in-depth interviews to provide a well-rounded assessment of critical issues surrounding ecological conservation and urban sprawl.

Robin et al. (2003) conducted in-depth unstructured interviews as a qualitative data collection approach to explore a wide range of perspectives. Various techniques were employed to address practical considerations. Moulaert and MacCallum (2019) employed in-depth interviews to delve deeper into urban and regional planning phenomena. (Ruszczyk, 2021) used in-depth interviews as the primary method for data collection, focusing on the urbanization rate in Nepal

and how urban planning integrates urbanizing peripheries into its regulatory land use plan in Nepal. Tiwari (2008) based their study on secondary sources of data collected from census and surveys at the district and municipality levels.

Liu and Liu (2019) conducted a pilot study in Hong Kong, using in-depth interviews targeting older individuals to gather data through open and honest responses. Brown (2024) investigated urban planning and development in Sub-Saharan Africa, focusing on two case studies (likely Malawi and Ghana). The study examined the impact of rural-urban migration on planning processes, analyzing the roles of various actors, including traditional authorities and local governments. Key findings include the emergence of "fined" towns, highlighting the challenges of formal planning systems and the continued influence of traditional authority. The study emphasized the need for a nuanced understanding of the relationship between state and non-state actors in shaping urban development, acknowledging the complexities of evolving governance structures in emerging African towns.

Osborne and Grant-Smith (2021) emphasize in-depth interviewing as a powerful tool for urban research and analysis but highlight its demanding nature. Researcher's role: Skillful design and implementation of interview protocols (structured, semi-structured, unstructured). Ability to generate meaningful insights from complex qualitative data.Strengths: Gathers rich qualitative data beyond factual or statistical information. Powerful method for gaining deep understanding of urban planning and analysis.Challenges: Requires significant resources and labor.Time-consuming due to in-depth interview nature.Ethical considerations: Essential to adhere to ethical protocols throughout the research process .In essence, (Osborne & Grant-Smith, 2021) acknowledge the value of in-depth interviewing in urban research while acknowledging the resource intensity and ethical considerations involved. According to Næss (2020), qualitative interviews are a valuable tool in urban planning and transportation research. This

study, investigating the influence of the built environment on travel behavior, demonstrates the effectiveness of interviews for explanatory purposes. Næss (2020) highlights the importance of a mixed-methods approach, combining interviews with quantitative data to provide a more comprehensive understanding. The research emphasizesthe flexibility of qualitative interviews, allowing for the adaptation of sub-questions based on emerging insights. The study validates the use of interviews in numerous past studies on the built environment and travel, demonstrating their fruitfulness in generating rich and insightful data.

Wojnowska-Heciak et al. (2022) conducted a qualitative study to understand how urban park accessibility impacts residents with mobility challenges. Through in-depth interviews and "walk and talk" methods, they explored the perspectives of city dwellers. The research, while limited by a small sample size, underscored the significance of accessible parks for enhancing the well-being of all residents. Key findings emphasized that inclusive park design plays a crucial role in fostering self-confidence, dignity, and social equality for everyone in the community. Sun and Dai (2024) studied the long-term residency of Dr. Chen Yixin in Shenzhen since 1989. Dr. Chen, dedicated to urban planning and architecture, focused on Shenzhen's planning history, particularly Futian CBD's development. The in-depth interview with Dr. Chen explored his unique perspective and insights gained through his involvement in the city's planning. Zanudin et al. (2022) investigated the effectiveness of community participation in operational decisions in Iskandar Malaysia. Their study focused on how local planning authorities involved the community in spatial development planning. Using in-depth interviews with key stakeholders, they aimed to understand the impact of community involvement on decision-making processes.

Discussion

Strengths of In-depth Interviews in Urban Planning and Development Research

In-depth interviews have emerged as a prominent data collection method within urban planning and development research, as evidenced by numerous studies (Brown, 2024; Næss, 2020; Osborne & Grant-Smith, 2021; Showkat & Parveen, 2017; Sun & Dai, 2024; Wojnowska-Heciak et al., 2022; Zanudin et al., 2022). This widespread adoption can be attributed to several key strengths:

Rich and Nuanced Data

In-depth interviews allow researchers to delve deep into individual perspectives, uncovering rich and nuanced data on experiences, values, and beliefs (Osborne & Grant-Smith, 2021; Showkat & Parveen, 2017).

Flexibility and Adaptability

These interviews offer flexibility in exploring unexpected avenues and adapting to the nuances of individual responses (Næss, 2020).

Valuable Insights

They provide valuable insights into complex urban phenomena, such as the impact of rural-urban change (Brown, 2024), the evolving role of traditional authorities (Brown, 2024), the perspectives of residents with mobility difficulties (Wojnowska-Heciak et al., 2022), and the effectiveness of urban planning strategies (Zanudin et al., 2022).

Qualitative Depth

As a core qualitative research method, in-depth interviews enable researchers to explore and understand the underlying meanings and interpretations of urban experiences (Showkat & Parveen, 2017). Furthermore, the effectiveness of in-depth interviews is enhanced when combined with other research methods, such as quantitative data analysis (Næss, 2020) or observational techniques (Wojnowska-Heciak et al., 2022). In conclusion, the capacity to gather comprehensive data, their flexibility, and their ability to provide nuanced insights

into complex urban issues firmly establish in-depth interviews as an invaluable tool for researchers in the field of urban planning and development.

Procedure for Conducting In-depth Interviews in Urban Planning and Development Research

Pre-interview Preparation

In the initial stages of conducting in-depth interviews for urban planning and development research, the researcher should define and select a research topic that aligns with the study's objectives and addresses significant issues in the field. Once the topic is finalized, suitable participants should be identified based on their expertise, roles, or experiences relevant to urban planning. To ensure ethical and legal compliance, it is essential to consult subject experts or institutional ethics committees to address any sensitive ethical issues or legal aspects that may arise. This includes obtaining informed consent, maintaining participant confidentiality, and adhering to ethical research guidelines. The length and structure of the interviews should be planned according to the specific research areas and the expertise level of the participants, as outlined by Showkat & Parveen (2017) and (Osborne & Grant-Smith, 2021). Careful preparation of interview questions is necessary to elicit detailed and meaningful responses while maintaining a clear focus on the research objectives. Finally, systematic documentation of the interviews is crucial to ensure accuracy and facilitate in-depth analysis aligned with the study's goals.

During the Interview

During the interviews, the researcher will design the structure of the questions, considering whether a structured, semi-structured, or structureless approach is most suitable for the research participants. Ensuring the questions are simple, straightforward, and concise, avoiding ambiguity is essential. Closed-ended questions will be avoided; instead, the interview approach will be adapted

based on the specific requirements of the research. Drawing from the extensive knowledge gained from previously studied research materials, a positive relationship will be established with the participants, creating a comfortable interview environment. Before directly asking difficult questions, the researcher will create a conducive atmosphere and refrain from posing sensitive inquiries. Throughout the interview, the researcher will focus on active listening, dedicating 90% of the time to listening and only 10% to speaking. Unless necessary due to participant comments or declining response rates, repetition of questions will be avoided. Foster interactive dialogue with the participants, and if possible, analyze their facial expressions, gestures, body movements, and nonverbal communication. Ethical considerations will be upheld, and sensitive information will not be published. If participants wish to add questions, their requests will be accommodated (Showkat & Parveen, 2017; Osborne & Grant-Smith, 2021).

Post-interview Analysis

After completing the interviews, the researcher will transcribe the data into written form, separating and assigning numbers to each piece of data. Organizing the data sequentially based on the themes of the questions will be helpful. Each new question and idea will be listed in a new paragraph and arranged alphabetically. Any data not fitting into a specific category will be placed under miscellaneous items. Interpretation of the information provided by the informants will commence, and the report of the findings based on the analyzed data will be written (Showkat & Parveen, 2017; Osborne & Grant-Smith, 2021).In conclusion, conducting in-depth interviews in urban planning and development research involves careful pre-interview preparation, thoughtful design of interview questions, maintaining an engaging and comfortable interview environment, and meticulous post-interview analysis of the gathered data. By adhering to this procedure, valuable insights and meaningful findings can be extracted for the research.

Limitations

In-depth interviews, while a valuable data collection method in urban planning and development research, present several inherent limitations:

Limited Generalizability

i.   Studies focusing on a limited number of cases, such as two countries (Brown, 2024), or specific research areas like urban planning and transportation (Næss, 2020) may have limited generalizability to broader contexts.

ii. Small sample sizes (Wojnowska-Heciak et al., 2022) can also restrict the generalizability of findings.

iii. Over-reliance on in-depth interviews may neglect valuable quantitative data and broader regional perspectives (Brown, 2024).

Data Collection Challenges

Conducting and analyzing in-depth interviews can be time-consuming, resource-intensive, and potentially costly (Osborne & Grant-Smith, 2021; (Showkat & Parveen, 2017).

Subjectivity and Bias

i.   Data interpretation can be subjective, and participants may be inclined to provide socially desirable answers (Zanudin et al., 2022).

ii. Researcher bias may also influence data collection and analysis.

Furthermore, specific limitations may arise depending on the research context:

i.   **Narrow Focus:** Studies focusing solely on the perspectives of specific actors, such as local planning authorities (Zanudin et al., 2022), may lack a comprehensive understanding of the issue.

ii. **Overemphasis on Individual Narratives:** In case studies, an overemphasis on individual narratives, like Dr. Chen's in the Shenzhen

example (Sun & Dai, 2024), may overshadow a broader analysis of the phenomenon under investigation.

iii.   **Lack of Empirical Evidence:** The absence of concrete findings, as seen in the Iskandar Malaysia example, hinders the evaluation of research effectiveness and limits the ability to draw meaningful conclusions (Zanudin et al., 2022)

Addressing these limitations requires careful consideration. Researchers should strive to:

i.   **Increase Sample Size:** Whenever feasible, increase sample sizes to enhance the representativeness of findings.

ii.   **Employ Mixed Methods:** Combine qualitative data from in-depth interviews with quantitative data to enhance the robustness and generalizability of findings.

iii.   **Ensure Rigorous Methodologies:** Utilize robust analytical techniques to minimize subjectivity and enhance the credibility of findings.

iv.   **Acknowledge Limitations:** Clearly acknowledge the limitations of the study in the research report.

By acknowledging and addressing these limitations, researchers can enhance the rigor and validity of their findings in urban planning and development research.

This review of literature demonstrates the significant role of in-depth interviews as a valuable tool within urban planning and development research. Key findings reveal that in-depth interviews effectively capture the lived experiences of urban residents, providing rich insights into their perspectives on challenges and opportunities related to housing, transportation, and access to public services. For instance, research on the transformation of informal settlements into formally recognized "fined" towns effectively utilized in-depth

interviews to analyze the complex social and political dynamics at play, capturing nuanced perspectives on increased regulations, social tensions, and the enduring influence of traditional decision-making processes. Moreover, studies investigating the effectiveness of urban planning interventions have effectively employed in-depth interviews to assess the impact of these initiatives on residents' lives, identifying areas for improvement and highlighting the perspectives of various stakeholders, including urban planners, policymakers, and community leaders.

While in-depth interviews offer significant advantages, including the ability to delve deeply into individual experiences and uncover nuanced perspectives, they also present certain limitations. These include the time-consuming nature of data collection and analysis, the potential for limited generalizability due to small sample sizes and the subjective nature of data interpretation, and the inherent challenges associated with ensuring participant confidentiality and addressing potential researcher biases.

To maximize the effectiveness of in-depth interviews, researchers should carefully consider methodological challenges and employ rigorous data analysis techniques. This may involve integrating in-depth interviews with other research methods, such as quantitative data analysis, to enhance the robustness and generalizability of findings. Furthermore, careful attention should be paid to the development of robust interview protocols, ensuring participant confidentiality, and minimizing the potential for researcher bias. By addressing these limitations and leveraging the strengths of in-depth interviews, researchers can generate valuable insights that contribute significantly to the advancement of urban planning and development research.

Conclusion

In-depth interviews are a cornerstone of qualitative research, particularly in urban planning and development. They offer a rich source of data by delving into the experiences and perspectives of individuals, such as residents, policymakers, and community leaders. This method is invaluable for understanding complex urban issues like housing access, transportation, and public services, and for evaluating the impact of urban planning interventions. Studies on informal settlements and urban sprawl have effectively utilized in depth interviews to explore the social and environmental consequences of urban development. These studies emphasize the importance of considering local contexts, ethical considerations, and rigorous data analysis. While time-consuming and potentially costly, in-depth interviews provide invaluable insights into sensitive socio-economic and cultural issues.

Traditionally, urban research has relied heavily on quantitative data and aggregated responses. However, in-depth interviews prioritize individual experiences and expertise, making them crucial for understanding the human dimension of urban development. By carefully considering the strengths and limitations of this method and employing rigorous research methodologies, researchers can gain a deeper understanding of the complex challenges and opportunities facing urban areas. In-depth interviews are a versatile and valuable research method used across diverse fields, from healthcare to urban planning. They offer flexibility for researchers to gather rich, insightful data by allowing participants to share their perspectives freely. Whether structured or unstructured, these interviews provide valuable qualitative data, enabling deeper understanding and insights in various research domains. Ethical considerations are crucial when employing this method.

Implications

This review highlights the significant potential of in-depth interviews for generating novel insights and advancing knowledge in urban planning and development research. To further enhance the effectiveness of this method, we recommend the following:

i. **Integrate mixed methods** to enhance the robustness and generalizability of findings.

ii. **Rigorously address methodological challenges** such as researcher bias and ensuring data quality.

iii. **Increase the generalizability of findings** by employing strategies such as increasing sample sizes and conducting comparative studies.

iv. **Prioritize ethical considerations** throughout the research process.

v. **Disseminate findings effectively** to inform policy and practice. This review contributes to the existing literature by synthesizing and critically evaluating the strengths, limitations, and best practices for utilizing in-depth interviews specifically within the context of urban planning and development research. By identifying key challenges and providing specific recommendations, this review aims to guide future research and contribute to the advancement of knowledge in this field.

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Sociological Analysis of the Sati System: A Reflection of the Mahabharata and the Pret Kalp of the Garudamahapurna in Gender Perspective

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Abstract

Sati (wives burning alive with the dead bodies of their husbands on the pyres as their deceased husbands' bodies are burnt down in the burning ghat) system was performed as norms and rules of the society in the patriarchal socio-cultural structure in the past era. This research has been focused on exploring the Sati system in terms of the women's roles in the death ritual of the historical period of *The Mahabharata and Pauranic* era of The Pret Kalpa of The Garudmahaapurana. There is no possibility to visit the historical period of society. Each piece of knowledge and literature has been socially produced. The literature reflects the socio-cultural relationship of that period of society.

Method: This research has gathered historical data using the historical content analysis method and expert interviews. Similarly, secondary data has been collected through the articles, published in various journals of related issues. The content analysis method was applied to analyze the data using the qualitative research design. The legacy of Sati transcends its historical confines, catalyzing ongoing conversations about gender equity and human rights in a contemporary context. Exploration of the sati system through the ancient scriptures like The Mahabharata and The Preta Kalpa of The Garudamahapurana has given the knowledge of how gender issues have been shaped, guided, and passed on and on from generation to generation to the present social and cultural practices. The data have been analog to the theoretical assumption of patriarchy.

Keywords: death ritual, gender, Mahabharata, Pret Kalpa of The Garudamahapurana, Sati system, sociological analysis

Sociological Analysis of the Sati System: A Reflection of the Mahabharata and the Pret Kalp of the Garudamahapurna in Gender Perspective

The Sati system, a historical practice in certain parts of Nepal and India, involved the self-immolation of a widow on her husband's funeral pyre. This ritual was rooted in patriarchal values and was often viewed as an act of ultimate devotion and honor. However, it also reflected the severe social restrictions placed on women, who were often seen as the property of their husbands and subject to societal pressures. While Sati has been documented as far back as the 4th century, it gained prominence during the medieval period. It continued into the 19th century until it was officially banned by the British colonial government in 1829 (Nussbaum, 2000) in India and by Chandra Shamsher in 1928 in Nepal. The Sati system highlights the complex interplay between gender, tradition, and colonial intervention, serving as a lens through which to examine the broader status of women in historical and contemporary contexts. In this sense, the reflection of sati system means the process of drawing the disparity of men and women still being practiced in the socio-cultural structure derived from ancient civilization to the present modern society's link how the gender roles and responsibilities have been differentiated in the patriarchal society of the modern era.

Sati (wives burning alive with the dead bodies of their husbands on the pyres as their deceased husbands' bodies are burnt down in the burning ghat) system was performed as a norms and rules of the society in the patriarchal socio-cultural structure in the past era. Sati system has been connected with the gender roles and duties of women and men. The patriarchal social structure got formed in a male dominated society and females were regarded as the objects for serving the men and the women's lives used to be meaningful as long as their husbands were alive (Adhikari, 2020c). The male dominated society created the social structure of binary opposition of men and women. Sati was taken as the dignity and status

of the male dominated society. It got developed with the civilization of human beings. Though it has not been found in the practice at present, it has been explained in the ancient scriptures. For understanding and knowing gender roles, it has become essential to comprehend the sati system of the ancient scriptures. The sati system has been found in the form of narration and peaching in the social practice even today. Though it has not been found the exact date when the sati system got started, it has been often found narrated in The Preta Kalpa of The Garudamahapurana and The Mahabharata as the ancient scriptures of teaching the society in the form of the death rituals. The sati system and the gender roles have interconnected, and it has discriminated between men and women. However, the gender analysis cannot be limited to a binary view of men and women. According to Butler (2015), gender is defined by performative roles rather than by physical characteristics. This suggests that the roles associated with gender are shaped by how individuals perform within their socio-cultural contexts. Butler argues that a woman's identity is influenced by the societal roles she adopts. Similarly, Patton (2007) supports Butler's perspective in discussions of gender. However, the topic of gender encompasses various dimensions and complexities, making it impossible to reduce to a single narrative. Individuals, regardless of gender, fulfill multiple roles within social institutions, and these performances contribute to their gender identities.

In other words, the Sati system, a historical practice in which a widow self-immolated on her husband's funeral pyre, has deep roots in Indian culture and mythology. This practice, often shrouded in notions of honor and duty, can be examined through various literary and religious texts, including the epic *The Mahabharata* and *The Preta Kalpa* of *The Garudamahapurna*. These texts not only reflect societal attitudes toward women and their roles but also highlight the complex interplay between mythology, morality, and social customs in ancient India. By exploring the representation of the Sati system within these texts, we

can gain valuable insights into the sociocultural fabric of the time and the implications of such practices on gender roles and societal structures. *The Mahabharata*, a cornerstone of Indian epic literature, offers a rich narrative that delves into themes of duty, honor, and the often-tumultuous position of women within a patriarchal society. In contrast, *The Preta Kalpa* of *The Garudamahapurna* provides a theological perspective on various rituals and beliefs, including those surrounding death and the afterlife. Both texts serve as crucial resources for understanding how the Sati system was perceived and justified in ancient Indian society. This exploration sheds light on the broader sociolugical implications of such practices and encourages critical reflection on contemporary interpretations of gender and tradition. The Sati system has been a focal point of scholarly inquiry, drawing attention from various disciplines, including sociology, anthropology, and literary studies. Scholars such as Kaur (2010) have examined how ancient texts contribute to the social constructs surrounding women's identities, particularly in the context of widowhood. Kaur argues that the Sati system was not merely a personal choice for women but rather a reflection of deeply ingrained societal expectations and pressures.

 The Mahabharata offers a multifaceted portrayal of female characters, most notably the figure of Draupadi, whose narrative encapsulates the struggles faced by women in a male-dominated world. According to Shukla (2015), Draupadi's experiences highlight the oppressive structures that dictate women's lives and choices, including the concept of Sati. The text illustrates how societal norms often relegated women to the status of property, whose worth was tied to their husbands. In *The Preta Kalpa* of *The Garudamahapurna*, the discussion surrounding death and rituals is framed within the larger context of dharma (duty) and karma (Adhikari & Adhikari, 2024). Sharma (2018) noted that this text presents the Sati ritual as an act of ultimate devotion and loyalty, thus reinforcing its acceptance within certain strata of society. Sharma emphasizes that the

religious underpinnings of Sati created a dichotomy where the act was revered as noble while simultaneously perpetuating the marginalization of women.

Furthermore, Ghosh (2019) highlights the role of myth in shaping societal attitudes toward gender. In her analysis, she suggests that the narratives within The *Mahabharata* and The *Preta Kalpa* of *The Garudamahapurna* contribute to the construction of an idealized femininity that valorizes self-sacrifice. Ghosh's work reveals how these texts perpetuate the notion that a woman's ultimate duty is to her husband, thus normalizing the practice of Sati as an expected response to widowhood.

Despite the historical context of Sati, contemporary feminist scholars argue for a re-evaluation of these narratives. Jain (2020) contends that modern interpretations of these texts must challenge the glorification of Sati and instead focus on the lived realities of women affected by such practices. Jain calls for a critical examination of the texts that considers the implications of Sati on women's agency and autonomy, thereby situating their voices within the broader discourse of gender studies.

In short, the Sati system as reflected in *The Mahabharata* and *The Preta Kalpa* of *The Garudamahapurna* offers a rich field of study that intersects literature, religion, and sociology. The complex representations of gender roles in these texts illuminate the societal norms that have historically dictated women's lives, urging a critical reflection on how these narratives shape contemporary understandings of gender and tradition. However, Jain, Ghosh, Sharma, Shukla, and Kaur have not done the proper research of sati system in reflection to the gender roles and responsibilities and hence this research has attempted to fulfil the remaining gap for the comprehension of the gender issues of the modern era being connected with the ancient, historical context and also with the transformation of the civilization from the ancient era to the present era accordingly.

Objective and Method of Research

This research focuses on exploring the *Sati* system in-terms of the women roles in death ritual of the historical period of *The Mahabharata* and *Pauranic* era of The *Pret Kalpa of The Garudmahaapurana*. There is no possibility to visit the historical period of society. Each of the knowledge and literature has been socially produced (Adhikari, 2020a; Adhikari, 2020b; Adhikari, 2024). The literature reflects the socio-cultural relationship of that period of society (Adhikari, 2021 & Adhikari, 2022). We can draw out the social facts of that period through the historical content analysis of the literature (Adhikari et al., 2024a; Adhikari et al., 2024b). Hence, to achieve the objective, this research has gathered historical data using the historical content analysis method and expert interview.

Similarly, secondary data has been collected through the articles, published in various journals of related issues. The research has chosen to use the qualitative research method to collect historical data, a method that Adhikari & Acharya (2020) and Adhikari et al. (2024e) have highlighted for its effectiveness in qualitative research and uncovering theoretical origins. Adhikari & Khadka, (2020), Adhikari et al. (2024f) and Adhikari et al. (2024g) have also utilized this qualitative research approach for gathering historical data. This study follows the same path to gain historical insights into the social structure concerning women roles and Sati system within *The Mahabharata* and *The Pauranic* period. The content analysis method is a major method to analyze the data in qualitative research design (Adhikari, 2020d; Adhikari et al., 2024d; Adhikari et al., 2024). All of the data has been analyzed through the content analysis method. It is the drawing the related stanzas and lines from the original texts, *The Mahabharata* and *The Garudamahapurana* respectively. The evidence taken from the primary texts have been analyzed critically in the context of the sati system.

Theoretical Orientation

Gender role disparities are predominantly linked to the concept of patriarchy, a system characterized by hierarchal and unequal power dynamics. Reinforcing societal stereotypes of masculinity and femineity that further perpetuate the unequal power dynamic between genders. Walby (1990) describes patriarchy as a male-dominated family structure, a social and ideological construct that positions men as superior to women. Patriarchal societies promote the idea of motherhood, encompassing the nurturing, education, and upbringing of children within the family. In other words, women's roles, their identities as well as their due values have not been recognized in the patriarchal system of the socio-cultural structure.

Discussion, Findings and Analysis

The analysis has been carried out on the basis of different thematic subtopics from both *The Mahabharata* and *The Preta Kalpa* of *The Garudamahapuran* in drawing the sati system and the gender roles respectively.

Women as the Sati (self-burning alive with the dead body of the husband) in The *Mahabharata*

Sati, burning alive with the burning of the dead body of the husband, was a common practice in the era of *The Mahabharata*. Karve (1969) has narrated about the event of Madri, the wife of Pandu, who had burnt herself with her husband's dead body by providing the responsibilities for taking care of her two sons, Sahadev and Nakula, to Kunti. Sati system was seen as a devotion of the wife towards her husband and its practice by the society at that time could be related to the duties of the married women i.e., 'Stridharma'. The law of it can be traced to *The Manu Smriti* and the society of *The Mahabharata* is seen practicing it but the wives becoming objects to burn themselves alive with their dead husbands is not mentioned in *The Manu Smrti* and the concept of getting remarried was forbidden for the widowed women, it was seen as her duty to join

her dead husband (Dhand, 2007 & Dhanda, 2009). But Vemsani (2021) contradicts on the practice being a choice of either joining their dead husbands like Madri and Shouri's wife or living like Kunti as a *Sanyasa* in *The Mahabharatia* society and it was an option rather than a law of the society as Hawley (1994) argued. However, whether it is choice or compulsion, Sati system was practiced by the widowed women in the context of *The Mahabharata* as the following image reflects the real sati system carried out practically in the era of *The Mahabharata*.

Firstly, Madri burned herself with Pandu because of the curse given to him by Rishi Kimdama i.e., his death was caused by Pandu's bow in hunting while the Rishi was copulating in the forest (Debroy, 2014, Sambhava Parva, 110). Pandu passed away according to the curse of the Rishi. After this event, it was a choice for Madri either to go in Sati or not but she realized that her husband died due to her cause of copulating with him as it was the curse of the Rishi, she chose to join Pandu in the funeral pyre (Sambhava Parva, 91). However, the case of Rukmini joining Krishana in the form of sati is not mentioned after the death of her husband while Satyabhama becomes a Sannyasa and enters the forest as atonement as it is mentioned in Hawley's (1994, pp 52). Though there was no rule to go in Sati, it was a common practice in *The Mahabharata* period.

Similarly, after Shouri's death, his four wives Devaki, Bhadra, Rohini and Madri joined him after his death as their husband's companion to the other life. According to Hawley (1994) the practice was limited to the kshatriya's tradition because The Padma-mahapurana prohibited the Brahmin women from joining their dead partner to the fire and the supporters to be guilty of manslaughter (Bhramhatya). So, it must be due to the choice, the four wives had joined with the dead body of their husband to be burnt alive as the system of Sati.

So, the practice was not mandatory even though it was practiced by the kshatriya widows and it was not any rule for other caste's widows to go to Sati

with the dead husband. The wives of the warriors are mentioned to go to Sati with their dead husbands.

Women's Devotion to Husbands

Women were dedicated to their husbands in *The Mahabharata*. Karve (1969) has explored how women were faithful to their husbands by giving the example of Draupadi and Subhadra to their husband, Arjuna. Likewise, Subedi (2018) has mentioned that king Drupad had organized the Swayamber ceremony for the marriage of his daughter. He announced, who would be able to pick up the "Dhanush" (heavy arrow or bow) that brave person would marry his daughter Draupadi. Arjun had succeeded in that performance and Draupadi had provided him the garland of Swayamber. According to the blessing of mother Kunti, all Panch-Pandavs (Yudhistir, Bhim, Arjun, Nahakul, and Sahadev) had treated Draupadi as a common wife of Pandavas. Apart from Draupadi, Pandavas had other wives too. Bhima had married Hidimba, and Arjun had married Shubhdra as their wives. But Draupadi equally responded, believed, and respected five husbands. Similarly, all five brothers- Panch –Pandavas had always faith in Draupadi as their wife.

Likewise, Dhritarastra was blind. He had married Gandhari who was not blind. But she became ready to cover her both eyes like a blind person to build up a respectful and faithful relationship between husband and wife. Subedi (2022) has added that husband and wife had mutual respect and a believable environment in the socio-cultural structure of *The Mahabharata* period. The socio-cultural structure was based on a patriarchal system although the marital relationship was guided by mutual understanding (D.P. Subedi, Personal communication, June 26, 2022). The role of Draupadi as the faithful wife of the Pandavas despite having other wives of them has proved that she had faithful relationship as the wife of Pandavas. It has displayed that women characters have been treated as weak,

feeble, faithful to their husbands, dedicated to their husbands and they have been regarded as the objects of the service to the men.

Women being Blinded for the Life of the Heaven through Sati

Women have been blinded by luring them to have the life of the heaven next to the earthly life. Women would deserve the life of heaven for many years after the earthly life if they go Sati with their dead husbands together. Such concept has been given in ninety -one stanza of *The Preta Kalpa* in chapter four of *The Garudamahapurana*. The stanza Ninety-one has stated that a woman who ascends the pyre of her dead husband together and follows up her husband together even after his death, she dwells in paradise or she stays in the heaven for a period of equal to the number of hairs on the body. In other words, such a woman lives in the heaven three and half crore years (Vedavyasa, 2012, Garuda, 91 stanza). This stanza has inspired the women to go to Sati with their dead husbands and to dwell in the heaven for a long period of time after this earthly life. It naturally functions as the seed of motivation to the innocent women who do not have the knowledge of philosophy of life. It has not provided the value and importance of life of the women after the death of their husbands on the earth. But the entire *The Garudamahpurana*, not only *The Preta Kalpa*, does not say anything to the husbands to burn alive with the dead wives together on their pyres. In this sense, it has discriminated between the male and the female in *The Preta Kalpa* of *The Garudamahapurana.*

Woman as a Tool through Sati

Woman's life has been taken as the tool of bringing salvation and liberation of all kinds of the sins of earthly life of her husband after the earthly life. Such idea has been provided in stanza ninety-two of *The Preta Kalpa* in chapter four of *The Garudamahapurana*. The stanza has argued that just as the snake charmer takes out the snake forcefully from the hole, in the same way, the woman who goes to Sati with her dead husband's pyre together, she takes out her

husband from hell and she enjoys with him in the paradise (Vedavyasa, 2012, Garuda, 92 stanza). This stanza has compared women with the snake charmer to take out all kinds of the sins of their husbands' earthly life by going to Sati and taking their deceased husbands out from the painful life of the inferno and taking them in the heavenly zone next to the life of the earth. In this respect, women's lives have been regarded nothing more than the tools of liberation of all kinds of the earthly committed sins and their punishment in the hell. Women are emotionally inspired to dedicate to their husbands and even motivated them to enjoy the life of the paradise with their husbands even in the life next to the earthly life.

Woman Favoring of Celestial Nymphs via Sati

Woman has been lured to dwell in the eyes of the celestial nymphs by adopting the Sati system. Such idea has been explained in stanza ninety-three in *The Preta Kalpa* of *The Garudamahapurana*. The stanza has ignited women to go to Sati by stating the idea that the woman who ascends the pyre of her dead husband goes to heaven directly. In that situation, she is praised by the celestial nymphs and such woman enjoys with her husband in heaven for a long period of time. This time is called fourteen Indras' rule in paradise successively (Vedavyasa, 2012, Garuda, 93 stanza). This stanza has put the concept of dwelling in heaven to the women with their husbands together by going to Sati with their husbands' pyres together. If women do so, then they do not only obtain the opportunity of ascending to the heaven but they also become the most favorite in the eyes of the celestial nymphs. Such women are lured to go to Sati even to gain the especial praise, love, and care of the heavenly nymphs as the dutiful, honest, and holey women in performing the right rituals for the sake of Dharma. Moreover, such women have been encouraged to go to Sati for dwelling in the paradise as long as fourteen Indras-Gods -would be ruling in the heaven one after another. In such case, the women do not mind to go to Sati to win the favor of

celestial nymphs. It has claimed that the women have to sacrifice for the sake of their husbands but it has not said that men too have to sacrifice for their wives if they die earlier to men. This Sati system has created gender disparity and inequality. Both male and female are equal as human beings but males have gained superiority in position to females. Burning alive with the dead husbands together on their pyres does not seem to be imaginable and such wild and savagery cannot even be envisioned in the modern civilized society of today though it was practiced in the ancient time.

Woman's Sati as Purgation of Man's Sins

Woman has been encouraged to go Sati for the purgation of man's sins in the stanza of ninety-four in fourth chapter in *The Preta Kalpa* in *The Garudamahapurana*. The stanza has asked woman to participate in Sati system for the purification of all kinds of the sins committed by her husband. It has stated that even if the man has murdered a Brahmin or a companion or any other person of noble conduct, the man's sins is purified by his wife who ascends in his pyre together when he is dead (Vedavyasa, 2012, Garuda, 94 stanza). This stanza has emotionally compelled the women to sacrifice their lives in Sati for the sake of their husbands' purgation of all kinds of sins of killing noble persons like Brahmins, friends, or of any one of noble manners deserving individuals. In other words, if the wives do not go to Sati with their husbands, then all the known and unknown sins committed by their husbands cannot be purified and their husbands' ought to go to suffer various kinds of the punishments after earthly life. In this respect, women have been psychologically prepared to participate in the Sati system for the welfare of their husbands' lives in the next to the earthly life. This kind of system has segregated the role of male and female in the socio-culture structure of those people who have deep trust in the doctrine of *The Preta Kalpa* of *The Garudamahapurana*. In this context, the question arises that if the wife ascending on the pyre of dead husband purifies all the sins of her husband, then

why not husband's ascending on the pyre of his wife purifies the sins of his wife who has committed sins in her earthly life. What can it be called if it is not injustice, inequality, and disparity of gender between male and female in the socio-cultural structure of *The Preta Kalpa* in *The Garudamahapurana*? This Sati system has revealed that women are the scapegoats for the better life and purification of all kinds of misdeeds and sins of males.

Woman's Sati as Prosperity

Woman has been defined of turning into the most prosperous one in the paradise if she follows the Sati system in stanza eighty-five in the fourth chapter in *The Preta Kalpa* of *The Garudamahapurana*. It is natural dream of gaining prosperity either in this earthly life or in the next life of the earth. The stanza has claimed that a woman who enters the burning fire of her dead husband's pyre and burns down together with her dead husband, then she prospers in the heaven as Arundhati was prospered (Vedavyasa, 2012, Garuda, 95 stanza). This stanza has ignited women to sacrifice their lives with the cremation of their husbands on their pyres by the inspiration of turning them into the most prosperous ones in the paradise. The legend of the most prosperous one, Arundhati, has been drawn as the analogy of how prosperous the women happen to be if they sacrifice themselves with their dead husbands on their pyres in the cremation. So, the Sati system has been used as the cause of becoming prosperous one in the heaven in the next life. It is also nothing more than inspiring women to participate in Sati system with the death of their husbands.

Woman's Sati as Release from Woman

Woman has been encouraged to get released from the pain, suffering and struggleful life after the earthly life. For this reason, woman is asked to take part in the Sati system as it has been explained in stanza ninety-six in fourth chapter in *The Preta Kalpa* of *The Garudamahapurana*. It has claimed that until and unless the woman burns herself after her husband's death, she will never be released

from the bond of her sex (Vedavyasa, 2012, Garuda, 96 stanza). This stanza has captured the women's psychology of never getting the life of woman again in the next life. It is believed that women do not want to gain the life of women after the earthly life, in the next life. So, it has inspired women to go Sati with their dead husbands and to get released for ever from the life cycle of women again and again. This concept has also regarded that women do not have to get rebirth in the form of the women again in their next lives and it means that the life of the women is not as good as that of the men.

Woman's Sati as Purgation of Three Families

Woman's Sati system has been regarded as the cause of purgation of three families both from the side of her mother and three families from the side of her father. This idea has been described in ninety-seventh stanza in the fourth chapter in *The Preta Kalpa* of *The Garudamahapurana*. This stanza has narrated that a woman who burns herself on the pyres of her husband together and dies with her husband purifies the three families on her mother's side and three families on her father's side respectively (Vedavyasa, 2012, Garuda, 97 stanza). This stanza has made women curious and conscious to purify the three generations of mother's families and three generations of father's families from their sins. It has motivated women to do good deeds for the generations of three families from mothers and three families of father's sides. It has made women ready to burn down with their dead husbands in the same pyres for the purification of generations of generations by adopting Sati system.

Sati as a Rule to all Types of Women

Sati has been taken as a rule to all types of women to burn down on the pyre with their dead husbands. This principle has been stated in stanza hundred in fourth chapter of *The Preta Kalpa* of *The Garudamahapurana*. It has argued that a woman who is pregnant and a woman who has got infant from Brahmins to Chandalini of all types of women are obliged to burn down together with on the

pyres of their husbands as the equal rule to women (Vedavyasa, 2012, Garuda, 100 stanza). This stanza has advocated to all kinds of women either she is pregnant or she has got an infant or she is of Brahmin or of Chandalini or of upper class or of lower class must burn down with their dead husbands' pyres together. It has focused that no women have the rights to spare their Sati system because the women do not have their lives as their husbands have passed away. Hence, it has emphasized the Sati system as a rule to all the women. It has explored the gender disparity of male and female. Females are asked to go Sati with the death of the males but males have been regarded as superior to females since they do not need to go for Sati for their dead wives as women are forced to go.

Conclusion

The exploration of the Sati system through the lenses of The *Mahabharata* and *The Preta Kalpa* of *The Garudamahapurna* reveals not just a historical practice but a complex tapestry of sociocultural norms, gender expectations, and philosophical underpinnings. These texts serve as powerful mirrors reflecting the struggles and sacrifices imposed on women within a patriarchal framework. They illuminate how deeply entrenched beliefs about duty, honor, and devotion can shape the lives and identities of individuals, often to their detriment. In *The Mahabharata*, the character of Draupadi embodies the conflict between agency and societal expectation, symbolizing the plight of women caught in the crossfire of tradition and personal autonomy. Her narrative compels us to question the glorification of Sati and the societal structures that enforce such tragic choices. *The Preta Kalpa* of *The Garudamahapurna* provides a theological justification for these practices, embedding them within the religious narratives that shape moral and ethical understandings of life and death.

The portrayal of women in the context of the *Sati* system, as reflected in ancient texts such as *The Mahabharata* and the *Preta Kalpa* of the *Garudamahapurna*, offers a complex and multifaceted lens through which to

examine the intersection of gender, culture, and religious symbolism in ancient India. These texts provide deep insights into the role of women, not only as figures of personal devotion and sacrifice but also as symbols of moral and social control in patriarchal societies. In the *Mahabharata*, one of the most significant and widely studied epics in Indian literature, the portrayal of women reflects both their exaltation and victimization in a patriarchal order. Women like *Draupadi* and *Kunti* play central roles in the narrative, often symbolizing strength, suffering, and sacrifice. Yet, in many parts of the text, they also exemplify the harsh realities of gendered expectations. *Sati*, as a religious act, is symbolized through figures such as *Draupadi*, whose tragedy at the hands of male characters resonates with a deeply ingrained societal narrative: the notion that a woman's fate, identity, and honor are bound to the actions of the men in her life. Draupadi's eventual symbolic death is entwined with a subtle critique of patriarchy and the multiple layers of trauma that women endure. Her role in the epic is a paradox: she is both a symbol of resistance and resilience and an object of male domination and ownership. Thus, *Sati* in the *Mahabharata* comes to represent the intersection of personal sacrifice, social expectations, and the oppressive norms placed on women. Her self-immolation is not only a physical act of devotion but also a symbolic representation of the deep-rooted sacrifices that women are expected to make in the name of familial and social honor.

The *Preta Kalpa* in the *Garudamahapurna* introduces another dimension of understanding women's symbolic role within the larger framework of *Sati*. The *Garudamahapurna*, a key text in the Hindu religious canon, discusses various aspects of life and death, and the passage that addresses the practice of *Sati* is particularly revealing in its gendered perspective. The *Preta Kalpa* reflects upon the soul's journey after death, and women who committed *Sati* were often regarded as performing an act that could lead to spiritual liberation, both for themselves and for their husbands. This is significant because it highlights the

role of women in the preservation of social and religious order and their spiritual value, which was paradoxically tied to their mortality. While the *Garudamahapurna* depicts the act of *Sati* as a religiously virtuous act that may cleanse the soul of both the woman and her husband, it also reveals the exploitation of women's agency within religious orthodoxy. Women, in this context, are revered only insofar as their acts of devotion serve a higher moral and social cause. The practice is enshrined in religious texts, but the autonomy and desires of women are subsumed in the idea of sacrifice. It highlights the ideological subjugation of women under the guise of spiritual elevation, positioning them as mere instruments of ritual rather than as individuals with rights or desires of their own.

From a critical gender perspective, the representation of women in these texts reflects a profound tension between spiritual reverence and societal subjugation. The *Sati* system, both as an act of ritualized sacrifice and as a symbol of religious devotion, underscores the extent to which women's bodies and lives were instrumentalized within ancient patriarchal systems. Critical theorists like Judith Butler, Michel Foucault, and Gayatri Spivak offer lenses through which we can interrogate these texts for their underlying power structures.

The gender is not a fixed identity but a repeated set of actions and behaviors. In the context of the *Sati* system, women's self-sacrifice can be viewed as a performative act of devotion that was culturally constructed, but it also reinforces the ideological structures of patriarchal domination. The act of *Sati* is not only a gendered act of devotion but also a reinforcement of patriarchal norms that define women's worth through their relationship to men.

Foucault's notion of biopower and the regulation of bodies is also pertinent here. Women's bodies, especially in death, become the sites of political and religious control. The act of *Sati* serves as a powerful example of how power manifests through the regulation of life and death, especially concerning women.

Women's sacrifice becomes a tool of social discipline, highlighting the ways in which patriarchal society exercises control over women's bodies and their autonomy. Gayatri Spivak's postcolonial critique, particularly her work on the subaltern, can be used to understand the silencing of women in these texts. The subaltern woman, in this case, is positioned as a subject without voice or agency. Even in death, women are symbolized as fulfilling roles set by societal norms, rather than as active agents in their own right. The texts of the *Mahabharata* and the *Garudamahapurna* reveal the deep entanglement of women's bodies, identities, and fates with religious, social, and patriarchal systems. While these texts provide cultural and religious justifications for the practice of *Sati*, they also offer opportunities for critical theorization. By examining these ancient narratives through the lens of modern gender theory, we can understand the ways in which women were both revered and subjugated, their agency often reduced to symbolic acts of self-sacrifice. The system of *Sati* encourages a rethinking of how such narratives shape our understanding of women's roles in history. It challenges the ways in which the feminine ideal has been used to justify oppressive systems and highlights the importance of reclaiming women's agency not only in religious discourse but also in the retelling and reinterpretation of these ancient texts. In this light, the symbolic act of *Sati* can be seen as both a reflection of deep-seated gender inequalities and a point of resistance, where the very notion of self-sacrifice forces us to question and critically examine the value of women in society.

In the process of reflecting on these texts, we recognize the need for a nuanced interpretation that acknowledges both the historical context and the lived experiences of women. As modern readers, we must confront the implications of these narratives in contemporary society. The Sati system, while ostensibly a relic of the past, resonates in ongoing discussions about gender, autonomy, and cultural practices. Ultimately, the study of the Sati system through these texts invites a

broader dialogue about women's roles in society—past and present. It urges us to dismantle the romanticized notions of sacrifice and loyalty that have historically constrained women's identities. By critically engaging with these narratives, we can pave the way for a future where women's voices are not just echoes of the past but are empowered to challenge, redefine, and reshape societal norms. Thus, the legacy of Sati transcends its historical confines, serving as a catalyst for ongoing conversations about gender equity and human rights in a contemporary context. Exploration of the Sati system disparity through the ancient scriptures like *The Mahabharata* and *The Preta Kalpa* of *The Garudamahapurana* has given the knowledge how the gender issues have been shaped, guided and passed on and on in generation to generation to the present social and cultural practices. The data have been analogue to theoretical assumption of patriarchy.

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**Exploring the Linking between Education Investment and Economic
Growth: Evidence from Study of Nepal**

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Abstract

This study aims to assess the influence of government expenditure on education and gross fixed capital formation on Nepal's GDP and to analyze the significance of human capital development in driving sustainable economic growth in Nepal by examining the relationship between educational investment and economic performance during the period 1975–2021. The method of this study is using econometric model, the study employs the Ordinary Least Squares (OLS) technique to estimate a multiple regression model, evaluating the relationships among dependent and independent variables. The findings indicate a positive correlation between government spending on education and GDP; however, the regression analysis reveals that educational expenditure does not significantly impact Nepal's real GDP. A trend analysis highlights a decline in capital expenditure on education over the years, accompanied by a steady increase in recurrent spending. The study's implication underscores the critical role of government in delivering essential education services and recommends sustained and increased investment in education to enhance human capital. These findings have significant policy implications, advocating for strategic reforms in Nepal's educational financing to foster economic growth and sustainable development. This research contributes to the broader understanding of the role of education in economic progress, offering insights specifically relevant to Nepal's socio-economic context.

Keywords: government expenditure, educational investment, gross domestic product, Nepalese economy, ADF test, descriptive statistics, *JEL Classification: H_5, I_2, O_4*

Exploring the Linking between Education Investment and Economic Growth: Evidence from Study of Nepal

Education plays a pivotal role in shaping the socio-economic framework of nations by fostering human capital development, enhancing productivity, and driving innovation. Government expenditure on education is widely regarded as an investment in the future, enabling the development of a skilled workforce and facilitating economic growth. It is well-established in economic theory that education improves labor quality, boosts productivity, and encourages technological advancement, thus steering economies toward higher levels of equilibrium output (Lucas, 1988; Romer, 1990). By enhancing individuals' ability to process information and adopt advanced technologies, education catalyzes economic prosperity and social progress.

Government spending, funded through tax and non-tax revenues, is a critical driver of economic development. This spending is categorized into current expenditures, which include day-to-day operational costs, and capital expenditures, which focus on long-term investments. The allocation of resources to education is crucial for fostering economic transformation, particularly in developing countries like Nepal, where structural challenges and resource limitations often impede progress. However, poor governance, political instability, and inefficient resource allocation have historically constrained Nepal's capacity to maximize the benefits of educational investment.

The importance of education as a catalyst for economic growth and poverty reduction has been widely acknowledged. In emerging economies, investment in education is essential for enhancing labor force skills, reducing unemployment, and fostering innovation. Despite this understanding, gaps remain in the literature, particularly concerning the specific impact of public education funding on economic growth in Nepal. Most existing studies fail to distinguish between the effects of recurrent and capital expenditures on education or to

examine how public spending aligns with the requirements of a modern, knowledge-based economy.

This study seeks to address these gaps by exploring the relationship between education investment and economic growth in Nepal over the period 1975–2020. Using historical data and econometric methods, it examines the influence of public education funding on GDP and overall economic development. Furthermore, the study evaluates trends in educational expenditure, focusing on the balance between recurrent and capital spending. By doing so, it aims to provide actionable insights for policymakers to enhance the effectiveness of educational investments in driving sustainable economic growth.

This research is particularly relevant in the context of Nepal's developmental challenges, where strategic investments in education could serve as a foundation for reducing poverty, fostering innovation, and achieving long-term economic transformation. The findings contribute to the broader discourse on the role of education in economic progress, offering policy recommendations tailored to Nepal's unique socio-economic environment.

Literature Review

Education investment plays a crucial role in economic growth. Musila and Belassi (2004) found that government spending on education in Uganda significantly impacted growth both in the short and long term. Building on such insights, this study examines the impact of public education funding on Nepal's economic growth, addressing gaps in its specific socio-economic context. Maitra and Mukhopadhyay (2012) analyzed the influence of government expenditure on education in improving the GDP of twelve nations over a span of three decades. The analysis revealed a reciprocal influence of public expenditure on education and healthcare on GDP.

The Johansen cointegration experiments revealed the presence of cointegrating relationships. Permani (2009) examined the relationship between

education and economic development in East Asia, revealing a strong causal link between the two factors. Al-Yousif (2008) conducted a Granger causality test to investigate the causal relationship between educational expenditure and economic growth across six economies from 1977 to 2004, resulting in inconclusive findings. The research conducted by Devlin and Hansen (2001) established a Granger relationship between health expenditure and GDP across twenty OECD nations.

Blankenau et al. (2007) identified a positive correlation between public education expenditure and economic growth in industrialized countries, using panel data and a theoretical growth model, while Craigwell et al. (2012) found that health spending influences education expenditure but minimally affects enrollment in Caribbean nations. Similarly, Lacheheb et al. (2014) demonstrated that healthcare and education investments drive economic growth in MENA countries, though indirectly linked to capital formation, and Eggoh et al. (2015) revealed mixed effects in Africa, where public spending on education and health negatively impacted growth, but human capital indicators showed slight positive effects. This study builds on these frameworks to analyze the impact of education investment on Nepal's economic growth in its unique socio-economic context.

Khan et al. (2016) analyzed the relationship between health expenditure and economic growth in SAARC countries, finding a negative income elasticity of healthcare expenditure in both the short and long term. Yan and Yusoff (2018) examined trends in Malaysia's public education spending from 1982 to 2016, noting significant funding cuts. El-Dib et al. (2023) explored Egypt's education spending, using ARDL co-integration to find a positive long-term relationship with GDP growth, despite a negative short-term link. This study extends these findings by examining the impact of education investment on Nepal's economic growth in its specific context.

Piran et al. (2023) studied the impact of renewable energy on education, technology, and healthcare, finding a negative correlation between GDP, renewable energy, education, and healthcare spending, with climate change significantly increasing healthcare costs. Tatlah et al. (2011) highlighted the strong correlation between general education and economic success, emphasizing the role of education in lifelong well-being. Lacheheb et al. (2014) found that health and education investments drive economic growth in MENA nations, with a positive link to capital formation. Wang (2024) showed that educational equity and quality boost productivity and societal development. These studies provide a foundation for exploring the relationship between education investment and economic growth in Nepal.

Bisio and Lucchese (2023) conducted an empirical analysis using Italian National Institute of Statistics System of Statistical Registers data. Training, labor market efficiency, and the economy's ability to incorporate skilled workers cause the gap. They remarked that education boosts productivity in medium and high-tech manufacturing and less knowledge-intensive services, whereas under-education lowers productivity in tech and knowledge-intensive industries. Fardoush (2021) examined how government investment in Bangladesh improves quality of life through agricultural expansion, rural development, and education, notably school enrollments.

As per the author indicated that 1% increase in public education expenditure would increase life expectancy by 0.182%. Spending in these sectors affects productivity and poverty reduction, thus evaluating it is crucial. Mugizi (2018) explored how higher education supports Uganda Vision 2040. That study emphasized the importance of higher education in Uganda Vision 2040. Hunt (1982) examined education-economy linkages. The study shows that economic fluctuations affect children's education, impacted by power dynamics and fairness considerations of dominant groups. The study found that people become

aggressive for personal and communal goals, but their perception of power and justice vary.

Jeng et al. (2019) examined how schooling affects wealth inequality in over 50 countries using Gini coefficients. That study analysis showed that education investment reduces inequality, economic freedom affects educational attainment programs, and wealth disparity persists across nations. Dahal (2010) empirically examined the relationship between higher education averages and Nepal's real GDP. The study investigated 30 years' time series data on higher education enrollment, secondary school teacher employment, and Nepal's GDP.

Lee (2000) used CD production function and time series data to evaluate education and economic growth in Korea, showing that human capital is crucial. Abhijeet (2010) found that economic growth affects public education investment in India over the period of 1951-2009. A meta-analysis by Churchill et al.(2015) found that healthcare expenditure hinders growth whereas education expenditure boosts it. Zhang and Casagrande (1998), Barro and Sala-i-Martin (1995), and Baldacci et al. (2008) found a positive association between education spending and economic growth. A few characteristics were positively correlated, according to Easterly and Rebelo (1993).

Investment in education is widely recognized as a critical driver of economic growth. For instance, Amir (2023) emphasizes that the efficacy of investments in educational institutions significantly contributes to sustainable economic growth, particularly in Pakistan, where the infrastructure of education is a vital measure of human capital beyond mere enrollment figures. This assertion is supported by findings from (Shahzad et al., 2022), who argue that human capital, as a key driver of long-term economic growth, is influenced by various health and education indicators across developing countries (Shahzad et al., 2022). Similarly, Bachama et al. (2021) provide evidence that expenditures on health and education positively correlate with economic growth in Nigeria, reinforcing the notion that

human capital investments yield substantial economic returns (Bachama et al., 2021).

The quality of education is another critical factor influencing economic growth. Affandi et al. (2018) highlight that the quality of education impacts economic growth differentials among countries, indicating that higher enrollment rates in primary and secondary education correlate positively with subsequent economic growth (Affandi et al., 2018). This aligns with the findings of (Gao, 2024), who notes that human capital, particularly through education, enhances productivity and income levels, thereby promoting economic growth (Gao, 2024).

Furthermore, the systematic review by Benoit et al. (2022) underscores that investments in human capital not only accelerate growth but also contribute to poverty reduction and improved income distribution (Benoit et al., 2022). However, the relationship is not universally positive. Kocevska (2023) presents a contrasting view, suggesting that in North Macedonia, public expenditures on education did not significantly contribute to economic growth during the analyzed period, indicating a need for more effective allocation of educational resources to transform expenditures into productive human capital (Kocevska, 2023). This highlights the complexity of the relationship and the necessity for targeted policies that ensure educational investments translate into economic benefits.

Moreover, the interplay between human capital and other forms of capital, such as physical capital, is crucial for understanding economic growth dynamics. Research by Xingyang & Liu (2021) suggests that knowledge-based human capital significantly influences economic growth, emphasizing the importance of education in fostering innovation and productivity (Xingyang & Liu, 2021). Additionally, the study by Li (2023) discusses how mismatches in human capital can restrain economic growth, suggesting that aligning educational outcomes with labor market needs is essential for maximizing economic potential (Li, 2023).

Research Methodology

Research Design

This study applied a descriptive research methodology grounded in publicly available secondary data sources. The ADF test, cointegration bound test, VECM, and Granger causality test were utilized to analyze the data of the study. The analysis revealed both short- and long-term correlations between GDP and government expenditure on education and healthcare.

Model Formulation

Since factors besides education spending impact GDP, a controlled variable is also added to the analysis. Gross capital formation and secondary enrolment are viewed as controlled variables in this study for this reason. CEE (Capital Expenditure on Education), REE, GCF, and SEE are independent variables, whereas GDP is a dependent variable. The fundamental model is as follows:

$$GDP_t = f(CEE_t, REE_t, GCF_t, SEE_t) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(i)}$$

Equation (i) can be written as the regression form below.

$$GDP_t = \alpha_0 + \alpha_1\ CEE_t + \alpha_2\ REE_t + \alpha_3\ GCF_t + \alpha_4\ SEE_t + \epsilon_t \ldots\ldots\ldots\ldots\ldots \text{(ii)}$$

Where;

GDP = Gross Domestic Product

CEE = Capital Expenditure on Education

REE = Recurrent Expenditure on Education

GCF = Gross Capital Formation

SEE = Secondary Education Enrolment

t = Time period

To decrease heteroskedasticity, the variables must be converted to log form, and the log form of the model is to be defined as:

$$LNGDP_t = \alpha_0 + \alpha_1\ LNCEE_t + \alpha_2\ LNREE_t + \alpha_3\ LNGCF_t +$$
$$\alpha_4\ LNSEE_t + \in_t \ldots\ldots\ldots(iii)$$

Data Sources and Reliability

This study utilizes secondary data from reliable and established sources such as the Economic Surveys of the Ministry of Finance, the Ministry of Education, and Nepal Rastra Bank. These sources are credible as they provide official data from government institutions and financial bodies, ensuring the reliability of the data used in the analysis. The time series data spans from 1975 to 2021, covering key economic and educational variables such as GDP, Capital Expenditure on Education (CEE), Recurrent Expenditure on Education (REE), Gross Capital Formation (GCF), and Secondary Education Enrollment (SEE).

Data Extraction

The data were extracted from publicly available reports and publications from the aforementioned government agencies. These datasets provide detailed and standardized records, making them suitable for time series analysis.

Rationale for Variable Selection

The study includes controlled variables such as Gross Capital Formation (GCF) and Secondary Education Enrollment (SEE) to account for other factors influencing GDP. These variables are crucial as they capture the broader economic environment (GCF) and education access (SEE), which are likely to affect the relationship between education spending and economic growth. By including these variables, the model controls for potential confounders, ensuring a more accurate estimation of the impact of education expenditure on economic growth.

Model Diagnostics

Stationery Test: Considering that the most of time series econometric methods presuppose the stationarity of time series variables, the first step in utilizing conventional estimation and testing procedures for dynamic time series is to evaluate the stationarity characteristics of the series. The data are assumed to be integrated of order I (1) with indications of unit roots, suggesting that they need to be transformed into first differences ($\Delta y\_t = y\_t - y\_{(t-1)}$) to attain stability. This study converts non-stationary data into stationary data.

Cointegration Test: Regarding spurious regression, the only exception occurs when two or more variables are collectively stationary while not being stationary individually; in this scenario, the series are combined. This methodology examines the relationships between non-stationary time series variables. The cointegration test evaluates the nature and strength of long-term relationships between variables. This study employs the Johansen co-integration test.

VECM: The Vector Error Correction Model (VECM) assesses dynamic adjustments among the initial disparities of variables, while the cointegration test focuses solely on long-term relationships between the level series of the variables. This is carried out to determine the nature and strength of temporal causation between the variables. A vector error correction model was developed for non-stationary series identified as cointegrated.

Granger Causality Test: The relationship between variables is examined through the Pair-Wise Granger Causality Test. X is deemed Granger causal to Y when historical values of X are able to forecast future values of Y. A fundamental method for verifying Granger causality involves regressing y on its own lagged value alongside the lagged value of x. The null hypothesis (H0) asserts that all estimated coefficients for lagged x values are equal to zero. Rejecting the null hypothesis in Granger's model signifies that x does not have an influence.

Results

The relationship between educational investment and economic growth has been extensively analysed, revealing that education serves as a crucial driver for ongoing economic development. This connection holds particular importance in Nepal, given the nation's developing economy and challenges related to human capital development. Research suggests that while investment in education holds significant promise for driving economic growth in Nepal, the nation must address fundamental challenges related to funding, accessibility, and relevance. A cohesive approach that merges educational reform with comprehensive economic initiatives is essential for achieving sustainable growth.

The time series data are employed to demonstrate the outcomes of various tests. Each variable in the ADF is subjected to the unit root test. The Granger Causality Test (GCT) is used to establish causality among existing variables, while the Johansen Co-integration Test and Vector Error Correction Models (VECM) are applied to determine both short- and long-term relationships.

Unit Root Test

To determine if the data is steady, the unit root test is applied. The unit root test, which verifies the stationary of the variables, employs the improved ADF Test.

Table 1

Result of ADF Test on Level Series

Variables	I (0)		I (1)	
	t-Stat.	P-Value	t-Stat.	P-Value
LN_GDP	-0.248	0.924	-6.719	0.000*
LN_SEE	-2.741	0.075	-5.509	0.000*
LN_CEE	-2.300	0.176	-7.008	0.000*
LN_GCF	-0.455	0.890	-7.907	0.000*
LN_REE	-1.161	0.683	-7.622	0.000*

* Significance at 1% and ** 5% level

Note. The results are from data analysis.

At a 5% significance level, the unit root analysis reveals that the null hypothesis of a unit root is: (i) accepted for all variables at the series level, while (ii) the alternative hypothesis is rejected for the first difference of the variables. All the series exhibit stationarity at I(1), signifying that they are integrated of I(1). This indicates that the variables exhibit cointegration, signifying a long-term relationship between them.

Lag Selection

Formerly conducting the cointegration test, the duration of the lags must be determined. Table 2 reveals that most criteria support picking one lag length, thus we continue testing with lag (1).

Table 2

Lag Selection

Lag.	LogL.	LR.	FPE.	AIC.	SC.	HQ.
0	-131.248	-	0.001	6.337	6.542	6.413
1	109.579	414.447	1.71e-08*	-3.701*	-2.473*	-3.248*
2	120.710	16.5677	3.43e-08	-3.056	-0.804	-2.226

| 3 | 155.168 | 43.273* | 2.52e-08 | -3.496 | -0.219 | -2.288 |
| 4 | 183.006 | 28.485 | 2.88e-08 | -3.628 | 0.672 | -2.042 |

Indicates lag order criterion

Source: *Results from data analysis.*

Result of Cointegration

Cointegration takes place when two or more data variables of the same order exhibit integration. The cointegration of GDP, CEE, REE, GCF, and SEE suggests a strong likelihood of their sustained alignment over time, indicating a long-term relationship. There may be several co-integration relationships present among cointegrated variables. The Johansen test provides the statistics and estimates for all cointegrating equations. Table 3 displays the outcomes of the Johansen joint integration test.

Table 3

Johansen Cointegration Test

Hypothesis		Trace	0.05	
Number of CE(s)	Eigenvalue	Stat.	Cric. Value	Prob.**
0*	0.632	92.084	76.973	0.002
1	0.358	47.085	54.079	0.181
2	0.236	27.133	35.193	0.282
3	0.223	15.018	20.262	0.225
4	0.078	3.678	9.164	0.462

* Rejection (0.05 level)

** p-values of MacKinnon

Rank Test of Maximum Eigen value

Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigen value	Stat.	Crit. Value	Prob.**
0*	0.632	44.999	34.806	0.002
1	0.358	19.951	28.588	0.416
2	0.236	12.116	22.299	0.643
3	0.223	11.339	15.892	0.228
4	0.078	3.678	9.166	0.462

Note. Results from data analysis.

VECM (Vector Error Correction Model)

A vector error correction model is relevant because of the long-term relationship among the variables. Calculations are performed using data at this level. The model autonomously transforms the variables into the initial difference. Projections indicate that the lasting relationship may develop:

Table 4

VECM

$D(LN\_GDP) = C(1) *(LN\_GDP(-1) - 0.6074* LN\_GCF(-1) - 0.3710* LN\_SEE(-1) + 0.0008* LN\_GCE(-1) - 0.0789* LN\_REE(-1) + 0.0692) + C(2)$

$*D(LN\_GDP(-1)) + C(3) *D(LN\_GCF(-1)) + C(4) *D(LN\_SEE(-1)) + C(5)$
$*D(LN\_GCE(-1)) + C(6) *D(LN\_REE(-1))$

	Coeff.	Std. Er.	t-Stat.	Prob.
C (1)	-0.329	0.045	-7.310	0.000
C (2)	-0.168	0.116	-1.447	0.156
C (3)	0.085	0.075	1.141	0.261
C (4)	-0.197	0.092	-2.156	0.037
C (5)	-0.003	0.012	-0.254	0.801
C (6)	-0.048	0.027	-1.802	0.079
R^2	0.457	Mean dep. Var		0.122
Adj. R^2	0.387	S.D. dep. Var		0.066
S.E. of regression	0.052	AIC		-2.970
SSR	0.103	S C		-2.729
Log likelihood	72.835	HQ criter.		-2.880
DW Stat	2.018			

Note. Results from data analysis.

The Vector Error Correction Model's findings are shown in Table 4, where the R^2 value represents the variation in the descriptive variables. It shows how well the model's explanations are. The model's R-squared value of 0.457 (45.69%) shows that it is completely appropriate and devoid of spurious regression. The

VECM coefficient is strongly negative. There is proof that the independent elements and economic growth are related over the long term.

Long Run Causality

The ECM coefficient is significant at the 1% level, demonstrates the anticipated negative sign, and varies from zero to one. The importance of the error correction process suggests a long-term steady-state equilibrium between real output (GDP) and the explanatory variables, thereby reinforcing the concept of co-integration. The ECM demonstrates that the long-term elasticity of the explanatory components shows feedback of 32.97 percent from the previous year's disequilibrium. The coefficient of the error correction term reflects the speed at which changes in the explanatory variables lead real output to realign towards long-term static equilibrium. The adjustment rate may be characterized as swift thereafter.

Short run Causality

Table 5

Wald Test

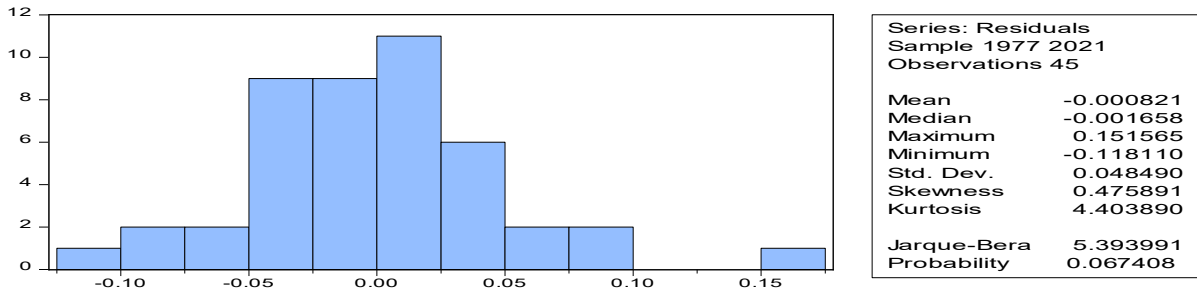| Coefficient	Test Stat.	Value	df	Prob.
C (2)	Chi-square	2.095	1	0.148
C (3)	Chi-square	1.302	1	0.254
C (4)	Chi-square	4.647	1	0.031*
C (5)	Chi-square	0.064	1	0.799
C (6)	Chi-square	3.247	1	0.072

Note. Results from data analysis.

There has no evidence of short-run causation resulting from the lag of GDP, REE, gross capital formation, and CEE to GDP because the X^2 is more than 5%. However, in short-term causation connecting SEE to GDP since the probability value of X^2 is less than 5%.

Normality Test

The distribution of the model's variables is analyzed through the Jarque-Bera test for normality. This test illustrates that the variables adhere to a normal distribution. Figure 1 presents the test results.

Figure 1

Jarque-Bera Normality Test

Series: Residuals	
Sample 1977 2021	
Observations 45	
Mean	-0.000821
Median	-0.001658
Maximum	0.151565
Minimum	-0.118110
Std. Dev.	0.048490
Skewness	0.475891
Kurtosis	4.403890
Jarque-Bera	5.393991
Probability	0.067408

Note. Results from data analysis

The result shows that the H0 is accepted since the probability of the test is greater than the 5% level. Because the p- value of Jarque Bera (5.394) is more than 5%, the model's residual distribution.

Residual test of Heteroskedasticity

BPG residual test is intended to detect heteroskedasticity, which is a problematic in regression analysis. The results of the test are shown in the Table 6.

Table 6

Heteroskedasticity Test

F-stat.	1.689	Prob. F (10,34)	0.124
Obs*R^2	14.938	Prob. R^2 (10)	0.134
Scaled SS	18.909	Prob. R^2 (10)	0.041

Note. Results from data analysis.

The Breusch-Pegan-Godfrey heteroskedasticity test findings are shown in Table 6. In other words, the residual is homoscedastic if the p-value of the obs. X^2

is more than 5%; otherwise, the H0 of heteroskedasticity is not rejected at the 5% level.

Serial Correlation Test

The Breusch-Godfrey LM test, which is shown in the Table 7 must be used to regulate the serial correlation.

Table 7

Breusch-Godfrey Serial Correlation LM Test

F-test	0.084	Prob. F (1,32)	0.774
Obs* X^2	0.117	Prob. C X^2(1)	0.732

Source: *Results from data analysis.*

The results of the test, as shown in Table 7, demonstrate that the model displays autocorrelation. The null hypothesis (H0) suggests that there is no serial correlation, given that both the F-test and the observed Chi-squared probability are above 5%.

Granger Causality Test

The Granger Causality test is utilized to examine the causal relationship between dependent and independent variables. The assessment aims to pinpoint the origins of impacts, as this data is crucial for guiding policy decisions. The results of the Granger-Causality test are partially displayed in Table 8.

Table 8

Pair-wise Granger Causality Tests

Null Hypothesis	Obs	F-Statistic	Prob.
LN_GCF is no Granger Causality in LN_GDP	46	14.643	0.001
LN_GDP is no Granger Causality in LN_GCF		4.906	0.032
LN_SEE is no Granger Causality in LN_GDP	46	10.999	0.002
LN_GDP is no Granger Causality in LN_SEE		0.832	0.367
LN_CEE is no Granger Causality in LN_GDP	46	4.332	0.043
LN_GDP is no Granger Causality in LN_CEE		1.369	0.248
LN_REE is no Granger Causality in LN_GDP	46	0.184	0.670
LN_GDP is no Granger Causality in LN_REE		0.723	0.400
LN_SEE is no Granger Causality in LN_GCF	46	4.518	0.039
LN_GCF is no Granger Causality in LN_SEE		1.115	0.297

Null Hypothesis	Obs	F-Statistic	Prob.
LN_CEE is no Granger Causality in LN_GCF	46	0.296	0.589
LN_GCF is no Granger Causality in LN_CEE		1.354	0.251
LN_REE is no Granger Causality in LN_GCF	46	0.98	0.001
LN_GCF is no Granger Causality in LN_REE		0.481	0.492
LN_CEE is no Granger Causality in LN_SEE	46	0.482	0.481
LN_SEE is no Granger Causality in LN_CEE		0.575	0.451
LN_REE is no Granger Causality in LN_SEE	46	3.091	0.086
LN_SEE is no Granger Causality in LN_REE		0.546	0.464
LN_REE is no Granger Causality in LN_CEE	46	1.363	0.249
LN_CEE is no Granger Causality in LN_REE		7.770	0.008

Note. Results from data analysis.

Table 8 presents the Granger-Causality of the model concerning the independent and dependent variables. The Granger Causality test evaluates the causal relationship between independent and dependent variables. The aim of the test is to categorize the sources of inspiration, as this is crucial for guiding policy decisions. The results demonstrate a bidirectional causal relationship between LN_GCF and LN_GDP. There is no causal relationship identified from LN_SEE to LN_REE, from LN_CEE to LN_SEE and LN_REE, or from LN_SEE to LN_GCF. A unidirectional causal relationship is present from LN_SEE and LN_REE to LN_GDP, as well as from LN_CEE to LN_REE.

Discussion

The findings of the study align closely with the existing literature on the relationship between education investment and economic growth, while also offering new insights specific to Nepal's context. The study emphasizes the critical role of education, particularly secondary education expenditure (SEE), in driving economic growth. This mirrors findings in the literature, such as those by Musila and Belassi (2004) and Maitra and Mukhopadhyay (2012), who found that public education spending significantly impacts GDP in both the short and long term. The study's conclusion that SEES has a pronounced influence on Nepal's economic output reinforces the idea that education is a key driver of development,

especially in developing economies like Nepal, where human capital development is crucial.

The study also reveals the importance of gross capital formation (GCF) and its bidirectional relationship with GDP. This finding is consistent with previous research, such as Lacheheb et al. (2014), which highlights the mutually reinforcing relationship between capital formation and economic growth. The study suggests that fostering a stable economic environment to attract and optimize capital investments can further stimulate economic growth, a perspective shared by the broader literature. Furthermore, the study's finding that SEE has an immediate impact on GDP while the effects of higher education expenditures (CEE and REE) take time to manifest adds a nuanced understanding to the debate. This matches with the literature, such as Permani (2009) and El-Dib et al. (2023), which point out that education expenditures contribute to long-term growth, although their short-term effects may be less immediate.

One of the study's significant contributions is its analysis using the Granger causality test, which identifies unidirectional causality from SEE and REE to GDP, while no causality is found from CEE to GDP. This observation aligns with similar studies, such as Al-Yousif (2008) and Kocevska (2023), which highlight mixed or inconclusive results regarding the relationship between higher education expenditures and GDP. The lack of causality from CEE to GDP in Nepal suggests inefficiencies in the allocation of higher education resources, underscoring the need for more effective policies aimed at optimizing higher education spending.

The quality of education and its impact on economic growth is another area where the study aligns with existing research. For instance, studies by Affandi et al. (2018) and Gao (2024) emphasize the importance of educational quality in influencing economic outcomes. The study's emphasis on aligning education systems with labor market demands supports these findings, suggesting

that improving the quality of education can enhance workforce productivity and contribute to long-term economic growth.

The study discusses corroborate much of the existing literature, particularly regarding the importance of education and capital formation for economic development. However, the study offers new insights specific to Nepal, such as the delayed economic benefits of higher education expenditures and the need to optimize resource allocation. These findings highlight the complex relationship between education, capital formation, and economic growth, offering valuable implications for policymakers in Nepal and beyond.

Conclusions and Implications

This study examines how education investment affects Nepal's GDP. Human capital development is vital to economic growth and productivity. Economic growth is linked to human capital development through education. The study found that while government spending on education in the Nepalese scenario had a negligible impact on the country's GDP, labour force and gross fixed capital creation had a significant impact on economic growth. There had a negligible impact on current economic development because the ratio of recurring to capital spending in the education sector is rising. Therefore, the study shows that government spending on education in Nepal is not a significant factor in what causes economic growth.

The relationship between educational investment and economic growth in Nepal shows how education drives sustainable development. The empirical analysis found that investing in education, particularly high-quality basic and secondary education, improves human capital, productivity, and economic performance. However, many barriers prevent education from completely promoting economic progress. Unequal access, limited finance, and systemic inefficiencies are impediments. Policymakers must emphasize inclusive

educational reforms, improve public-private partnership, and optimize resource use to address these issues.

Nepal can capitalize on its demographic dividend and achieve sustainable economic growth by creating a robust educational environment. More research and longitudinal studies are needed to understand the causal relationship and improve policy in this important area. Stakeholder interviews show that while education is vital to development, resource allocation inefficiencies and a mismatch between educational outputs and job market needs undermine its effectiveness.

Regional differences show that rural areas receive less investment, limiting economic growth in certain places. Even when education rises, underemployment remains high, showing that the economy is not successfully integrating qualified workers. Quality versus quantity: Despite enrollment growth, outmoded curricula and poor teacher preparation raise concerns about education quality and outcomes. Educational attainment and labor market demands differ, highlighting the need for government reform. Curriculum changes, vocational training, and business-academic partnerships can improve educational performance and economic possibilities.

Educational budgets must be distributed well. Inefficient public budgeting and unfair allocation worsen problems. Educational investment and economic growth in Nepal are strongly linked, but structural and policy reforms are needed to strengthen this relationship. Addressing inequities, enhancing quality, and connecting education with economic demands are necessary to use education to support sustainable economic development.

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