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Influence of Green Marketing Factors on Green Purchase Intention and Consumption Behavior in Kathmandu

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Abstract

This research aims to understand the impact of green marketing factors on green purchase intention and purchase behavior, particularly examining how green product quality, green value, and perceived consumer effectiveness influence purchase intentions and consumption behavior in Kathmandu Metropolitan City. In this study, causal research is used, and data is gathered from 287 consumers through convenience sampling via Google Forms. A 7-point Likert scale was applied, and the data were analyzed using Smart PLS with Structural Equation Modeling. Findings show that green purchase intention, green value, and perceived consumer effectiveness have a positive and significant impact on green consumption behavior. Similarly, green product quality, green value, and perceived consumer effectiveness significantly influence green purchase intention. However, there is a positive but not significant relationship between green product quality and green consumption behavior. Results further show that green purchase intention fully mediates the relationship between green product quality and green consumption behavior but partially mediates the relationship between green value and perceived consumer effectiveness with green consumption behavior. It concludes with the importance of aligning green marketing strategies with consumer values and self-efficacy, while policymakers should invest in education and awareness to foster consumer belief in the effectiveness of individual action.

Keywords: Green Marketing, Green Value, Green Product Quality, Green Consumption Behavior, Structural Equation Modeling, Sustainability

JEL Classification: M31, Q01, D12, D91

Introduction

Increasingly, businesses are waking up to the realities of environmental issues and choosing to promote eco-friendly products in both word and deed. By emphasizing that their goods are made responsibly, from the materials used to the way they're packaged and promoted, these companies hope to appeal to consumers who value sustainability (Reddy et al., 2023; Bhardwaj et al., 2023). Research from different countries indicates that green marketing can really influence people's intentions to buy eco products and can support more sustainable behaviour over time (Chen et al., 2024; Salhab et al., 2025). A well-crafted green image doesn't just persuade; it fosters trust and loyalty among conscientious consumers (M & D, 2025). And when people are not only exposed to green messaging but also have strong education or environmental values, they're far more likely to follow through by purchasing green products (Correia et al., 2023). Altogether, this suggests that green marketing plays a central role in shaping green purchase intention and real-world green consumption behaviour.

Green marketing entails promoting environmentally friendly methods, reducing environmental impact, and meeting the growing consumer demand for environmentally responsible businesses (Bhatia & Jain, 2014; Gelderman et al., 2021). High-quality green products are regarded as more effective and trustworthy by consumers, increasing their confidence and, as a result, their willingness to purchase the product (Grimmer & Woolley, 2012). Similarly, several studies have found that different green marketing factors, such as green product quality, green value, and perceived consumer effectiveness, positively impact purchase intention or consumers' buying decisions in different countries.

The studies of Ansu-Mensah (2021), Wasaya et al. (2021), and D'Souza et al. (2020) explored green product quality in different regions and found that consumers are more likely to intend to purchase green products when they perceive those products as being of high quality. Green value has different dimesnions, which include social, functional, conditional, and emotional (Hudayah et al, 2023). Research by Adhitiya and Astuti (2019) demonstrated that individuals are more likely to engage in green consumer behavior when it enhances their social image or aligns with social expectations (social values), rather than others. Perceived consumer effectiveness refers to an individual's belief in their personal ability to make a meaningful impact on environmental or sustainability outcomes through their own actions or choices (Hanss & Doran, 2019). A study by Kovacs and Keresztes (2022) shows that green perceived effectiveness strongly influences the green purchase intention of green food products.

Research on green marketing remains limited in Nepal, particularly in examining how factors such as green product quality, green value, and perceived consumer effectiveness influence both purchase intentions and actual consumption behavior. While studies from other countries have increasingly explored these themes, there is still a noticeable gap in

the Nepalese context, especially in Kathmandu where people from across the country live and shop. Most of the existing literature tends to focus on the direct link between green marketing and purchase intention, but there is a lack of in-depth research considering how green purchase intention might mediate these relationships. This study intends to bridge that gap by exploring how green marketing shapes consumer behavior in Kathmandu and contributes to the broader understanding of sustainable consumption practices. Moreover, this study aims to provide insight into how those green marketing factors shapes the consumer intention and buying behavior, which will help marketers to make and implement effective green marketing strategies.

Literature Review and Hypotheses

Several studies have explored how green marketing factors influence consumer intention and sustainable consumption. The present study adds to this understanding by examining these relationships in Kathmandu Metropolitan City. The key findings on the effects of green product quality, green value, and perceived consumer effectiveness on green purchase intention and consumption behavior are summarized below.

Green Purchase Intention and Green Consumption Behavior

Wang et al. (2021) found that customers with a positive perception of green products are more likely to develop green purchase intentions, which subsequently influence their green consumption behavior. This indicates a positive relationship between green purchase intention and actual green purchasing actions. Additionally, studies have modeled green consumer behavior as a cognitive hierarchy, where values and attitudes lead to intentions, which then translate into behaviors (Homer and Kahle, 1988; Paul et al., 2015). This supports the view that green purchase intention serves as a significant predictor of green consumption behavior, highlighting the importance of fostering intention to drive environmentally responsible consumption.

H1: Green purchase intention (GPI) positively influences green consumption behavior (GCB).

Green Product Quality, Purchase Intention, and Green Consumption Behavior

Green product quality is a key determinant of green purchase intention, as consumers often associate environmentally friendly products with superior quality. Research shows that when consumers perceive green products as high in quality, their intention to purchase these products increases significantly (Barbu et al., 2022; Zhang & Dong, 2020). Perceived product quality strongly influences consumers' attitudes, especially when health, safety, and environmental benefits are considered in the decision-making process (Cheung et al., 2015). Kumar and Polonsky (2022) emphasize that product quality remains the most dominant purchasing motive, even among eco-conscious consumers, suggesting that green attributes alone cannot offset concerns about poor quality. Supporting this, Chen and Chang (2021) found that green product quality enhances consumer trust in green products, thereby

strengthening green purchase intention. Similarly, Patel et al. (2022) observed that perceived green quality significantly mediates the relationship between environmental concern and actual purchasing, particularly in the case of household and personal care items.

Greater perceived quality of green products significantly increases actual green shopping on the part of consumers. For example, Zhang and Dong (2020) report that consumers view green product quality as a key catalyst for their behavior, and higher perceived quality significantly positively affects green buying behavior. In reality, if consumers perceive that a green product is high-quality (safe, effective, durable), they are much more likely to purchase and consume it. Indeed, systematic reviews find that among the attributes constantly shaping green purchasing behavior is product quality, and that perceived deficiencies in quality decrease demand (Zhang & Dong, 2020). That is, even for environmentally mindful consumers, a disappointing tradeoff in performance or credibility will compromise green consumption. Thus, companies have to ensure green products meet traditional standards of quality in order to achieve actual purchase behavior. This impact on consumption operates via purchasing intention – for example, meta-analytic research shows perceived quality has a moderate positive correlation with green purchase intentions, which in turn are indicative of purchases.

H2: Green product quality (GPQ) positively influences green consumption behavior (GCB).
H3: Green product quality (GPQ) positively influences green purchase intention (GPI).
H4: Green purchase intention (GPI) mediates the relationship between green product quality (GPQ) and green consumption behavior (GCB).

Green Value, Purchase Intention, and Green Consumption Behavior

Adhitiya and Astuti (2019) found that higher green value encourages consumers to engage in green consumption, while Tian et al. (2022) noted that when personal values align with environmental sustainability, willingness to buy green products increases. Liao et al. (2020) observed that green-oriented consumers prefer purchasing only green products, which is supported by Mostafa (2006) and Lee (2009), who found that green shoppers favor environmentally friendly goods. Product value is also shown to influence purchase intention (Li & Cai, 2011; Hanaysha, 2018). Singh et al. (2021) confirmed that perceived green value positively impacts purchase intentions for green packaged products, with value perception acting as a mediator between environmental concern and actual purchasing behavior.

Green products' perceived value, functional/conditional and emotional/social, has a strong positive impact on green consumption behaviors. Time and time again, research indicates that when customers see clear value in buying green products (e.g. health benefits, environmental benefits, or social acceptance), they are more apt to purchase. For instance, Woo and Kim (2019) show that each of the four green perceived value

dimensions (functional, conditional, social, emotional) positively influence consumer attitudes for buying green products. Similarly, studies among Indonesian Gen Z consumers indicated that greater functional value (good product quality) and conditional value (special conditions or convenience) significantly affected growing green purchase intentions. Green perceived value is the most powerful green purchase motivator in meta-analysis: Zhuang et al. (2021) assert that green perceived value has an extremely large positive effect on green product buying intention. In line with the value attitude paradigm, more green value generates more favorable attitudes and intentions that ultimately lead to more green buying practice. Thus, triggering consumers' perception of the intrinsic (functional) and extrinsic (emotional/social) worth of green products leads to higher real consumption (the behavioral consequence of those intentions).

H5: Green value (GV) positively influences green consumption behavior (GCB).
H6: Green value (GV) positively influences green purchase intention (GPI).
H7: Green purchase intention (GPI) mediates the relationship between green value (GV) and green consumption behavior (GCB).

Perceived Consumer Effectivensess, Purchase Intention, and Green Consumption Behavior

Perceived Consumer Effectiveness (PCE) has been shown to positively influence green purchase intention. Alam et al. (2020) found that when consumers recognize their ability to impact environmental issues, they are more likely to engage in sustainable purchasing. This aligns with Matharu et al. (2020), who reported that positive attitudes toward environmental preservation significantly enhance sustainable consumption. Yang and Chai (2022) demonstrated that green marketing strategies positively affect green purchase intentions, with PCE acting as a mediating factor.

Perceived Consumer Effectiveness, namely feeling that the action one performs is important, also accounts for green consumption behavior. Green consumption behavior will be more likely to happen if consumers think that their green consumption really makes a difference to the environment. Empirical evidence has suggested that more PCE is associated with higher green consumption. For example, Farooq et al. (2023) found that more PCE (higher PCE) consumers reported higher green satisfaction, resulting in significantly enhanced green consumption behavior. In a similar vein, Kovacs and Keresztes (2022) show that more PCE (higher PCE) consumers are willing to pay a premium for sustainable food features (a proxy measure of stronger buying intention and behavior). Meta-analytic studies confirm the same: Zhuang et al. (2021) find a moderate positive relationship ($r \approx 0.49$) between green purchase intention and PCE. Consumers with green purchase intentions tend to possess greater intentions and make green product purchases.

H8: Perceived consumer effectiveness (PCE) positively influences green consumption behavior (GCB).

H9: Perceived consumer effectiveness (PCE) positively influences green purchase intention (GPI).
H10: Green purchase intention (GPI) mediates the relationship between perceived consumer effectiveness (PCE) and green consumption behavior (GCB).

Methods

Research Design, Population, Data Collection and Analysis

The study followed a causal research design. As the study intended to know the impact of green marketing on green purchase intention and green consumption behavior of the customers in Kathmandu Metropolitan City. The population of the study was the consumers residing in Kathmandu Metropolitan City. The population was selected from Kathmandu Metropolitan City because it was home to residents from all provinces of the country, making it representative of the entire nation's population, and as the capital city, Kathmandu had a higher concentration on environmental sustainability. The sample size was determined using Cochran's formula for categorical data, which recommends a minimum of 267 respondents for a population exceeding 10,000, with a 95% confidence level and a 6% margin of error. The generally accepted range of margin of error is 5–10% in survey research (Suresh & Chandrashekara, 2012). Therefore, 6% was used by analyzing the balance between statistical precision, feasibility of data collection, and alignment with commonly accepted practices in survey methodology.

$n_0 = (Z^2 \cdot p \cdot (1 - p)) / e^2$, $Z = 1.96$ (for 95% confidence level), $p = 0.5$, $e = 0.06$, $n_0 = 267$

However, while collecting the data, a total of 287 responses were received via Google Form and used for research purposes, which exceeded the required sample of 267. The convenience sampling was used as the sampling procedure. The questionnaire was sent through Google Forms via an online medium. The data were collected using a 7-point Likert Scale questionnaire that ranged from Strongly Disagree = 1 to Strongly Agree = 7. Data was analyzed using Smart PLS software. Construct validity and reliability have been examined and validated using Structural Equation Modeling (SEM) in Smart PLS 4. Cronbach's alpha and composite reliability have been calculated to check the internal consistency reliability. Average variance extracted (AVE) has been calculated to check the convergent validity. Cross loading, Fornell-Larcker criterion, and HTMT ratio have been calculated to examine discriminant validity. The Variation Inflation Factor (VIF) has been calculated to find issues of multicollinearity in the data. Hypothesis testing was done with the help of bootstrapping to analyze the mediating effect of green purchase intention.

Conceptual Framework

In this study, the mediating and dependent variables, which are green purchase intention and green consumption behavior, are taken from the study of Iqbal et al. (2023), while green product quality and green value are taken from the study of Fachreza et al. (2023). Moreover, perceived consumer effectiveness is derived from the research of Kovacs and Keresztes (2022).

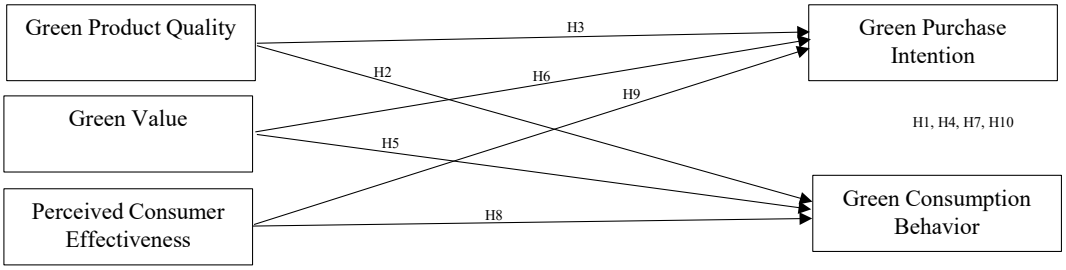

Figure 1. Conceptual Framework

Results

Demographic Profile

The sample includes a balanced gender distribution, with 50.2 percent male and 49.8 percent female respondents. This near-equal representation ensures that gender-based perspective is equally included in findings. Most respondents, 89.8 percent, fall in the age group of 18 to 30 years, indicating that the survey primarily reached younger individuals. A smaller portion, 8 percent, are between 31 and 45 years old, while only 2.1 percent are below 18. This shows that the data largely reflects the views of youth and young consumers.

Most respondents have a bachelor's degree, 57.1 percent, followed by those with a master's degree or higher, 38.7 percent. Only a small proportion have intermediate-level and education below SLC/SEE, 2.1 percent each. This indicates a highly educated sample, which may influence their awareness and perceptions regarding the survey topics. A large majority of respondents are students, 73.5 percent, highlighting a youth-centric and academically engaged group. Others include self-employed individuals, 14.6 percent, private job holders, 5.9 percent, unemployed individuals, 4.2 percent, and government job holders, 1.7 percent. This distribution shows that the sample is predominantly composed of individuals either pursuing education or engaged in informal/self-employment.

Table 1. Respondent Profile

Variables		Frequency	Percentage
Gender	Female	143	49.8
	Male	144	50.2
Age	18 to 30	258	89.8
	31 to 45	23	8
	Below 18	6	2.1
Academic Qualification	Bachelor's	164	57.1
	Master's or above	111	38.7
	Intermediate	6	2.1
	Under SLC/SEE	6	2.1
Profession	Student	211	73.5
	Self-employed	42	14.6
	Private Job	17	5.9
	Unemployed	12	4.2
	Government Job	5	1.7

Source: Authors

Construct Reliability and validity

An alpha value between 0.8 to 0.95 reflects a very good level of reliability, while 0.6 to 0.7 indicates an acceptable level of reliability (Ursachi et al., 2015). In Table 2, all the constructs have strong internal consistency because all the constructs have a good level of alpha value ranging from 0.836 to 0.92. Similarly, the rho_A value ranges from 0.838 to 0.922, which suggests a high level of construct reliability. The rho_A value should exceed 0.7 for an acceptable level of internal consistency (Henseler et al., 2016).

Hair et al. (2016) stated that an AVE value above 0.5 suggests acceptable convergent validity. In this model, all constructs meet this threshold, with AVE values ranging from 0.569 to 0.685. Some items—such as GCB5, GCB6, GCB7, GCB8, GPQ4, GPQ9, GV6, GV7, PCE1, and PCE2—have been removed because they were below the ideal threshold of 0.7. These results confirm that the measurement model demonstrates adequate reliability and convergent validity, making it suitable for further analysis of factors influencing green consumer behavior.

Table 2. Construct Reliability and Validity

Construct	Items	Loadings	Cronbach's alpha	rho_a	rho_c	AVE
Green Consumption Behavior	GCB1	0.808	0.836	0.838	0.89	0.669
	GCB2	0.84				
	GCB3	0.818				
	GCB4	0.806				
Green Purchase Intention	GPI1	0.71	0.907	0.91	0.923	0.573
	GPI2	0.745				
	GPI3	0.778				
	GPI4	0.764				
	GPI5	0.792				
	GPI6	0.725				
	GPI7	0.79				
	GPI8	0.784				
	GPI9	0.718				
Green Product Quality	GPQ1	0.755	0.874	0.875	0.902	0.569
	GPQ2	0.755				
	GPQ3	0.763				
	GPQ5	0.754				
	GPQ6	0.742				
	GPQ7	0.717				
	GPQ8	0.793				
Green Value	GV1	0.807	0.885	0.889	0.916	0.685
	GV2	0.83				
	GV3	0.846				
	GV4	0.874				
	GV5	0.779				
Perceived Consumer Effectiveness	PCE3	0.826	0.92	0.922	0.936	0.675
	PCE4	0.831				
	PCE5	0.849				
	PCE6	0.864				
	PCE8	0.8				
	PCE9	0.792				
	PCE7	0.788				

Source: Authors

Discriminant Validity

Table 3 shows that the square roots of AVE for green consumption behavior, green purchase intention, green product quality, green value, and perceived consumer effectiveness. They

are 0.818, 0.757, 0.755, 0.828, and 0.822, respectively. Each of these values is greater than the corresponding inter-construct correlations shown in the off-diagonal elements of the matrix. This indicates that each construct shares more variance with its own indicators than with other constructs, thereby satisfying the Fornell-Larcker criterion for discriminant validity (Fornell & Larcker, 1981). These results confirm that the constructs are empirically distinct from one another in the model.

Table 4 presents the Heterotrait-Monotrait (HTMT) ratio of correlations, which is used to assess discriminant validity in a measurement model. HTMT values represent the degree of similarity between constructs, with a generally accepted threshold of 0.90, below which discriminant validity is considered satisfactory (Henseler et al., 2016). In this study, all HTMT values fall within the acceptable range, with the highest being 0.781 between green value and green purchase intention. These results confirm that each construct is empirically distinct from the others, thereby supporting the discriminant validity of the measurement model.

For discriminant validity to be established, each indicator should load higher on its assigned construct than on any other construct (Hair et al., 2017). In this study, all items load more strongly on their respective constructs than on others. VIF is used to evaluate multicollinearity among indicators, where values above 5 suggest potential multicollinearity concerns (Hair et al., 2011). In this analysis, all VIF values are below the critical threshold of 5, indicating that multicollinearity is not a significant issue in the measurement model.

Table 3. Fornell and Larcker's Test

	GCB	GPI	GPQ	GV	PCE
GCB	0.818				
GPI	0.687	0.757			
GPQ	0.585	0.682	0.755		
GV	0.61	0.715	0.624	0.828	
PCE	0.562	0.508	0.576	0.455	0.822

Source: Authors

Table 4. HTMT Ratio

	GCB	GPI	GPQ	GV	PCE
GCB					
GPI	0.775				
GPQ	0.676	0.759			
GV	0.701	0.781	0.699		
PCE	0.64	0.548	0.638	0.498	

Source: Authors

Figure 2 illustrates the path coefficient and R^2 value of the developed structural model. The R^2 value serves as an indicator of the model's predictive power, representing the amount of explained variance of the endogenous construct in the model (Hair et al., 2017). In the figure, the R^2 value for Green Purchase Intention (GPI) is observed to be 0.610, indicating a moderate predictive power. This value suggests that 61.00% of the variation in Green Purchase Intention is explained by the independent variables. Additionally, the path analysis reveals a moderate predictive power for Green Consumption Behavior (GCB), as reflected in the R^2 value of 0.553. This indicates that approximately 55.30% of the variance in Green Consumption Behavior is explained by the independent variables.

This shows the relationships of Green Purchase Intention, Green Product Quality, Green Value, and Perceived Consumer Effectiveness with Green Consumption Behavior. Similarly, the relation of Green Product Quality, Green Value, and Perceived Consumer Effectiveness with Green Purchase Intention is examined. The result shows that GPI has a significant and positive effect on GCB ($\beta = 0.389$, $t = 5.488$, $p = 0.000$), meaning that H1 is accepted. GPQ has a positive but insignificant relationship with GCB ($\beta = 0.07$, $T = 0.96$, $P = 0.337$); thus, H2 is rejected. GPQ significantly influences GPI ($\beta = 0.336$, $T = 5.353$, $P = 0.000$), meaning that H3 is accepted. Similarly, H5 is also accepted because GV has a significant and positive impact on GCB ($\beta = 0.179$, $T = 2.363$, $P = 0.018$). GV also strongly and significantly influences GPI ($\beta = 0.456$, $T = 7.072$, $P = 0.000$), so H6 is also accepted. H8 and H9 proposed that PCE positively influences GCB and GPI, respectively, and the results show that PCE has a positive and significant effect on both GCB ($\beta = 0.242$, $T = 4.195$, $P = 0.000$) and GPI ($\beta = 0.108$, $T = 2.139$, $P = 0.032$), thus accepting both hypotheses.

Hypothesis Testing

In SEM, path coefficients indicate the strength and direction of relationships. In this study hypotheses were tested using bootstrapping with 10,000 samples.

Table 5. Hypothesis Testing

Path	β	STDEV	T statistics	P values	LLCI (2.5%)	ULCI (97.5%)
GPI -> GCB	0.389	0.071	5.488	0	0.247	0.525
GPQ -> GCB	0.07	0.073	0.96	0.337	-0.067	0.219
GPQ -> GPI	0.336	0.063	5.353	0	0.217	0.463
GV -> GCB	0.179	0.076	2.363	0.018	0.033	0.327
GV -> GPI	0.456	0.064	7.072	0	0.321	0.576
PCE -> GCB	0.242	0.058	4.195	0	0.133	0.358
PCE -> GPI	0.108	0.051	2.139	0.032	0.011	0.21

Source: Authors

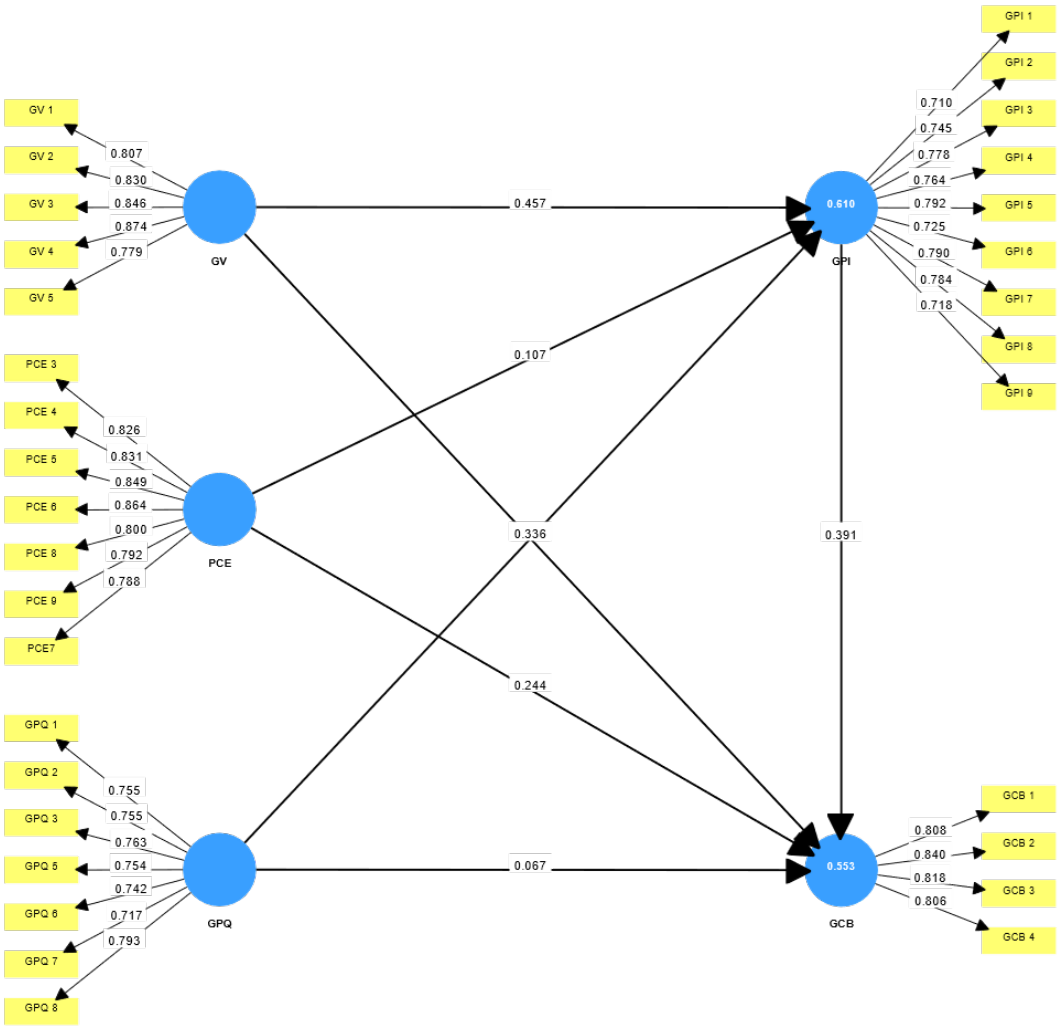

Figure 2. Structural Model

Mediating analysis

The results indicate that the direct effect of GPQ on GCB is positive but statistically insignificant (β = 0.07, T = 0.96, P = 0.337); however, the total effect between GPQ and GCB is positive and statistically significant (β = 0.2, T = 2.628, P = 0.009). The indirect effect of GPQ on GCB through GPI is also significant (β = 0.13, T = 3.96, P = 0.000). This suggests that the relationship between GPQ and GCB is fully mediated by GPI, meaning that H4 is accepted.

Table 8 shows the direct effect of GV on GCB, which is positive and statistically significant (β = 0.179, T = 2.363, P = 0.018); similarly, the total effect between GV and GCB is

also positive and statistically significant (β = 0.356, T = 4.719, P = 0.000). The indirect effect of GV on GCB through GPI is significant (β = 0.177, T = 4.04, P = 0.000). These findings confirm that GPI partially mediates the relationship between GV and GCB, thereby supporting H7. Similarly, results indicate that the direct effect of PCE on GCB is positive and statistically significant (β = 0.242, T = 4.195, P = 0.000); likewise, the total effect between PCE and GCB is positive and statistically significant (β = 0.284, T = 4.811, P = 0.000). The indirect effect of PCE on GCB through GPI is also significant (β = 0.042, T = 2.02, P = 0.043). This implies that GPI partially mediates the relationship between PCE and GCB, thus validating H10.

Table 6. Mediating Analysis

Effect	Path	β	STDEV	T Statistics	P Value	LLCI (2.5%)	ULCI (97.5%)
Direct Effect	GPQ -> GCB	0.07	0.073	0.96	0.337	-0.067	0.219
	GV -> GCB	0.179	0.076	2.363	0.018	0.033	0.327
	PCE -> GCB	0.242	0.058	4.195	0	0.133	0.358
Indirect Effect	GPQ -> GPI -> GCB	0.13	0.033	3.96	0	0.071	0.201
	GV -> GPI -> GCB	0.177	0.044	4.043	0	0.096	0.268
	PCE -> GPI -> GCB	0.042	0.021	2.02	0.043	0.004	0.087
Total Effect	GPQ -> GCB	0.2	0.076	2.628	0.009	0.054	0.353
	GV -> GCB	0.356	0.075	4.719	0	0.206	0.499
	PCE -> GCB	0.284	0.059	4.811	0	0.17	0.404

Source: Authors

Discussion

This study demonstrates how green product quality, green value, and perceived consumer effectiveness influence green purchase intention and green consumption behavior among consumers in Kathmandu Metropolitan City. The results offer valuable insights into the mechanisms that shape environmentally responsible behavior and how these relate to established behavioral theories.

The analysis revealed that GPI significantly affects GCB (β = 0.389, t = 5.488, p = 0.000), confirming that behavioral intention is a critical driver of actual green purchasing. This result is consistent with Wang et al. (2021), who noted that consumers with stronger intentions to buy green products are more likely to engage in green consumption, and aligns with the value–attitude–behavior hierarchy proposed by Homer and Kahle (1988), where intentions serve as the bridge between cognition and action. Likewise, Paul et al. (2015) confirmed that green purchase intention is a central predictor of environmentally responsible behavior, reinforcing that motivation precedes behavioral commitment.

Results further show that GPQ has a significant and positive impact on GPI (β = 0.336, t = 5.353, p = 0.000), suggesting that consumers in Kathmandu assess product quality as a key determinant of their intention to purchase green products. These findings echo the conclusions of Zhang and Dong (2020), Chen and Chang (2021), and Barbu et al. (2022), who emphasized that perceived product credibility and performance foster purchase intentions. However, GPQ did not significantly influence GCB directly (β = 0.07, t = 0.96, p = 0.337), implying that perceived quality alone cannot drive actual consumption unless other mediating factors, such as intention, intervene. This outcome mirrors findings from Cheung et al. (2015) and Kumar and Polonsky (2022), who argued that even when products are of high quality, consumers may hesitate to purchase them if other constraints such as price or skepticism exist. The indirect effect of GPQ on GCB through GPI was significant (β = 0.13, t = 3.96, p = 0.000), suggesting a full mediation, aligning with Patel et al. (2022), who found that perceived quality contributes to actual purchases primarily through its influence on intention.

The results indicate that GV has a strong and positive effect on both GPI (β = 0.456, t = 7.072, p = 0.000) and GCB (β = 0.179, t = 2.363, p = 0.018), highlighting the dual importance of perceived value. Consumers who perceive greater functional, emotional, and social value in green products are more likely to intend and follow through with purchases. These findings support prior studies by Tian et al. (2022), Liao et al. (2020), and Singh et al. (2021), who found that when perceived value aligns with environmental and social benefits, green buying behavior strengthens. Similarly, Woo and Kim (2019) found that all four dimensions of green value (functional, conditional, social, and emotional) significantly influence positive consumer attitudes. The indirect effect of GV on GCB through GPI was significant (β = 0.177, t = 4.04, p = 0.000), indicating that GPI partially mediates this relationship. This result is consistent with Adhitiya and Astuti (2019), who noted that social and emotional satisfaction can translate value perceptions into actual green consumption.

In the case of PCE, findings show a significant positive influence on both GPI (β = 0.108, t = 2.139, p = 0.032) and GCB (β = 0.242, t = 4.195, p = 0.000). These results suggest that consumers who believe their actions can meaningfully impact the environment are more likely to intend and engage in green consumption. This aligns with findings from Alam et al. (2020) and Matharu et al. (2020), who demonstrated that belief in one's ability to effect change strengthens sustainable purchase behavior. Furthermore, the indirect effect of PCE on GCB via GPI was significant (β = 0.042, t = 2.02, p = 0.043), and the total effect remained significant (β = 0.284, t = 4.811, p = 0.000), suggesting partial mediation. These results are comparable to Farooq et al. (2023) and Kovacs and Keresztes (2022), who found that higher perceived consumer effectiveness encourages green satisfaction, willingness to pay, and repeated sustainable purchases.

Theoretical Implications

This study reinforces the relevance of the Theory of Planned Behavior (TPB) and extends the application of the Value-Belief-Norm (VBN) theory to the context of developing markets. The results affirm TPB's structure, where behavior is guided by intention, and extend VBN by demonstrating how value-based motivations (GV) and beliefs in personal agency (PCE) influence both intention and behavior. Importantly, the direct influence of PCE on GCB—independent of GPI—suggests that belief-driven, non-deliberative behavior may warrant further theoretical exploration. This finding indicates the need to refine or expand current behavioral models to include more spontaneous, efficacy-based action pathways.

Practical Implications

For businesses and marketers, the study emphasizes that promoting green product quality alone is not enough. Effective marketing should highlight both the personal and societal value of green products, using storytelling, transparent labeling, and impact-driven messaging. Building trust and avoiding greenwashing are critical to maintaining consumer engagement. For policymakers and educators, the findings support initiatives that empower consumers by reinforcing the belief that individual actions matter. Public campaigns that connect personal choices to collective environmental outcomes can strengthen both motivation and behavior. Addressing structural barriers such as affordability and product accessibility is also essential to translate intention into action.

Conclusion

The rapid rise of environmental concerns has significantly influenced consumer behavior, particularly in urban centers like Kathmandu Metropolitan City. Green marketing, which involves promoting environmentally friendly products and practices, has emerged as a key strategy for businesses seeking to connect with environmentally conscious consumers. Despite its growing relevance, there are still gaps in understanding how various green marketing elements interact to shape consumer behavior in developing countries like Nepal. This study explored the influence of green product quality, green value, and Perceived Consumer Effectiveness on green purchase intention and green consumption behavior.

The findings provide several critical insights. First, GPI significantly predicts GCB, confirming the central role of intention in guiding action. Second, GPQ positively influences GPI but does not directly affect GCB, indicating that product quality must be accompanied by motivational factors to result in actual behavior. Third, both GV and PCE have significant effects on GPI and GCB, with PCE showing a unique direct impact on GCB independent of GPI. This suggests that belief in one's personal efficacy can drive green behavior even without strong prior intention. GPI is shown to mediate the relationship between GPQ and GCB fully, and between GV and PCE with GCB partially.

These findings highlight the importance of aligning green marketing strategies with consumer values and self-efficacy. Businesses should focus not only on the functional quality of green products but also on clearly communicating their environmental and societal value. Policymakers should invest in education and awareness campaigns that foster consumer belief in the effectiveness of individual action, creating an environment where sustainable choices are easier and more meaningful.

Limitations and Future Research

This study is limited to urban consumers in Kathmandu, which may affect the generalizability of results. Future research could examine rural or underrepresented populations, utilize larger and more diverse samples, or apply longitudinal designs to explore behavioral changes over time. Investigating additional variables such as cultural norms, peer influence, or government policy incentives could further illuminate the complexities of green consumer behavior. Furthermore, the distinct role of PCE in driving non-intentional behavior presents a valuable direction for future theoretical development.

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Conflict of Interest

"The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article."

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Mobile Banking Adoption and Financial Inclusion: The Mediating Role of Intention to Use

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Abstract

This study explores the impact of digital payment on financial inclusion (FI) in Kathmandu Valley, focusing on mobile banking adoption. Grounded in the Technology Acceptance Model (TAM) and Theory of Planned Behavior (TPB), the research examines the influence of perceived usefulness (PU) and perceived ease of use (PEU) on the intention to use mobile banking (IMB) and its subsequent role in enhancing financial inclusion. Additionally, the study explores the mediating effect of IMB in the relationship between these factors and FI. A quantitative approach was employed, using a cross-sectional design to analyze data from 316 mobile banking users in Kathmandu Valley, collected through structured questionnaires. The data were analyzed using Structural Equation Modeling (SEM) to determine the direct and indirect impacts on financial inclusion. The findings reveal that both PU and PEU significantly influence the intention to use mobile banking, which in turn has a substantial impact on financial inclusion. Moreover, the intention to use mobile banking partially mediates the relationship between PU, PEU, and FI. The study underscores the importance for financial institutions to develop user-friendly mobile banking platforms to enhance customer experience and foster greater financial inclusion. By blending TAM and TPB frameworks, this research provides a novel empirical perspective on digital payments and financial inclusion in a developing region.

Keywords: Financial inclusion, mobile banking, intention to use M-banking, perceived ease of use, perceived usefulness

JEL Classification: D03, G11, G40, G41

Introduction

According to the Nepal Rastra Bank report for 2022/2023, Nepal's mobile banking witnessed a significant breakthrough, with the number of mobile banking users reaching 21364000, marking a growth rate of 16.7%. In urban cities like Kathmandu, the rapid adoption of digital payments sparked hope for bridging the financial inclusion gap. Financial inclusion refers to the efforts to make financial services and products easily available and affordable for all people, and businesses, regardless of their net worth and size (Grant, 2024). In Kathmandu, financial inclusion has been achieved through Commercial banks and microfinance institutions. However, due

to geographical structure, the rural population finds it difficult to access traditional banking services (Bhusal, 2023).

The advancements in mobile phone technology have revolutionized financial services to serve customers. As it is relatively cheap, secure, and accessible to the population (Ouma et al., 2017). Providing customers with mobile apps to access information and documents will naturally lower the demand for human interaction, ultimately decreasing operating costs. To sustain financial inclusion, mobile banking helps financial institutions like Bank to reach their customers in remote areas (Ouma et al., 2017). Mobile banking is a win-win situation for both financial institutions and customers. For financial institutions, mobile banking reduces transaction costs and helps to increase sales volume. And, customers, they are benefited in terms of the 24/7 system services and also a reduction in transaction costs.

When banks develop more financial products, individuals' ability to access financial services increases, leading to more inclusive financial growth. This study provides insights into how an individual's ability to access and utilize financial services promotes financial inclusion. Many research works have explored how perceived ease of use and usefulness impacts the intention to use mobile banking (Lutfi et al. 2021; Siddik et al. 2014). Nevertheless, a survey of scholarly research in the area of user adoption of technology shows that little effort has been made in exploring how these factors could impact on the identified socio-economic issues; such as financial inclusion. Much of the literature has concentrated on behavioral aspects and technology acceptance without paying attention to how the adoption of mobile banking can improve financial inclusion within financially excluded or rural (Chitungo & Munongo, 2013; Durai & Stella, 2019). Despite the growing importance of financial inclusion in promoting economic development, a research gap, specifically, attempts to link users' perception of mobile banking to its assumed ability to enhance financial inclusion. That is why this study seeks to fill this gap by establishing the relationship between the level of perceived usefulness and perceived ease of use on the adoption of mobile banking for financial inclusion. Although research has been conducted on similar topics, a lack of comprehensive study is lacking in Nepalese context. To provide the foundation for future research in this area, this study contributes to the existing body of knowledge about how financial services promote financial inclusion.

Present study provides valuable insights into practical aspects that shape user acceptance by highlighting how perceived ease of use and usefulness influence the intention to use mobile banking services. By focusing on most prominent variables, the study will contribute to a more nuanced understanding of how mobile banking impacts financial inclusion. This study provides insights into how an individual's

ability to access and utilize financial services promotes financial inclusion. As more people begin to use mobile banking, it encourages banks to develop more financial products to fulfil the needs of the individuals, which impacts the individual's intention to use mobile banking. When banks develop more financial products, it increases individuals' ability to access financial services leading to more inclusive financial growth.

Literature Review and Hypotheses

Perceived Usefulness and Intention to Use Mobile Banking

Perceived usefulness (PU) refers to the degree to which user feels that adopting a particular technology will improve their activities (Davis, 1989). Intention to Use Mobile Banking (IMB) is the user's willingness or desire to interact with mobile banking applications. (Ajzen, 1991). PU and IMB correlation is based on the Technology Acceptance Model (TAM) created by Davis (1989). The TAM suggests that users develop beliefs regarding how useful a technology is, which influences their attitude to a technology and, behavioural intention of using it.

In line with above discussed theory, Rehman and Shaikh (2020) in Malaysia demonstrated that PU is one of the main predictors of behavioural intention to adopt mobile banking, which is in line with the TAM framework. Similarly, Parajuli (2023) discovered that PU has a strong influence in behavioural intentions to use mobile banking among the Nepalese users, indicating that the customers are more ready to use mobile banking when they consider it to be useful and effective. Lama et al. (2025) established a positive and significant relationship between PU and intention to adopt mobile banking in Kathmandu, and usefulness is a significant attractor of acceptance. All these results confirm the following hypothesis:

H1: Perceived usefulness positively impacts the intention to use mobile banking.

Perceived Ease of Use and Intention to Use Mobile Banking

Perceived ease of use (PEU) is the degree to which the users find it easy to use the technology application (Davis, 1989). PEU and IMB correlation is based on the TAM (Davis, 1989), which has theorized that the perception of ease of use will have both a direct and indirect impact on the behavioural intentions of the users.

This theoretical relationship is always supported by empirical studies. Wasiul, Arije, and Huda (2020) found in Malaysia that PEU has a positive impact on millennials to use smartphone banking apps, and also found that easy-to-use and intuitive design is essential to attract interest. Similarly, Parajuli (2023) also found PEU have a major impact on the intention to use mobile banking in Nepal, implying that the more customers feel that the service is easy to use, the higher the chance of its adoption. Equally, PEU was found to have a positive impact on adoption intentions in Kathmandu as stated by Lama et al. (2025),

which supports the idea that ease of use has a positive influence on behavioural intention through user-friendly design. The studies together confirm that PEU influence IMB, leading to the following hypothesis:

H2: Perceived ease of use (PEU) positively affects the intention to use mobile banking (IMB).

Intention to Use Mobile Banking and Financial Inclusion

IMB is described as the desire or intentions of people to use mobile banking services in future (Ajzen, 1991). Financial Inclusion (FI) is the procedures through which individuals and businesses can access and have access to convenient and inexpensive financial services and products that satisfy their requirements (Sarma & Pais, 2011). This theoretical framework is based on the Diffusion of Innovation (DOI) Theory (Rogers et al. 2014). According to DOI, the uptake of new technologies diffuses through populations and the higher this uptake, the higher the accessibility and societal impact is.

This connection is established by empirical studies. Mobile Banking Services and Financial Inclusion in Taita Taveta County, Kenya showed that there was a positive and statistically significant relationship between mobile transactional services and business financial inclusion (Mwangasu et al. 2022). Equally, Agri Traders of India concluded that the use and adoption of mobile banking by agricultural traders in India is a key factor in financial inclusion as it enhances access and utilization of banking services (Tikku & Singh, 2023). More recently, Tawfik (2024) finds that mobile-banking-based services significantly mediate digital finance outcomes linked to financial inclusion. Based on this synthesis, the hypothesis is as follows:

H3: The intention to use mobile banking (IMB) significantly affects financial inclusion (FI).

Mediating Effect

IMB is a mediating variable between the perceptions of the users towards technology (PU and PEU). TAM (Davis, 1989) notes that cognitive assessments of a technology in terms of PU and PEU determine how the user will influence the IMB. When the intention is formed, it results in the actual adoption behavior in this case mobile banking usage which in turn results in the financial inclusion. This is a mediating mechanism which is backed by empirical studies. Indicatively, Alam et al. (2021) in Bangladesh discovered that behavioral intention is an important mediating variable between user perceptions and adoption of mobile financial services that subsequently enhances financial access. In Indonesia, Setiawan et al. (2023) established that intention to use digital financial services links the effect of perceived technological benefits on financial inclusion among women entrepreneurs. Similarly, Tawfik (2024) pointed out that the intention based adoption of mobile banking plays a big role as a mediator of the connection amid digital technology factors and the outcome of financial inclusion in emerging economies. All of this supports

the theoretical hypothesis that PU and PEU influence the FI via the IMB. Therefore, the following hypothesis is presented:

H4: Intention to use mobile banking mediates the relationship between PU and FI and PEU and FI.

Methods

This study applies a quantitative research approach, where the data from the respondents in the Kathmandu Valley are collected through a cross-sectional research design, which examines relationships among various variables simultaneously, which is vital for employing Structural Equation Modelling (SEM).

Population, Sampling Design

The target population for this study consists of individuals who actively use mobile banking services in the Kathmandu Valley. The study seeks diverse participants representing many demographic groups, including various age groups, income levels, and educational backgrounds. This variation will capture a spectrum of experiences about the influences that mobile banking has on financial inclusion across different population segments. To ensure a representative sample, the study employed a purposive sampling technique to select the participant. In this study, to decide the sample size the complexity of the SEM model, methods of estimation, and characteristics of the data play a major role. A larger sample size is necessary due to the complexity of the model, consists of numerous constructs. The use of Maximum Likelihood Estimation (MLE) guides the target sample size to be between 200 and 400 respondents, depending on other considerations. The sample size must be raised to account for potential problems if the percentage of missing data is more than 10%. Additionally, a larger sample is necessary if the average error variance among the indicators is low, particularly with commonalities below 0.5. Finally, the study intends to include at least 15 respondents for each estimated parameter in the model to handle departures from the assumption of multivariate normality (Malhotra & Dash, 2022).

Out of the 374 surveys distributed, 316 were selected and 58 were rejected. Of the 316 respondents, 135 (43%) were male and 181 (57%) were female. The study made an endeavor to assess the measurement errors by measuring the latent constructs with the help of multiple observed variables (items) using 5-point Likert scales rooted with “strongly disagree” (1) and “strongly agree” (5). Responses to the PU and PEU were recorded on this scale developed by Davis (1989), and IMB by Davis, et al. (2003).

Data Collection

Five Point Likert Scale questionnaire has been designed to secure the primary data related to mobile banking and financial inclusion. In the questionnaire, there are five options

for the respondents among which respondents have to select only one. In scaling each question, '1' indicates strongly disagree, and '5' indicates strongly agree. The responses obtained from the respondents have been used to test the hypothesis. The data related to mobile banking have been collected by focusing on major domains of mobile banking like perceived usefulness, perceived ease of use, intention to use, and financial inclusion. Similarly, the statements included in the questionnaire have been focused on how intention to use mobile banking affects financial inclusion.

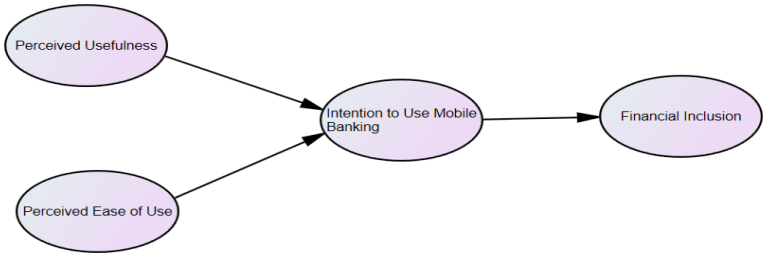

Figure 1. Conceptual model

Instruments Development

The study employed a structured survey consisting of 21 questions, designed to collect data on both demographic characteristics and behavioral or intention to use-related factors. Demographic questions included variables such as age, gender, education, and experience, while the behavioral and intention to use section measured PEU, PU, IMB, FI. The measurement items were adapted from prior studies, including Gosala Raju, 2022, and responses were recorded using a 5-point Likert scale, where 1 indicated strongly disagree and 5 indicated strongly agree. A pilot test was conducted to ensure the reliability and validity of the instrument, and confirmatory factor analysis (CFA) was used to assess construct validity, with low-loading items removed. Additionally, convergent validity and common method bias were examined to enhance the rigor of the study. Data were collected from Kathmandu valley and processed using SPSS and AMOS. The study applied SEM to analyse the relationships among variables and test the research hypotheses. SEM was chosen over alternatives such as PLS-SEM due to its suitability for theory-driven, covariance-based models with serial mediation. This systematic approach ensured that the data analysis was reliable, valid, and aligned with the research objectives.

Results

The study measured endogenous and exogenous constructs using the same method, increasing the change of the proposed model suffering from common method bias (Podsakoff et al., 2003). Podsakoff & Organ (1986) argued that, in a model, if more than 50 percent of the total variance is explained by a single factor alone, there occurs common method bias.

The study was conducted using SEM in five steps: (1) Defining individual constructs (2) Specifying measurement model (3) Specifying structural model (4) Testing hypothesized relationships (5) Drawing conclusion. Keeping the dependence relationships of Perceived Usefulness, and Perceived ease of use with the Intention to use mobile banking and Financial Inclusion in mind, we selected SEM for these relationships to be explained appropriately. The individual steps of SEM were explained and followed in the subsequent sections.

Defining individual constructs: The study made an endeavour to assess the measurement errors by measuring the latent constructs with the help of multiple observed variables (items) using 5-point Likert scales rooted with "strongly disagree" (1) and "strongly agree" (5). Table 1 also shows the psychometric properties of measurement model, where loadings of 17 items were above to the preferred value of 0.7; remaining was above to the minimum value of 0.5. All the loadings were statistically significant at 0.001.

Table 1. Proposed Model: Psychometric Properties of Measurement Model

Items	Loadings	Measurement Error Variance
PU1: Using the mobile banking is useful in my daily life	0.698***	0.49***
PU2: Using the mobile banking system increases my productivity.	0.628***	0.40***
PU3: Using the mobile banking system saves my time.	0.589***	0.35***
PU4: Using the mobile banking system enhances my efficiency.	0.687***	0.47***
PU5: Using mobile banking allows me to manage my finances more effectively.	0.728***	0.53***
PEU1: I feel that the mobile banking system is easy to use.	0.744***	0.55***
PEU2: I feel that the mobile banking system is convenient.	0.711***	0.50***
PEU3: Getting the information that I want from the mobile banking system is easy.	0.595***	0.35***
PEU4: The mobile banking system requires no training.	0.475***	0.23***
PEU5: The mobile banking system requires no training.	0.646***	0.42***
IMB1: I am planning to use mobile banking frequently.	0.798***	0.64***
IMB2: I expect that I would use mobile banking system in the near future	0.721***	0.52***
IMB3: I would recommend mobile banking to others.	0.753***	0.57***
FI1: Using mobile banking has improved access to financial services.	0.784***	0.61***
FI2: My education plays an important role for me in using mobile banking for availing financial services	0.642***	0.41***
FI3: Geographic location (urban/rural) plays an important role for me in using mobile banking for accessing financial services	0.575***	0.33
FI4: Mobile banking enabled me to access and use of financial services at anytime and anywhere.	0.588***	0.35***
FI5: Mobile banking allows me to manage finance effectively.	0.748***	0.61***

Source: Authors

Specifying measurement model: Measurement model was specified in a way that four constructs were allowed to correlate with each other, and each was made associated with their respective assigned number of items discussed earlier, but not with other items. Figure 2 portrays the resulting measurement model.

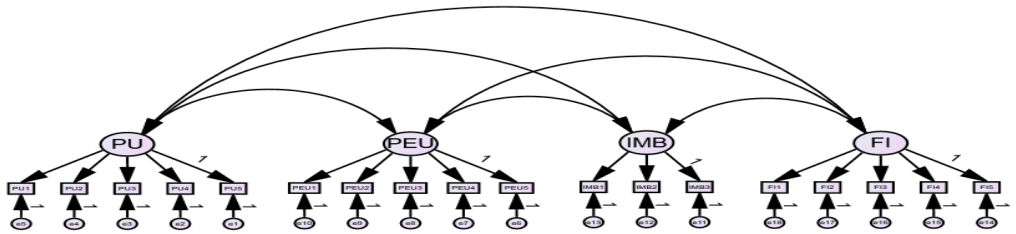

Figure 2. Measurement Model

Assessing Measurement Model Reliability and Validity: To validate the scales, a four-factor measurement model was configured and tested by conducting the confirmatory factor analysis (CFA). As indicated in Table 2, multiple indices of different types – absolute and incremental – were used along with reporting the value of chi-square with associated degree of freedom to evaluate the model's fit. The validity of the proposed measurement model of initially used total 18 items was not found to be satisfactory as fit indices didn't meet their cutoff values, so an attempt of diagnosing the information provided by CFA was performed to make the appropriate modifications, and in the course, the path estimates, diagnostic cue, were used, which suggested to remove one item from the constructs – financial inclusion. Though it was against the intrinsic nature of CFA, more in keeping with exploratory factor analysis (EFA), the study was still allowed to proceed with the prescribed model and data after making such minor modifications (Malhotra and Dash, 2022). The CFA results presented in Table 2 indicated that the proposed model fits the data pretty well [X^2 =292.975, $p < 0.001$ given that DF =110]; particularly, GFI was found to be 0.901 (= 0.90), RMSEA was 0.073 (< 0.08), and CFI was 0.927 (> 0.90).

Table 2. Measurement Model: Goodness-and Badness-of-Fit Indices

Model	Absolute fit Indices			Incremental Fit Indices
Goodness-of-Fit Index	Badness-of-Fit Indices			Goodness-of-Fit Index
	GFI	X^2	DF	RMSEA	CFI
Four-factor	0.901	292.975	110	0.073	0.927

Source: Authors

Note: GFI = goodness-of-fit index; RMSEA = root mean square error of approximation; CFI = comparative fit index. The model was tested using covariance matrices and maximum likelihood estimation. *** $p < 0.001$.

Other psychometric properties, in addition to modification indices, of the scales like composite reliability and validity were assessed and shown in Table 3. About the composite reliability (CR), the scales outstrip the recommended critical level of 0.70; thus, it was reasonably concluded the scales to be reliable. To test the convergent validity, average variance extracted (AVE) was calculated in terms of completely standardized loadings. The results showed all values of AVE except IMB not meeting the critical level of 0.5, so the validity of individual indicators along with construct seemed questionable. Malhotra and Dash (2022) proposed that AVE is more conservative measure than CR, concluding the convergent validity of the construct built upon CR alone is adequate; thus, the data used for this study confirmed that scales correlated positively with other measures of the same construct. Likewise, as indicated in Table 3, discriminant validity was confirmed since square roots of the AVE were found to be greater than the correlation coefficients in all 6 cases. Overall, for testing the structural model, the scale items were found to be both reliable and valid.

Table 3. Measurement Model: Construct Reliability, Average Variance Extracted, and Correlation Matrix

Construct	Mean	Standard Deviation	Construct Reliability	Average Variance Extracted	Correlation Matrix 1	2	3	4
1.IMB	4.374	0.604	0.802	0.575	0.945			
2.PU	4.366	0.569	0.800	0.446	0.903*	0.915		
3.PEU	4.263	0.551	0.773	0.441	0.915**	0.888	0.941	
4.FI	4.297	0.553	0.788	0.486	0.862***	0.907	0.932	0.86

Source: Authors

Note: PU = perceived usefulness; PEU= perceived ease of use; IMB = intention to use mobile banking; FI= financial inclusion, Value on the diagonal of the correlation matrix is the square root of AVE.

Specifying the Structural Model: Based on the prior research studies, this research hypothesized, PU and PEU would be positively correlated with FI along with IMB mediating these relationships. Again, it was also hypothesized that PU and PEU would be positively associated with IMB. The underlying mechanism of these structural relationships is presented in Figure 3, the arrows flown out from PU and PEU to IMB (Figure 3). On the right-hand side of Figure 3, IMB was linked with FI as hypothesized that IMB would be mediating the relationships between PU, PEU and FI. Meaning, the emphasis was made the relationships between latent constructs and observed variables to be shifted from to the nature and magnitude of relationships among the constructs. The structural model was tested by freeing the structural linkages and fixing the factor loading of one indicator per construct to a value of unity. All the measured indicators were permitted to load on only one construct each, and the error terms were not allowed to correlate with each other.

Factor loadings and error variances together with structural parameters were estimated in specified structural model. The standardized estimates were then compared with the parallel estimates produced in measurement model to trace any inconsistencies (differences > 0.05), and such comparison did not show any inconsistencies as no estimates were found having differences larger than 0.05. This approach was also used to take the fit indices of measurement model as a basis for evaluating the fit indices of structural model (comparison of Table 2 and Table 4).

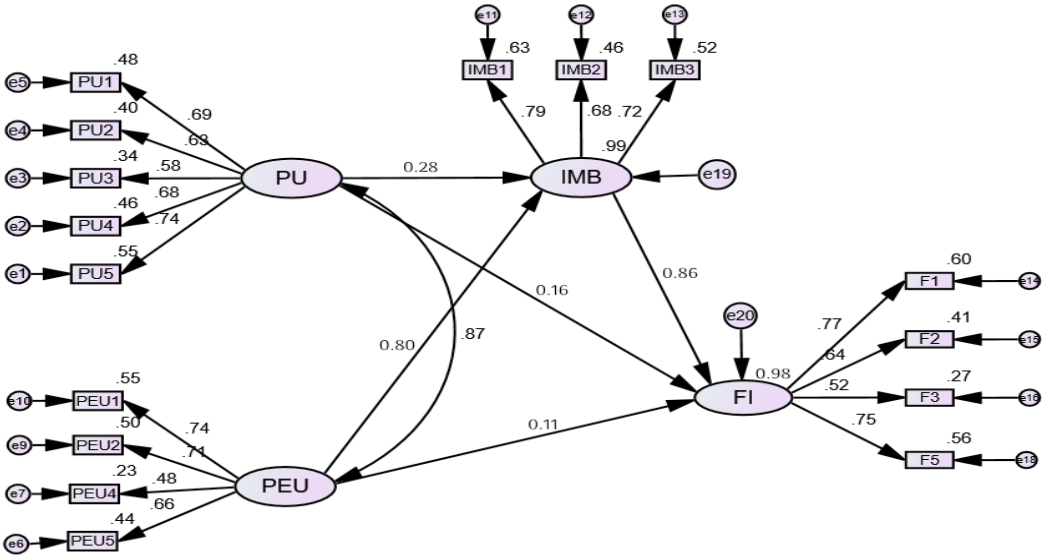

Figure 3. Structural Model

Assessing Structural Model Validity: The validity of the structural model was tested by using (1) Assessing the fit (2) Testing hypothesized relationships

Assessing Fit

The proposed four-factor structural model was a recursive one as it was hypothesized that PU and PEU dimensions would have positive effect on FI and IMB, and IMB would have positive effect on FI, but it wasn't hypothesized that, in turn, FI would impact IMB and PU, PEU, and again, IMB would impact PU and PEU. Thus, the proposed recursive structural model hadn't had a better fit than measurement model. As indicated in Table 4, the estimation of structural model with same sample (n = 316) yielded the fit indices that were more of the same as fit indices of measurement model, providing a better model fit.

Table 4. Structural Model: Goodness-and Badness-of-Fit Indices

Model Goodness-of-Fit Index	Absolute fit Indices Badness-of-Fit Indices		Incremental Fit Indices Goodness-of-Fit Index	
	AGFI	X^2	DF	RMSEA	CFI
Four-factor	0.901	292.975	110	0.073	0.927

Source: Authors

Note: AGFI = adjusted goodness-of-fit index; RMSEA = root mean square error of approximation; CFI = comparative fit index. The model was tested using covariance matrices and maximum likelihood estimation. *** $p < 0.001$.

Testing Hypothesized Relationships

We transformed the theoretical relationships between PU, PEU, IMB, and FI in four different hypotheses as PU and PEU would be positively associated with IMB, IMB would be positively associated with FI, and IMB would be mediating the effects between PU and FI, PEU and FI. These hypotheses were empirically tested based on the identified path model established through sample data. The validity of the proposed structural relationships outlined in Figure 3 was tested to the extent these hypotheses were supported. H1 stated that the users' perceived usefulness result more intended to use mobile banking. As portrayed in Table 5, the effects of PU on IMB were statistically significant (PU: Standardized $\beta = 0.281$; $p < 0.05$; $p < 0.01$), and thus, hypothesis 1 was accepted. H2 stated that the users' perceived ease of use positively relates to Intention to use mobile banking. As demonstrated in Table 5, the effects of PEU on IMB were statistically significant (PEU: Standardized $\beta = 0.801$; $p < 0.01$), and thus, hypothesis 2 was accepted. H3 stated that IMB directly drives FI. As shown in Table 5, the analysis revealed a statistically significant effect of IMB on FI (IMB: Standardized $\beta = 0.864$; $p < 0.001$). This indicates a strong and significant relationship between IMB and FI. Consequently, the results support the proposed hypothesis, demonstrating that IMB directly drives financial inclusion.

The study's review of the conditions for mediation implied that the mediating effects of IMB were undoubtedly present between two exogenous variables (viz. PU and PEU) on FI. As presented in Table 5, the indirect effects of two independent variables, PU ($\beta = 0.693$; $p < 0.05$) and PEU ($\beta = 0.243$; $p < 0.05$) on FI through IMB were statistically significant. By the product of direct effects, the indirect effects were calculated. For instance, the standardized indirect effect of PU on FI through IMB was calculated as the product of standardized coefficients for the paths PU → IMB and IMB → FI or (0.281) * 0.864) = 0.243 (Table 5). The underlying reason behind this estimation was this way: PU had a certain direct effect on IMB (0.281), but merely a portion of this effect, 0.864 of it, was transmitted to FI. The indirect effect of 0.243 implied that the FI is predicted to increase by 0.243 standard deviations for every increase in PU of full standard deviation via its prior

effect of IMB. Since the indirect effects of two independent variables, PU and PEU, on FI through IMB were significant, H4 was strongly supported.

Table 5. Path Analysis Results (Direct and Indirect Effect)

Path	Standardized Path Coefficient	
	Direct Effect	Indirect Effect
PU→IMB		0.281*
PEU→IMB		0.801**
PU→FI		0.160
PEU→FI		0.111
IMB→FI		0.864***
PU→IMB→FI		
PEU→IMB→FI		0.243*
		0.693*

Source: Authors

Note: To test the statistical significance of the indirect effect, the z-score is calculated as Zab = ab/seab. ***P < 0.001 **P < 0.01 *P < 0.05.

Discussion

The empirical of this study explored IMB representing the generic mechanism through which the key independent variables (viz. PU and PEU) positively impact FI. The empirical effect of PU and PEU on IMB provided by Hypothesis 1 and 2 is fully supported. As stated, PU and PEU had positive and significant impact on IMB, supporting H1 and H2. These findings align with the (Siddik et al. 2014, Lutfi et al. 2021). PU enhances the perceived value and benefits of the technology, which positively impacts IMB. Users are more likely to use mobile banking when they believe it will improve their financial management. When mobile banking addresses specific needs such as providing quicker access to account information, simplifying bill payment, or simple money transfers, this showcases PU influence on IMB. Users are more inclined to fit in mobile banking into their daily routines when they become aware of its benefits, which include time savings, the ability to manage their finances more effectively, and the ability to eliminate the need for physical visits to banks. PEU positively IMB by making the technology user-friendly. When users view mobile banking as simple to use, they are more likely to adopt it because they anticipate less difficulty in learning and interacting with the system. Perceived ease of use has a greater impact on IMB than PU (Table 5) and the possible explanation for this perhaps is that, PEU directly influences both the initial adoption and ongoing use of technology. Users are more likely to overcome initial obstacles and interact with the mobile banking technology is perceived as easy to use, as they are less startled by technology's complexity. Because of its simplicity of use, users find the system more appealing because it requires less mental work and less time to learn. On the other hand, even if mobile banking is seen as highly useful, users may still be reluctant to use if they perceived it as difficult.

In alignment with Hypothesis 3, our analysis verified the proposal that IMB positively influences FI. Individuals are more likely to interact with mobile banking when they have a strong intention to use mobile banking. When individuals perceive a strong intention to use mobile banking, they are more likely to actively participate in the financial system, which enhances their access to a diverse range of financial products and services. By offering services with a mobile device, mobile banking helps bridge the gap between traditional financial institutions and underprivileged populations. By using mobile technology, these individuals can avoid a lot of the constraints connected to traditional bank branches, which encourages individuals to participate in the equitable financial system. This increased access not only empowers users but also contributes to the objective of improving financial inclusion in underprivileged populations.

The significant support for Hypothesis 4, indicating that IMB mediates the relationships between PU and FI, as well as between PEU and FI, highlights the critical role of user intention in these dynamics. Our findings align with the Technology Acceptance Model (TAM), which posits that perceived usefulness and ease of use significantly influence technology adoption through user intention (Davis, 1989). Specifically, the positive impact of PU on FI since it increases the intention to use mobile banking, which promotes greater adoption and financial inclusion. Similarly, the ease of use affects FI by enhancing users' intention to engage with mobile banking services. This mediation effect shows that while perceived attributes of mobile banking are significant, their influence on financial inclusion is mediated by users' willingness to interact with the technology. The findings suggest user intention is crucial in converting perceptions of usefulness and ease into real usage and increased financial access. This underscores the necessity of developing strategies that improve the perceived benefits and usability of mobile banking and encourage users to use these services.

Theoretical Implications

The findings of this research provide a valuable theoretical contribution to the knowledge on mobile banking adoption and its contribution to the process of enhancing financial inclusion. The results validate the argument that the cognitive appraisals of the PU and PEU continue to dominate behavioural intention even in the digital financial services sector of the developing economies. The research also contributes to the generalizability of the technology acceptance theory to the traditional organizational setting by demonstrating that the intention to use mobile banking is transformed into the larger socioeconomic impact, especially enhanced access to the financial services. Besides, the mediating aspect of behavioural intention offers a precise theoretical approach to how personal perceptions of technology are converted into improved financial inclusion, thus fitting behavioural adoption theory with financial inclusion models.

Practical Implications

In practice, this research has useful implications on the work of bank managers, policymakers, app creators, and regulators aiming to increase digital financial services. As PU and PEU have been found to play a strong role in the IMB, the financial institutions need to focus on developing efficient and secure applications that are aligned with the daily financial requirements of users. There is an opportunity to enhance transaction speed, reliability and security in order to reinforce the PU as well as to facilitate easier navigation and user-friendly interfaces to increase ease of use, which can stimulate subsequent usage. The marketing mix must include convenience, accessibility, and time-saving benefits with specific digital literacy and user education programs on top to enhance confidence. Mobile banking, at policy level, must be included in national financial inclusion policies by supporting regulation and investment in infrastructure especially in underserved regions to have the most inclusive effect.

Policy Implications

The result indicates that strengthening financial inclusion by enhancing the intention to use mobile banking can be done indirectly by ensuring the PU and PEU is better than before. Expansion of digital infrastructure which includes mobile network coverage, access to the internet and access to reliable electricity should therefore be of priority to the policymakers so that the mobile banking services can be made available in all regions. It is also vital to reinforce consumer protection, data privacy, and cybersecurity laws and regulations to allow growing the level of trust in mobile banking and, consequently, the perceived usefulness of digital financial services among users. Also, the high mediation effect indicates that facilitating user-friendly digital systems and enhancing digital literacy will help to a large degree improve adoption, which will lead to eventual financial inclusion.

Conclusion

This research was intended to provide answers to some research questions on the impact of mobile banking technology to the extent of financial inclusion in Kathmandu. The findings affirm the hypothesis that PU has a significant indirect effect on FI through IMB, hence, when users consider the mobile banking application useful, they are likely to use it thus, improving the level of financial inclusion. Likewise, in the context of this research, PEU has a significant impact on the proposed mediator, IMB, which has a positive influence on FI, suggesting that the diminished usability barriers for interacting with mobile banking services enhance the intention for using these services to support the objective of financial inclusion among users. Mobile banking is the focus of these results and the very fact that perceived benefits and usability are crucial for engagement in this form of banking contribute to the overall goal of financial inclusion.

Limitations and Future Research

The results suggest that a significant increase in financial inclusion is possible through enhancing the perceived usefulness and ease of use of mobile banking as it can increase the intention of most users to embrace the services. Nonetheless, the research is limited by some weaknesses like the methodological limitation and the removal of the variables that can be relevant in driving the identified associations like self-efficacy, facilitating conditions, and technology readiness. Moreover, the external environmental conditions such as regulatory systems and technological infrastructure were not adequately studied. Despite the difference between covariance-based SEM and partial least squares SEM, PLS-SEM proves beneficial in cases where CB-SEM requirements prove challenging to meet, such as formative constructs and non-normality of the data. Future studies can thus embrace the use of PLS-SEM in order to remove these limitations.

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Conflict of Interest

"The authors declare no conflict of interest."

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Analyzing Book Ban Policy Through Lowi's Policy Typology and Sensemaking Theory

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Abstract
This study examines Florida's 2022 House Bill 1467 (often called the "book ban" policy) and assesses its impacts on K-12 education. It aims to understand how the law's design influences educational access, equity, and resource use, and how stakeholders interpret its mandates. We apply two theoretical frameworks: Lowi's policy typology to classify the bill's type and expected political implications, and sensemaking theory to analyze how educators, librarians, and parents interpret and enact it. Our analysis of legislative documents and expert commentary focuses on the policy's effectiveness, feasibility, equity, cost, and efficiency. Major findings indicate that HB 1467 functions as a regulatory policy imposing extensive review processes. However, these requirements introduce significant administrative burdens. Observers describe the resulting compliance process as "costly and time-consuming," which undermines feasibility and efficiency. The law's broad criteria lead to varied interpretations, highlighting sensemaking challenges. We find that such complexity risks uneven implementation and may restrict student access to diverse materials, raising equity concerns. In conclusion, while the policy aims to increase parental oversight, its design may undermine efficient and equitable implementation. The study suggests clearer guidelines and support are needed to align implementation with educational goals. These findings have broader implications for designing education policies that balance stakeholder input with clarity and fairness.

Keywords: Education Policy, Sensemaking Theory, Regulatory Policy, Censorship, Stakeholder Interpretation

Introduction
Policy is a complex and often ambiguous concept that varies by context. Wheelan (2015) defines policy as a set of deliberate, coordinated decisions by public actors to address collective public concerns. However, policymaking is rarely straightforward. Meltzer and Schwartz (2019) note that policies often result from political compromises, producing outcomes that may not fully reflect any participant's original goals. Fowler (2013) highlights policy as a dynamic process shaped by political values, encompassing formal decisions and

patterns of action or inaction within the political system. In contrast, policy analysis is a structured, evidence-based process for evaluating and recommending solutions to public issues, utilizing various models that each provide distinct analytical strengths (Meltzer & Schwartz, 2019, pp. 16–23).

Theoretical frameworks are crucial in policy analysis as they provide structured methods for understanding the complexities of policymaking and outcomes. Weible and Sabatier (2018) emphasize that effective theories should systematically explain policy processes, engage an active research community, allow for comparative analysis across contexts, ensure public accessibility of findings, and evolve through continuous research. These criteria ensure that theoretical frameworks remain robust, adaptable, and capable of effectively producing meaningful insights that inform policy decisions and address public concerns (Anderson, 2010).

This paper aims to analyze Florida's House Bill 1467 (2022), commonly referred to as the Florida Book Ban Policy, using two distinct theoretical lenses: Lowi's Policy Typology and Sensemaking Theory. This policy primarily focuses on enhancing parental rights, increasing transparency, and restricting access to content perceived as inappropriate, reflecting a politically driven effort to align public education with specific social and political values. This policy has sparked debates over censorship, educational freedom, and the politicization of educational content.

Several policy analysis frameworks could be applied, such as Rational Choice Theory, which focuses on cost-benefit decision-making; Bidwell's Resource Allocation Theory, which examines how institutions distribute resources; Berry & Berry's Diffusion Theory, which explains how policies spread across states; Lowi's Typology and Sensemaking Theory were chosen for their ability to capture both the policy's structural design and its interpretive implementation (Spicker, 2006). Lowi's Typology (Lowi, 1972) provides a framework for understanding how HB 1467 distributes power, while Sensemaking Theory (Weick, 1995) offers insight into how stakeholders interpret and respond to policy ambiguity. Studies from Spillane et al. (2018) on sensemaking in education and McDonnell (2013) on educational accountability and policy feedback support the relevance of these frameworks in analyzing education policy.

Methodology

This paper uses a qualitative, theory-based policy analysis, a common approach for deconstructing policy documents and implementation processes (Meltzer & Schwartz, 2019). The primary analytical approach involves the application of two complementary theoretical frameworks to the case of Florida's HB 1467: Lowi's Policy Typology (Lowi, 1972) and Sensemaking Theory (Weick, 1995). The rationale for selecting these two frameworks is that provide distinct yet interconnected lenses. Lowi's typology is used to classify the policy's fundamental design and predict its political dynamics. At the same time,

Sensemaking Theory is employed to examine the on-the-ground interpretive processes of stakeholders during implementation. Using this allows for a comprehensive analysis that covers the policy's structural intent to its lived reality.

To structure the evaluation, this paper applies the policy evaluation criteria, effectiveness, equity, feasibility, cost, and efficiency, outlined by Meltzer and Schwartz (2019) as a consistent metric to assess the policy's outcomes. McDonnell and Elmore's (1987) framework of policy instruments is used to characterize the specific type of policy tool, a mandate, that HB 1467 represents. The analysis is based on a review of the legislative text of HB 1467, government reports from the Florida Department of Education, and secondary sources, including scholarly commentary and news analyses regarding the law's implementation and impact (e.g., Li, 2024; Mosac, 2024).

Lowi's Policy Typology

Theodore J. Lowi's Policy, introduced in 1964, offers a foundational framework for categorizing public policies based on how they distribute benefits and impose burdens among stakeholders. Central to this framework is Lowi's statement that "policy determines politics," emphasizing that the inherent design of a policy directly shapes the political behaviors and processes involved in its formulation and implementation (Lowi, 1964). This typology divides public policies into three categories: distributive, regulatory and redistributive. Distributive policies allocate targeted benefits to specific individuals or groups without significantly disadvantaging others, such as funding for infrastructure projects or educational grants. Regulatory policies establish rules and restrictions to protect public interests, often requiring a balance between competing stakeholder priorities, as exemplified by safety and environmental regulations. Redistributive policies involve reallocating resources between social groups to address inequities, frequently leading to political contention, as seen with welfare and taxation policies. Lowi's framework emphasizes how each policy category inherently produces distinct political dynamics and stakeholder responses, making it a valuable analytical tool for evaluating the political implications of policy decisions (Lowi, 1972; Howlett et al., 1996).

A key strength of Lowi's Policy Typology is its ability to categorize complex policies based on how they distribute benefits and burdens, offering a structured framework for analyzing political behaviors and stakeholder dynamics in education policy. However, the framework's rigidity limits its analytical depth and fails to consider critical social and cultural factors such as equity, identity, and systemic bias, which are essential for comprehensive education policy analysis (McDonnell & Weatherford, 2013). To overcome these limitations, Lowi's typology should be complemented by interpretive frameworks that capture the broader social impacts of policy implementation.

Sensemaking Theory

Sensemaking Theory, developed by organizational theorist Karl E. Weick (1995), offers a critical framework for understanding how individuals and organizations interpret complex, ambiguous, or uncertain situations. At its core, sensemaking involves the continuous process through which people construct meaning to navigate their environment and inform decision-making. Weick (1995) characterizes this process as retrospective, social, and ongoing, emphasizing that individuals and groups interpret environmental cues, generate plausible explanations, and act based on those interpretations. These interpretations are shaped by personal identities, collective experiences, and organizational contexts, highlighting sensemaking's subjective and dynamic nature.

In the context of policy analysis, sensemaking becomes particularly significant when policies introduce change or disruption, requiring stakeholders to interpret new rules, expectations, and potential consequences (Maitlis & Christianson, 2014). This framework posits that policies are not implemented based solely on objective facts but are deeply influenced by how stakeholders perceive and interpret them. Several key concepts define how sensemaking operates in the policy environment. Environmental cues, including policy documents, political rhetoric, and media narratives, shape how stakeholders interpret a policy's intent and implications. Identity construction further influences this interpretation, as stakeholders' self-perceptions (e.g., as educators, parents, or policymakers) guide how they engage with the policy. Sensemaking is inherently retrospective, where individuals draw on past experiences to understand and navigate current policy changes (Maitlis & Christianson, 2014). It is also a social process, as stakeholders collectively negotiate and construct shared meanings within communities, organizations, and political groups. Sensemaking prioritizes plausibility over accuracy, focusing on developing actionable interpretations rather than perfectly accurate ones. This action-oriented nature means that how stakeholders interpret a policy directly influences whether they support, resist, or adapt its implementation.

A notable strength of the Sensemaking Theory in education policy analysis is its capacity to uncover how stakeholders interpret and respond to policy changes. This framework is particularly effective in explaining why the same policy can be implemented inconsistently across different school districts, driven by variations in stakeholder perceptions, identities, and local contexts (Maitlis & Christianson, 2014). It also offers valuable insight into how ambiguity in policy language fosters diverse interpretations, leading to unintended consequences in implementation.

However, the theory is not without limitations. Its focus on subjective interpretation may overlook structural and systemic factors such as institutional constraints, resource disparities, and power dynamics that also shape policy outcomes (McDonnell, 2013). As sensemaking emphasizes interpretive processes over measurable outcomes, it may be less

effective in evaluating a policy's direct effectiveness or cost-efficiency. This limitation suggests that while sensemaking provides deep insights into stakeholder behavior, it should be complemented with frameworks that address structural and political dimensions of policy implementation.

Overview of House Bill 1467

Florida's House Bill 1467 (2022), widely known as the Florida Book Ban Policy, was enacted as part of a broader legislative effort to increase parental involvement in public education and enhance transparency in school curricula and instructional materials. Signed into law by Governor Ron DeSantis, the policy mandates that all school districts catalog and review all instructional and library materials, ensuring compliance with state standards. It requires certified media specialists to curate educational content and grants parents the authority to challenge any book or material they consider inappropriate for students. The central problem, as defined by (Fowler, 2013, pp. 15–17; Meltzer & Schwartz, 2019, pp. 52–54) this policy seeks to address is the perceived exposure of students to materials deemed inappropriate or harmful, particularly content related to race, gender identity, and sexuality. This issue is framed as a need to protect children and uphold parental rights in determining what educational content suits their children. Florida's political culture, characterized as traditionalistic-individualistic, supports limited government intervention in public services while emphasizing the protection of established social orders and individual rights (Fowler, 2013, p. 87). This cultural backdrop influences the framing of HB 1467, aligning it with conservative social values and raising significant concerns about freedom of information, educational equity, and censorship in public schools.

The primary objective of HB 1467 is to increase parental control and transparency in selecting instructional materials in public schools. The law mandates that school districts create a publicly accessible online database of all instructional and library materials, providing complete visibility for parents and the community. A formal review process by certified media specialists ensures that content is age-appropriate and free from harmful material. Additionally, parents are empowered to review and challenge materials they find unsuitable. School districts must also submit annual reports on content challenges and removals to the state. These measures prioritize parental input while increasing state oversight of educational materials.

Florida's HB 1467(2022) was selected for analysis because of its impact on educational freedom, access to information, and the shifting balance of power among the state, schools, and parents. The policy serves as a politically charged response to ongoing educational, cultural, and ideological debates, making it a compelling case for examination through distinct theoretical frameworks. As explained by (Fowler, 2013, pp.92-102), its implications are deeply intertwined with competing values. Economically, the policy affects book publishers, authors, and illustrators, particularly those whose works are challenged or

banned, resulting in financial losses for some and potential gains for others who align with state-approved content. Additionally, school districts may face staffing reductions for media specialists and teachers due to shifting responsibilities and budget constraints.

Regarding power dynamics, HB 1467 consolidates authority by limiting access to certain information, reducing academic freedom, and creating job insecurity for education professionals involved in content selection. Regarding maintaining social order, supporters argue that limiting specific materials protects students from exposure to harmful or controversial content. However, the policy also emphasizes individualism by prioritizing individual parents' concerns, allowing a single complaint to dictate the removal of materials and thereby restricting diverse perspectives and student self-expression. The policy's primary stakeholders include parents, students, school administrators, teachers, and media specialists. By amplifying parental authority, HB 1467 significantly shapes students' educational experiences while limiting educators' autonomy in selecting instructional materials.

Evaluation of Florida's HB 1467 (2022) using Meltzer and Schwartz Criteria

As noted by Anderson (2011, pp. 299–306), there are multiple ways to evaluate policy, and no single method applies universally. The choice of evaluation depends on the purpose and significance of the policy analysis, the unique challenges of each policy, and the need for diverse evaluation processes and approaches. To analyze HB 1467, I am applying the policy evaluation criteria outlined by Meltzer and Schwartz (2019, pp. 116–123), which provides critical insights into the policy's implementation and impact.

Effectiveness: Florida's HB 1467 aims to enhance parental involvement and ensure transparency in selecting instructional materials in public schools. The Florida Department of Education reported that 72% of school districts experienced increased parental challenges to educational materials, demonstrating higher engagement (Mosac, 2024). However, the policy's ambiguous language has led to inconsistent implementation, with educators raising concerns about potential censorship and the narrowing of educational content (Li, 2024). These inconsistencies undermine the policy's ability to improve educational quality across districts uniformly.

Equity: The policy raises significant equity concerns, disproportionately affecting marginalized groups. Reports show a 25% reduction in access to culturally diverse materials for minority students in urban districts (Li, 2024), suggesting the policy unintentionally favors dominant parental voices while marginalizing educators and underrepresented communities. The absence of safeguards to protect diverse perspectives exacerbates educational inequities.

Feasibility: HB 1467 imposes a considerable administrative burden on school districts, requiring extensive material cataloging and review processes. Districts with fewer resources struggle to comply, leading to inconsistent enforcement (Mosac, 2024). Additionally, legal challenges and public opposition threaten its long-term sustainability. Poorly defined regulatory policies often encounter feasibility issues when districts lack the infrastructure to implement mandates effectively (Meltzer & Schwartz, 2019).

Cost: The policy entails substantial financial costs for training staff, managing content reviews, and handling parental challenges, without allocated state funding. Districts must divert resources, worsening budget pressures and widening disparities between well-funded and under-resourced districts.

Efficiency: HB 1467's efficiency is compromised by the disproportionate relationship between its high implementation costs and limited benefits. Administrative burdens and inconsistent guidelines result in operational inefficiencies, reducing the policy's intended impact. Without more transparent processes, its resource demands outweigh its goals.

Analyzing Florida's HB 1467 Through McDonnell and Elmore's Policy Instruments

McDonnell and Elmore (1987) classify policy instruments into five types: mandates, capacity-building, inducements, system change, and hortatory policy. A mandate is a policy tool that regulates the actions of individuals and organizations by establishing specific behaviors required for a defined group, accompanied by penalties for non-compliance (McDonnell, 1994). This enforcement can take various forms, such as statutes, administrative rules, court rulings, or school policies. Mandates are most effective when uniform behavior across a group is necessary, and enforcement is feasible (McDonnell, 1994). Ideally, mandates result in consistent, socially beneficial actions. However, due to their authoritative and punitive nature, they often lead to strained relationships between the enforcing body and those resistant to compliance. The Mandate policy instrument is used for analyzing HB 1467 because it focuses on enforcing compliance through formal rules. The policy requires school districts to catalog instructional materials and empowers parents to challenge content, directly aligning with mandates that dictate behavior through established regulations. By standardizing procedures statewide, HB 1467 promotes uniform compliance across districts. Although not overtly punitive, it pressures schools through accountability measures, reflecting typical mandate enforcement. As a regulatory policy, HB 1467's formal guidelines and authority shift to parents align with a mandate.

Analyzing Florida's HB 1467 (2022) Through Lowi's Policy Typology

Lowi's Policy Typology offers a structural and political framework for analyzing the impact of Florida's HB 1467. Based on the premise that "policy determines politics" (Lowi, 1972), this framework categorizes policies by how they allocate power and resources among stakeholders. Regulatory policies consist of broadly defined rules enforced across large

populations (kraft & Furlong, 2007), and HB 1467 exemplifies this as it mandates school districts to catalog instructional materials and empowers parents to challenge educational content, a structure that has proven highly effective in mobilizing parental engagement (Mosac, 2024) and demonstrating how such policies often provoke stakeholder action.

However, Lowi's framework falls short of addressing equity concerns. The policy disproportionately affects marginalized groups, with minority students in urban districts experiencing a significant decline in access to culturally diverse materials (Li, 2024). This shift in authority from educators to parents neglects the broader implications for inclusive education. Additionally, the policy's vague language results in inconsistent implementation, reflecting medium feasibility. Cost considerations are also absent in Lowi's analysis, overlooking the financial strain placed on schools to comply without additional funding. This gap undermines the policy's efficiency, as resource constraints hinder effective implementation.

Analyzing Florida's HB 1467 (2022) Through Sensemaking Theory

Sensemaking Theory, developed by Weick (1995), provides an interpretive framework for understanding how stakeholders construct meaning around policies like Florida's HB 1467. This theory emphasizes how individuals interpret policies based on their identities, social contexts, and past experiences. It offers insights into how ambiguous policy language can result in diverse and sometimes conflicting responses (Maitlis & Sonenshein, 2010). Sensemaking Theory, when evaluated through an equity lens, highlights how HB 1467 disproportionately affects marginalized groups, particularly minority students, by limiting access to culturally diverse educational materials. This interpretation reveals the policy's unintended role in deepening educational inequities by amplifying certain stakeholder voices while silencing others. The theory also addresses feasibility, illustrating how educators and administrators adapt to the policy's ambiguous mandates. Their varied responses reflect the interpretive processes necessary for implementing unclear policies, though these adaptations differ across districts.

Regarding cost, Sensemaking Theory acknowledges indirect burdens such as increased workloads for educators and the narrowing of curricular diversity (Maitlis & Sonenshein, 2010). However, it lacks a comprehensive analysis of the policy's financial impact, limiting its ability to fully assess the economic strain on school districts. Additionally, its emphasis on stakeholder perceptions over operational factors reduces its effectiveness in evaluating efficiency, as it overlooks how resources are allocated and how implementation could be optimized for better outcomes.

Comparative Analysis and Determination of the Most Appropriate Theoretical Lens

Lowi's Policy Typology effectively explains the structural and political dynamics of HB 1467 by classifying it as a regulatory policy that deliberately shifts power from educators

to parents. This categorization clarifies how the policy successfully mobilized parental engagement, reflected in the increased content challenges in school districts (Mosac, 2024). Furthermore, Lowi's framework provides insight into how regulatory policies often provoke political conflict and stakeholder mobilization. However, it inadequately addresses the policy's equity implications, particularly its disproportionate impact on marginalized student groups, such as the reduced access to culturally diverse materials among minority students (Li, 2024). Additionally, Lowi's framework does not fully account for school districts' financial burdens and resource constraints, overlooking key aspects of policy feasibility and efficiency.

In contrast, Sensemaking Theory offers a more nuanced and comprehensive understanding by focusing on how stakeholders interpret and respond to the policy based on their identities, social contexts, and experiences (Weick, 1995). This framework exposes the ambiguity in HB 1467's language, leading to inconsistent implementation. While some parents feel empowered, many educators engage in self-censorship, narrowing the curriculum to avoid conflict (Mosac, 2024). Sensemaking Theory also uncovers how the policy disproportionately affects marginalized groups and better explains how stakeholders adapt to unclear mandates. However, it lacks attention to financial costs and resource efficiency.

Table 1. Comparing both lenses with criteria by (Meltzer & Schwartz, 2019)

	Criteria					
Alternative	Effectiveness	Equity	Feasibility	Cost	Efficiency	Overall Feasibility
Lowi's Policy Typology	High	Low	Medium	Low	Medium:	Medium
Sensemaking Theory	Medium	Medium-High	High	Medium	Low	Medium-High

Source: Authors

When comparing the two frameworks across key evaluation criteria, Sensemaking Theory demonstrates a more comprehensive capacity to address the complex, real-world challenges posed by HB 1467. While Lowi's Typology effectively explains the policy's political motivations and stakeholder mobilization, it lacks the analytical depth to explore the nuanced consequences of its implementation. In contrast, Sensemaking Theory provides critical insights into the behavioral responses and interpretive processes that shape how the policy is enacted, making it better suited to evaluate its practical and social impacts (Maitlis & Sonenshein, 2010).

Given the ambiguous nature of HB 1467 and the significant role of stakeholder interpretation in its implementation, Sensemaking Theory offers a more appropriate and comprehensive framework for analysis. It uncovers how the policy's design influences stakeholder

behavior and reveals the unintended consequences that arise from its vague language and lack of operational clarity. By highlighting these complexities, Sensemaking Theory allows policymakers to understand the on the ground realities of HB 1467 better and develop more targeted strategies for improving its implementation.

Implications for Policy Design and Practice

The application of Sensemaking Theory to HB 1467 shows that the policy's significant challenges arise not only from its regulatory intent but from the ambiguous environment it creates for frontline implementers. Therefore, the primary implication for policymakers is that policy design must account for the inevitability of sensemaking. Rather than viewing stakeholder interpretation as a problem of non-compliance, policies should be drafted to guide and support the interpretive process. Future policies should do following: First, address ambiguity with operational clarity by providing precise definitions and examples. Second, facilitate constructive sensemaking through state-funded support structures like training and shared resource databases; and finally, include a formal "equity lens" during the drafting process to anticipate and mitigate disproportionate impacts on marginalized groups.

This analysis shows that the ultimate success of a policy is not just a function of its political design but is also profoundly shaped by the meanings that stakeholders make from it. That is why A sensemaking perspective is not merely an analytical tool but a necessary component for designing education policies that are both effective and equitable in practice.

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Conflict of Interest

"The authors declare no conflict of interest."

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Assessment of Digital Banking Attributes and Customer Satisfaction in the Nepalese Banking Sector

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Abstract
Over time, the digitalization of banking operations has accelerated, aligning with Nepal's broader digitization framework and regulatory efforts led by Nepal Rastra Bank (NRB). This study assesses key digital banking attributes and customer satisfaction in Nepal's commercial banking sector. Using a structured questionnaire, data were collected from 450 customers working in the IT sector who actively use digital banking services. Findings reveal that perceived credibility and convenience are the most influential factors shaping digital banking services in Nepal, both demonstrating strong statistical significance. Although perceived ease of use showed a positive influence, it was not statistically significant, while perceived usefulness was only marginally significant. These results suggest that while usability and functionality are important, trust and convenience play a more critical role in shaping user satisfaction and loyalty. The study offers important implications for banks, digital service developers, and policymakers. By enhancing platform credibility, improving security, and expanding convenient features, stakeholders can better align with customer expectations and foster sustained engagement in Nepal and underscores the value of customer-centric approaches in driving digital transformation within the financial sector.

Keywords: Digital banking, Technology Acceptance Model (TAM), Financial services, Digital transformation

JEL Classification: G21, O33, M15, D83

Introduction
The advent of the digital age has revolutionized the global financial services sector, fundamentally altering how banking transactions are conducted. Technological progress has driven the widespread adoption of digital banking services worldwide, encompassing a broad range of offerings such as online banking, mobile banking, telebanking, and ATM

services. These digital services are designed to enhance transaction speed, security, and convenience for consumers (Baptista & Oliveira, 2015). Digital banking provides numerous user-centric benefits, including faster transactions, greater accessibility, and a wider array of services, which reduce the necessity for in-person visits to bank branches (Huang, 2003). For financial institutions, digital banking also brings operational advantages such as reduced costs, round-the-clock service availability, and enhanced customer data analytics, which contribute to improved service quality and competitive positioning in the market (Malaquias & Hwang, 2016).

Despite these advantages, the implementation of digital banking faces several challenges. Common barriers include security and privacy concerns, limited digital literacy among certain customer segments, resistance to technological change, and inadequate internet infrastructure, particularly in rural or under-served areas (Shaikh & Karjaluoto, 2015). To better understand the adoption of digital banking, many studies employ the Technology Acceptance Model (TAM). This model identifies key factors influencing technology adoption, such as perceived usefulness, perceived ease of use, social influence, and enabling conditions. Research on demographic influences has produced mixed findings; while some studies suggest younger, more educated customers are more inclined to adopt digital banking, others report a narrowing digital divide as internet penetration grows across all groups (Chong et al., 2012).

The digital revolution has significantly transformed the banking industry worldwide, reshaping how financial services are delivered and accessed. In Nepal, the banking sector comprises a diverse set of commercial banks that vary in age, size, and operational scale. For this study, banks are categorized based on their years of establishment into three groups based on their years of establishment. This classification allows for a detailed analysis of how digital banking adoption and service delivery differ according to the banks' maturity and operational history.

Despite significant advancements in digitization—including internet banking, mobile applications, digital wallets, and QR-based payment systems—the overall banking sector in Nepal remains heterogeneous in digital maturity. Older banks often have well-established customer bases and legacy infrastructure, which may slow rapid digital transformation. Middle-aged banks typically blend traditional services with evolving digital platforms, while newer banks often adopt cutting-edge technologies but face challenges in expanding their customer reach. Although digital platforms are widely available, adoption among users remains uneven—only about 35% of customers fully utilize digital banking services, with many still preferring traditional in-person banking methods. This disparity suggests that having digital platforms alone does not ensure effective adoption or sustained user engagement.

Furthermore, there is a notable lack of research that evaluates the specific digital banking attributes influencing user adoption and perception within Nepal's banking sector, particularly when considering differences among banks of various ages and operational characteristics. Important factors such as perceived usefulness, ease of use, security, and credibility have not been sufficiently studied in this context. This study addresses the identified research gap by examining key digital banking attributes across selected Nepalese banks categorized by their establishment period. By comparing old, middle-aged, and new banks, the study provides insights to help banks and policymakers improve digital service delivery and promote wider adoption of digital financial services. Accordingly, the study focuses on assessing the overall status of digital banking attributes in Nepal and analyzing differences in perceived usefulness, ease of use, security, and convenience across banks of different age groups.

Literature Review and Hypotheses

The global financial services industry has undergone significant transformation due to the digital age, with technological advancements reshaping how financial transactions are conducted. Digital banking, encompassing services like telebanking, ATM use, internet banking, and mobile banking, aims to enhance transaction speed, convenience, and security (Baptista & Oliveira, 2015). Both developed and developing countries have shifted toward digital banking, especially since the 1990s with the rise of the Internet, which revolutionized traditional banking by enabling customers to access services from home, thereby improving efficiency and convenience (Sohail & Shaikh, 2008).

The rise of mobile banking, driven by widespread smartphone use, has further advanced the banking industry by allowing users to conduct financial transactions anytime and anywhere, boosting convenience and customer satisfaction (Zhou at al., 2010). Digital banking's popularity stems from benefits like speed, accessibility, and a wide range of services, eliminating the need for physical bank visits (Huang, 2003). Banks also gain from reduced operating costs, round-the-clock service, and enhanced data analysis, leading to better service quality and stronger competitiveness (Malaquias & Hwang, 2016). However, challenges remain in adopting digital banking, such as security concerns, low digital literacy, resistance to change, and limited internet access in some regions (Shaikh & Karjaluoto, 2015). To understand digital banking adoption, many studies use the Technology Acceptance Model (TAM), which highlights key factors like perceived usefulness, ease of use, social influence, and enabling conditions that influence user acceptance (Venkatesh et al., 2003).

The Technology Acceptance Model (TAM) explains that a person's likelihood to use a system depends on how useful and easy to use they perceive it to be (Davis, 1989). This study builds on TAM to assess digital banking attributes in Nepalese commercial banks, assessing TAM's relevance and effectiveness in the context of digital banking. It also highlights that even if users recognize a system's benefits, they may avoid it if they find it too complex.

Perceived Usefulness (PU) is a core concept of the Technology Acceptance Model (TAM) that explains technology adoption. It refers to an individual's belief that using a particular technology will improve their performance or productivity (Davis, 1989). In digital banking, PU represents how customers view the efficiency and effectiveness of digital banking services in fulfilling their financial needs. Research shows that customers tend to be more satisfied with digital banking when they perceive it as useful. Alalwan et al. (2018) found that perceived helpfulness boosts satisfaction, while Rahi et al. (2019) noted that seeing digital banking as effective for transactions leads to positive opinions. Yoon & Steege (2013) also confirmed that perceived usefulness strongly influences customer loyalty and continued use of digital banking. Therefore, the following hypothesis has been put forward:

H1: There is a significant influence of perceived usefulness on customer satisfaction.

Perceived Ease of Use (PEOU) is a key part of the Technology Acceptance Model (TAM) and refers to how easy a user believes a technology is to use, requiring minimal effort (Davis, 1989). In digital banking, this means customers expect simple, user-friendly interfaces, clear guidance, and smooth functionality without technical problems (Venkatesh & Davis, 2000). Research shows that when digital banking services are easy to use, customer satisfaction increases, leading to higher adoption and continued use (Amin, 2016; Raza et al., 2017). Therefore, the following hypothesis has been put forward:

H2: There is a significant influence of perceived ease of use on customer satisfaction.

Perceived credibility refers to a customer's belief that digital financial services are trustworthy, reliable, and secure from risks like fraud or privacy breaches (Kim et al., 2009). It encompasses factors such as the financial institution's reliability, transaction security, and data protection. Research shows perceived credibility strongly influences customers tend to use and recommend digital banking more when they trust its security (Kesharwani & Singh, 2012). Conversely, concerns about cybersecurity can reduce satisfaction and adoption (Munir et al., 2022), while trust fosters confidence and long-term engagement (Yousafzai et al., 2003). Therefore, the following hypothesis has been put forward:

H3: There is a significant influence of perceived credibility on customer satisfaction.

Convenience, according to Mallat (2007), is how much a customer believes digital banking makes their banking experience easier and more efficient such as being able to bank anytime and anywhere, faster transactions, saving preferences, and avoiding branch visits. Alalwan et al. (2018) found that customers who appreciate digital banking's flexibility tend to be more satisfied, while Poon (2008) highlighted that the ability to transact anytime and anywhere strongly affects customer adoption and perception of digital banking. Therefore, the following hypothesis has been put forward:

H4: There is a significant influence of convenience on customer satisfaction.

Methods

Research Design

The study employed both descriptive and causal research designs. Descriptive research provided quantitative data for statistical analysis, while causal research examined different digital banking attributes in Nepal's banking sector. A total of 450 digital banking users from Nepal's IT industry were surveyed, yielding 396 valid responses. Data analysis was conducted using SPSS software, with reliability assessed via Cronbach's Alpha. Relationships between variables were explored through linear regression and Pearson's correlation analysis.

Population and Sample

The study focused on customers working in the IT industry who use digital banking services provided by a diverse range of Nepalese commercial banks. These banks are categorized by their establishment periods into three groups: old banks (established 15 or more years ago), including Nepal Bank, Rastriya Banijya Bank, Standard Chartered Bank, Nabil Bank, Everest Bank, NIC Asia Bank, Siddhartha Bank, Sanima Bank, Kumari Bank, and Machhapuchhre Bank; middle-aged banks (operating for 10 to 15 years), such as Global IME Bank, Prime Bank, NMB Bank, Prabhu Bank, and Lumbini Bank; and new banks (operating for 5 years or less), including Laxmi Sunrise Bank and NIMB. This classification supports an in-depth analysis of how digital banking experiences vary across different bank types based on their maturity and operational history. Specifically, participants were employees of digital financial services company in Nepal, with a total population of 1,500 individuals. Using random sampling, 450 questionnaires were distributed, and 396 valid responses were collected.

To determine the appropriate sample size for this finite population, Cochran's (1977) formula was applied. With a 95% confidence level, a 5% margin of error, and an assumed attribute prevalence of 50%, the initial infinite population sample size was calculated as 384. After adjusting for the finite population, the minimum required sample size was 306. Since 396 valid responses were obtained, the sample size exceeded the minimum needed for reliable and precise statistical analysis.

Instruments Development

The researcher used a structured questionnaire, initially distributing a small portion in person and the rest via an online Google form. The questionnaire was adapted and modified from various prior studies to ensure relevance and maintain validity and reliability. Items on Perceived Usefulness were based on Kamutuezu (2016), Perceived Ease of Use on Akuffo-Twum (2011), Perceived Credibility on Kazi (2013), Convenience on Lichtenstein and Williamson (2006), and Customer Satisfaction items were adapted from Venkatesh and Davis (2000), and Akuffo-Twum (2011), .The questionnaire had two sections: the first gathered demographic and educational data, while the second focused on digital banking attributes. It included both Likert scale questions (1 to 7 scale) and multiple-choice questions for structured responses.

Results and Discussion

Table 1 outlines the demographic profile of respondents, indicating that the sample is largely male (71.7%), dominated by young adults aged 20–30 years (79.5%), mostly single (78%), primarily from Bagmati Province (55.8%), and highly educated, with the majority holding bachelor's (66.9%) and master's degrees (29.3%), while professionally more than half are engaged in engineering and development (54%), followed by product and project management, finance, and other fields. The analysis of digital banking transaction usage across Nepalese banks, classified by establishment period, reveals that newly established banks account for the highest share of users (44.2%), led by Laxmi Sunrise Bank (37.9%) and NIMB (6.3%), reflecting strong digital adoption supported by modern infrastructure and technology-driven strategies. Old banks collectively represent 42.2% of users, with notable digital engagement from NIC Asia Bank (15.4%), Nabil Bank (8.8%), and Sanima Bank (5.3%), while institutions such as Rastriya Banijya Bank (0.8%), Nepal Bank (1.5%), and Machhapuchhre Bank (0.8%) show minimal usage, indicating uneven digital progress among long-established banks. Middle-aged banks, including Global IME Bank (5.6%), Prime Bank (3.8%), NMB Bank (1.5%), Prabhu Bank (3.5%), and Lumbini Bank (0.3%), together contribute only 18.2% of total users, suggesting a slower pace of digital transformation despite their potential to integrate legacy systems with emerging technologies. Overall, the results show that new banks are the most aggressive adopters of digital banking, older banks exhibit mixed but evolving adoption, and middle-aged banks lag behind, while descriptive statistics using mean and standard deviation summarize user perceptions of perceived usefulness, ease of use, credibility, and convenience of digital banking services.

Table 1. Respondent Profile

Demographic Characteristics		Frequency	Percent (%)
Gender	Male	284	71.7
	Female	112	28.3
Age	20-30	315	79.5
	31-40	72	18.2
	41-50	6	1.5
	Above 51 years	3	0.8
Marital Status	Single	309	78
	Married	87	22
	Divorced	0	0
Place of Origin	Bagmati Province	221	55.8
	Gandaki Province	62	15.7
	Karnali Province	3	0.8
	Lumbini Province	27	6.8
	Madesh Province	32	8.1
	Koshi Province	39	9.8
	Sudur Pachhim Province	12	3.0

Education Attainment	Intermediate	15	3.8
	Bachelor's Degree	265	66.9
	Master's Degree	116	29.3
	PhD	0	0
Profession	Engineering and Development	214	54.0
	Project Management	24	6.1
	Product Management	39	9.8
	Customer and Technical support	6	1.5
	Marketing and Sales	23	5.8
	HR and Administration	18	4.5
	Finance and Operation	27	6.8
	Research and Development	0	0
	Other	45	11.4
Bank utilizing for digital banking transactions	Laxmi Sunrise Bank	150	37.9
	Everest Bank	18	4.5
	Lumbini Bank	1	0.3
	Global IME Bank	22	5.6
	Kumari Bank	6	1.5
	Nabil Bank	35	8.8
	NIC Asia Bank	61	15.4
	NIMB	25	6.3
	Prabhu Bank	14	3.5
	Sanima Bank	21	5.3
	Prime Bank	15	3.8
	Siddhartha Bank	4	1.0
	Standard Chartered Bank	6	1.5
	NMB Bank	6	1.5
	Machhapuchhre Bank	3	0.8
	Nepal Bank	6	1.5
	Rastriya Banijya Bank	3	0.8
Duration of utilizing digital banking for banking transactions	1 to 6 months	3	0.8
	7 to 12 months	11	2.8
	More than 1 year	382	96.5

Source: Authors.

Reliability Analysis

Cronbach's alpha was used to assess the reliability of item scales measuring perceived usefulness in the study. It helped identify and remove less reliable items to improve overall consistency. A Cronbach's alpha value of 0.70 or higher was considered acceptable for construct reliability, following Nunnally's (1978) guideline. The reliability test results using Cronbach's alpha are detailed in Table 2, with six items measuring each variable. Perceived Usefulness showed high reliability with an alpha of 0.857. Perceived Ease of Use demonstrated exceptional consistency, scoring 0.925. Convenience had strong reliability at 0.881, while Perceived Credibility scored 0.837, indicating robust reliability. All values exceeded the 0.70 threshold, confirming that the measurement scales used are reliable and suitable for further analysis.

Status of Perceived Usefulness

Table 3 shows that respondents' perceptions of perceived usefulness of digital banking systems based on six statements. Mean scores range from 4.89 to 6.40, indicating a generally positive consensus among respondents. The highest agreement was for time saving (mean 6.40), while lowest score for offering all the services by banks (mean 4.89) indicating the expectation of respondents for more services by banks .

Table 3. Descriptive statistics of Perceived Usefulness

Code	Key words of the Statement	Mean	SD
PU1	The use of Digital banking makes my transactions very fast	6.39	0.715
PU2	By using digital banking, I can save time	6.40	0.787
PU3	Using the digital banking information system improves my performance of banking activities	6.04	0.820
PU4	The use of Digital banking gives me control over my transaction	5.54	1.293
PU5	My bank offers all the services I Expect	4.89	1.330
PU6	Digital banking services are beneficial to me	6.08	0.898
Total		5.89	0.98

Source: Authors

Table 4 shows that assessment of a one-sample t-test to test whether the mean Perceived usefulness differed significantly from a neutral value of 4.0 on a 7-point scale. With 395 degrees of freedom, t-values ranged from 13.34 to 66.425, all highly positive, and significance values were .000, indicating statistical significance ($p < 0.05$). The null hypotheses were rejected, confirming users perceived usefulness on digital banking system were towards agreement.

Table 4. One - Sample T - Test of the Perceived Usefulness

	One - Sample T- Test		
Variable	t	Df	Sig.
Perceived Usefulness	66.425	395	.000
	60.62	395	.000
	49.53	395	.000
	23.62	395	.000
	13.34	395	.000
	46.187	395	.000

Source: Authors

Status of Perceived ease of use

Table 5 shows that respondents' perceptions of the ease of use of digital banking systems based on six statements. Mean scores range from 5.48 to 5.73, indicating a generally positive consensus that these systems are easy to learn, understand, and navigate. The highest agreement was for ease of learning (mean 5.73), while slightly lower scores for adaptability and user-friendliness (around 5.48) suggest some room for improvement. Standard deviations (1.095 to 1.313) show moderate variability, with the most consistent agreement on managing banking tasks effortlessly. Overall, users find digital banking intuitive and supportive, but banks could enhance interaction clarity and adaptability to boost satisfaction further.

Table 5. Descriptive statistics of Perceived Ease of Use

Code	Key words of the Statement	Mean	SD
PEU1	I have no difficulty learning how to use the Digital banking system	5.73	1.313
PEU2	I effortlessly manage my banking tasks with the digital banking system	5.60	1.095
PEU3	I experience a clear and understandable interaction with the Digital banking system	5.52	1.137
PEU4	The Digital banking system is adaptable and user-friendly from my perspective	5.48	1.183
PEU5	I have no trouble understanding the digital banking system	5.62	1.203
PEU6	I perceive the Digital banking system as user-friendly and easy to navigate	5.49	1.137
Total		5.57	1.178

Source: Authors

Table 6 shows that assessment of a one-sample t-test to test whether the mean Perceived Ease of Use score differed significantly from a neutral value of 4.0 on a 7-point scale. With 395 degrees of freedom, t-values ranged from 24.975 to 29.012, all highly positive, and significance values were .000, indicating statistical significance ($p < 0.05$). The null hypothesis was rejected, confirming users perceive digital banking as significantly easy to use. The high t-values reflect strong user agreement on the system's accessibility, intuitive design, and user-friendliness, contributing to positive experiences and adoption.

Table 6. One - Sample T - Test of the Perceived Ease of Use

	One - Sample T- Test		
Variable	t	Df	Sig.
Perceived Ease of Use	26.290	395	.000
	29.012	395	.000
	26.647	395	.000
	24.975	395	.000
	26.781	395	.000
	26.025	395	.000

Source: Authors

Status of Perceived credibility

Table 7 summarizes respondents' perceptions of digital banking system credibility, with an overall mean score of 4.57 indicating general trust and reliability, though response variability (SD = 1.34) suggests differing opinions. High ratings were given to system reliability (mean 4.97) and trust in digital banking (mean 4.78). The strongest confidence was in users' ability to navigate the system independently (mean 5.50). However, lower scores on error handling, such as clear error messages (mean 3.93) and ease of recovery from mistakes (mean 4.02), highlight areas needing improvement. Variability in responses was higher for error management but lower for independent use confidence. Overall, respondents trust digital banking systems but recommend enhancing error feedback and recovery processes to boost credibility.

Table 7. *Descriptive statistics of Perceived Credibility*

Code	Key words of the Statement	Mean	S.D
PC1	I don't notice any inconsistencies as I use digital banking	4.23	1.446
PC2	I trust digital banking	4.78	1.193
PC3	The digital banking information system is reliable	4.97	1.160
PC4	Whenever I make a mistake using the Digital banking system, I recover easily and quickly	4.02	1.547
PC5	The Digital banking system gives error messages that tell me how to fix problems	3.93	1.543
PC6	I am confident about using digital banking even if there is no one around to show me how to do it	5.50	1.192
Total		4.57	1.34

Source: Authors

Table 8 shows that assessment of a one-sample t-test to test whether Perceived Credibility scores differ significantly from a neutral value of 4.0 on a 7-point scale. Results showed t-values from -0.912 to 25.089. Four out of six items had highly significant p-values (.000 or .002), indicating strong user trust in digital banking's security, privacy, and reliability. However, two items had non-significant p-values (.770 and .362), suggesting neutral perceptions for those aspects. The negative t-value (-0.912) points to some users perceiving slight credibility issues. Overall, while digital banking is generally seen as credible, certain elements still raise user concerns.

Table 8. *One - Sample T - Test of the Perceived Credibility*

	One - Sample T- Test		
Variable	t	Df	Sig.
Perceived Credibility	3.162	395	.002
	12.971	395	.000
	16.718	395	.000
	.292	395	.770
	-.912	395	.362
	25.089	395	.000

Source: Authors

Status of Convenience

Table 9 presents respondents' perceptions of digital banking convenience, with an overall positive mean score of 5.59. The highest agreement was on convenience itself (mean 5.94)

and the system's ability to minimize steps in completing tasks (mean 5.87). Respondents also agreed that digital banking simplifies banking activities (mean 5.66) and allows effortless navigation without instructions (mean 5.52), though navigation showed slightly more variability. Lower scores were seen for fulfilling user expectations (mean 5.11) and providing control over transactions (mean 5.47), indicating areas for improvement. Standard deviations (0.948–1.233) suggest generally consistent views but some differences in individual experiences. Overall, digital banking is viewed as efficient and user-friendly, with room to enhance function fulfillment and navigation support for a smoother user experience.

Table 9. Descriptive statistics of Convenience

Code	Key words of the Statement	Mean	SD
CON1	I do Digital banking because it is convenient	5.94	0.962
CON2	Digital banking minimizes the number of steps necessary to achieve my desired tasks	5.87	0.948
CON3	I can navigate digital banking effortlessly, even without written instructions	5.52	1.233
CON4	Digital banking fulfills all my expected functions seamlessly	5.11	1.220
CON5	Digital banking simplifies the process of conducting banking activities	5.66	1.075
CON6	Digital banking gives me more control over my banking transactions	5.47	1.233
Total		5.59	1.11

Source: Authors

Table 10 shows that assessment of a one-sample t-test whether Convenience scores significantly differ from a neutral value of 4.0 on a 7-point scale. Results showed highly significant t-values ranging from 18.076 to 40.164, all with p-values of .000, indicating strong positive perceptions of digital banking convenience. The highest t-values reflect strong agreement on ease and accessibility, while even the lowest t-value remains highly significant. Overall, users widely view digital banking as an easy, accessible, and efficient platform that enhances their experience and satisfaction.

Table 10. One - Sample T - Test of the Convenience

	One - Sample T- Test		
Variable	t	Df	Sig.
Convenience	40.164	395	.000
	39.216	395	.000
	24.445	395	.000
	18.076	395	.000
	30.753	395	.000
	23.678	395	.000

Source: Authors

Customer satisfaction across banks

The analysis of mean scale scores across various Nepalese banks provides insights into the satisfaction of digital banking experiences among customers. The overall average mean score across all surveyed banks is 30.37, with a standard deviation of 5.81, indicating moderate variability in digital banking perceptions among customers regarding their satisfaction.

Table 11. *Mean scale of customer satisfaction across Nepalese bank*

Nepalese Bank	Mean	N	Std. Deviation
Everest Bank	32.16	18	2.70
Global IME Bank	33.77	22	5.28
Kumari Bank	35.16	6	3.43
Laxmi Sunrise Bank	30.07	150	5.81
Lumbini Bank	32.00	1	0.00
Machhapuchhre Bank	37.00	3	0.00
Nabil Bank	29.28	35	5.18
Nepal Bank	32.50	6	6.02
NIC Asia Bank	30.96	61	6.11
NIMB	28.76	25	4.93
NMB Bank	33.50	6	3.50
Prabhu Bank	30.28	14	3.60
Prime Bank	23.40	15	8.60
Rastriya Banijya Bank	38.33	3	2.88
Sanima Bank	31.91	21	3.24
Siddhartha Bank	22.25	4	2.50
Standard Chartered Bank	30.00	6	4.38
Total	30.37	396	5.81

Source: Authors

Old Banks (15+ years of establishment)

This group includes banks like Rastriya Banijya Bank (38.33), Machhapuchhre Bank (37.00), and Kumari Bank (35.16), which reported the highest mean scores, suggesting a relatively better user experience or perception of digital banking services. Other old banks such as NIC Asia Bank (30.96), Standard Chartered Bank (30.00), Nabil Bank (29.28), and Siddhartha Bank (22.25) show varied levels of satisfaction, with Siddhartha Bank scoring the lowest among all surveyed banks. On average, old banks exhibit higher performance variance, with some outperforming significantly, while others lag behind.

Middle-aged Banks (10–15 years of operation)

This category, comprising banks like Global IME Bank (33.77), Sanima Bank (31.91), NMB Bank (33.50), Prabhu Bank (30.28), Lumbini Bank (32.00), and Prime Bank (23.40), displays a mixed pattern. While some banks in this group have scores above the national average, Prime Bank's low score of 23.40 significantly pulls the group's overall mean down. These results suggest that while some middle-aged banks are maturing well in digital delivery, others may struggle with system quality, service consistency, or usability.

New Banks (≤5 years)

The newly merged entities Laxmi Sunrise Bank (30.07) and NIMB (28.76) fall slightly below the overall average. Despite being new entrants, which often means better digital readiness, these banks did not outperform significantly, indicating that newness does not automatically equate to superior digital banking experience. Their results may reflect teething issues in operational integration, system scalability, or limited digital reach.

Overall, Rastriya Banijya Bank, Machhapuchhre Bank, and Kumari Bank stand out with high digital satisfaction levels, possibly due to their focused efforts on digital enhancement or strong customer support systems. In contrast, Siddhartha Bank and Prime Bank reveal areas needing urgent attention. While older banks demonstrate the highest peaks in performance, middle-aged banks show more consistency, and new banks, though promising, appear to still be finding their footing. These insights reinforce the importance of tailored digital strategies aligned with a bank's operational maturity and customer base.

Regression Model and Interpretation

The regression analysis presented in the table identifies the key factors influencing digital banking attributes in the Nepalese banking sector, namely perceived usefulness, perceived ease of use, perceived credibility, and convenience. Among these, perceived credibility emerged as the most influential factor, showing a strong positive relationship with digital banking adoption. With a beta value of 0.419, a t-test score of 10.409, and a significance level (p-value) of 0.000, the results clearly indicate that users place high importance on the security, reliability, and trustworthiness of digital banking platforms. Similarly, convenience

was also found to have a statistically significant and positive effect, with a beta value of 0.358, t-test value of 6.127, and p-value of 0.000. This highlights that customers are more inclined to use digital banking when the services are accessible, time-saving, and easy to navigate.

In contrast, perceived usefulness showed only a marginally significant effect, with a beta value of 0.117 and a p-value of 0.051. Although the relationship appears weak, it suggests that usefulness may still contribute positively, though not consistently, to user engagement. The 95% confidence interval includes zero, implying uncertainty about its true effect. Perceived ease of use, on the other hand, demonstrated a non-significant relationship with digital banking attributes. The beta value was only 0.048, and the p-value was 0.298, indicating that this factor does not play a critical role in shaping user perception or behavior in the context of Nepalese digital banking. Overall, the findings suggest that perceived credibility and convenience are the most crucial factors for encouraging the adoption and positive perception of digital banking in Nepal, while perceived usefulness and ease of use have relatively lesser influence in this context.

Table 12. Factors affecting customer satisfaction in Nepalese banking sector

				95.0% Confidence Interval for B	
Model	Beta value	T-test value	Sig.	Lower Bound	Upper Bound
Perceived usefulness	.117	1.956	.051	-.001	.235
Perceived ease of use	.048	1.042	.298	-.043	.140
Perceived Credibility	.419	10.409	.000	.340	.498
Convenience	.358	6.127	.000	.243	.473

Source: Authors

Table 13 shows a strong positive correlation, with an R value of 0.787, indicating a significant relationship between the predictors and the outcome. The R Square value of 0.619 reveals that the model accounts for 61.9% of the variation in the dependent variable, demonstrating that a substantial portion of the data's variability is captured. The Adjusted R Square of 0.615, which adjusts for the number of predictors, confirms that the model maintains a good fit even after this correction. Additionally, the Standard Error of the Estimate, measured at 3.60651, suggests that the model's predictions are reasonably accurate and close to the actual observed data points. Overall, these statistics indicate that the regression model is reliable and effective in explaining the dependent variable, accurately reflecting the underlying data and relationships.

Table 13. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.787a	.619	.615	3.60651

Source: Authors

The ANOVA results show that the regression model is highly significant, indicating strong and reliable relationships between the variables (Table 13). The large F-statistic of 158.867 demonstrates that the model effectively explains variations in the data. Additionally, the very low significance value (.000) confirms that these relationships are statistically meaningful and not due to chance, highlighting the model's robustness and relevance.

Table 14. Analysis of Variance

Model		F	Sig.
1	Regression	158.867	.000b
	Residual		

Source: Authors

Hypothesis Testing

The hypothesis testing results from the regression analysis indicate that out of the four proposed hypotheses, H3 and H4 were accepted, while H1 and H2 were rejected. Specifically, Hypothesis 3 (H3), which posited that perceived credibility significantly influences digital banking attributes, was supported with a p-value of 0.000, confirming a strong statistical significance. Likewise, Hypothesis 4 (H4), asserting that convenience has a significant influence, was also accepted with a p-value of 0.000, highlighting its crucial role in shaping user perceptions and satisfaction in digital banking services.

In contrast, Hypothesis 1 (H1), suggesting a significant influence of perceived usefulness was rejected with a p-value of 0.051, which falls slightly outside the conventional 0.05 threshold for statistical significance. Hypothesis 2 (H2), related to the influence of perceived ease of use, was also rejected due to a p-value of 0.298, indicating no meaningful effect. These findings reinforce that credibility and convenience are the primary drivers behind users' positive digital banking experiences in Nepal, while usefulness and ease of use are relatively less impactful in determining satisfaction or perception.

Table 15. Hypothesis Testing

Hypothesis	Description	Testing method	P-value	Result
H1	There is a significant influence of perceived usefulness on customer satisfaction.	Regression	.051	Rejected
H2	There is a significant influence of perceived ease of use on customer satisfaction.	Regression	.298	Rejected
H3	There is a significant influence of perceived credibility on customer satisfaction.	Regression	.000	Accepted
H4	There is a significant influence of convenience on customer satisfaction.	Regression	.000	Accepted

Source: Authors

The study found that digital banking attributes are strongly influenced by perceived usefulness, as users appreciate how it speeds up and improves transaction efficiency, aligning with Davis's Technology Acceptance Model (1989). Perceived ease of use also significantly impacted, with most users finding digital banking easy to navigate, although some suggested improvements for user-friendliness and guidance for new users, supporting TAM's emphasis on simplicity.

Perceived credibility showed mixed results; while many trusted the systems, concerns about errors and recovery persisted, echoing prior research on the importance of security and transparency. Convenience was another key factor, with users valuing quick and effortless transactions, though some felt certain features could be improved. The study's hypotheses were strongly supported: perceived usefulness and ease of use significantly boost satisfaction, as do credibility and convenience, reinforcing the TAM framework. Trust and security remain critical, especially given the sensitivity of financial data in Nepal. Overall, success in digital banking depends on integrating usefulness, ease, credibility, and convenience, loyalty, and acceptance in Nepal's banking sector.

The study's conclusions highlight key implications for various stakeholders. Banks should enhance digital banking by improving user-friendly interfaces, security, customer support, and service offerings to increase satisfaction and loyalty. Policymakers must establish clear regulations to ensure platform security, protect user data, promote financial literacy, and encourage wider adoption. Academically, the research enriches knowledge on digital banking adoption in developing countries like Nepal and recommends future studies on trust, perceived risk, and technology advances. Addressing these areas can help banks improve user experience, foster loyalty, and boost digital banking usage.

Conclusion

This study concludes that digital banking attributes significantly influence Nepal's banking sector. Perceived usefulness improves transaction efficiency, making digital banking a key tool, though expanding service offerings to meet customer expectations is needed. Perceived ease of use is important for adoption, with platforms generally seen as user-friendly, but ongoing enhancements in interface design and user support are necessary. While perceived credibility is high, concerns about security and error recovery remain, highlighting the need for stronger safeguards and transparent processes. Convenience also plays a major role in satisfaction, enabling easy and seamless transactions, but banks must keep improving services to match changing customer needs. Overall, digital banking is viewed positively, but continuous efforts to enhance reliability, security, and user support are vital for sustained growth and adoption.

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Conflict of Interest

"The authors declare no conflict of interest."

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From Financial Literacy to Saving Behavior: The Psychological Mediation of Financial Attitude among Students

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Abstract
This study examines the mediating role of financial attitude in the connection between financial literacy and saving behavior among university students in Nepal. It specifically analyzes the impact of familial ties, peer groups, and self-regulation on saving behavior, as well as the mediating role of financial attitude in these dynamics. Primary data were gathered from 579 students through structured questionnaires. The model was evaluated by Partial Least Squares Structural Equation Modeling (PLS-SEM) to determine measurement reliability, construct validity, and structural linkages. Findings indicate that self-control markedly affects saving behavior, whereas family and peer influences exhibit no direct impact. The financial attitude partially mediates the links between self-control and saving behavior, as well as between family influence and saving behavior. Nonetheless, no substantial mediation impact is shown between peer influence and saving behavior. These findings highlight the significance of financial attitude as a psychological conduit that amplifies the effect of financial literacy on behavior. The research enhances the behavioral finance literature and provides practical insights for developing financial literacy programs that integrate attitudinal and behavioral elements. It underscores the necessity for targeted interventions within Nepal's educational framework to cultivate youth financial resilience and enduring saving practices.

Keywords: Financial literacy, financial attitude, saving behavior, self-control, family influence, Nepalese University students

JEL Classification: D12, D14, I22

Introduction
Despite the growing focus on financial literacy in Nepal in recent years, it has not resulted in regular and adequate savings behavior among university students. Despite enhanced educational initiatives, many students struggle to translate financial knowledge into

effective saving behaviors. Some study suggests that the relationship between knowledge and conduct is more nuanced, as increased knowledge does not lead to improved saving behavior (Braunstein & Welch, 2002). This mismatch prompts essential inquiries on the influence of other psychological and social elements, notably financial attitudes, on saving behavior. Research has increasingly emphasized that financial attitude mediates the association between financial literacy and saving behavior (Lone & Bhat, 2022), although these dynamics remain inadequately examined in the Nepalese context. Considering the nation's expanding economy and inadequate social protection institutions, comprehending these dynamics is crucial for promoting financial autonomy and enduring economic resilience among the youth.

This study seeks to investigate the mediating role of financial attitude in the interaction between family background, peer relationships, and self-control on the saving behavior of university students in Nepal. The study examines the impact of personal and interpersonal characteristics on financial attitudes and subsequently on saving practices. Understanding the mediating role of financial attitude provides a deeper insight into the internal processes influencing students' financial decision-making.

In addition, financial education must encompass tactics that cultivate favorable financial attitudes, including demonstrating responsible financial behavior and examining cultural and societal factors that influence financial views (Xiao, 2020; Yakoboski et al., 2023). Creating programs that account for the mediating role of financial attitudes might enhance the efficacy of treatments, especially in nations such as Nepal, where familial and social interactions significantly influence individual financial decisions (Sabri & MacDonald, 2010; Shim et al., 2010). Moreover, by providing students with the means to cultivate self-discipline and manage peer influences, financial literacy initiatives can foster a generation of financially resilient individuals capable of enhancing overall economic stability (Atkinson & Messy, 2012; Lusardi & Tufano, 2015). This study addresses a significant research gap in the Nepalese behavioral finance literature and provides practical insights for enhancing students' financial performance in developing countries.

Literature Review and Hypotheses

The study of financial behavior and saving practices among youth has received considerable scholarly attention, particularly focusing on financial literacy, attitudes, family background, peer influence, and psychological traits. Prior research consistently shows that individual and social factors jointly shape saving and financial decision-making behavior. Several studies emphasize the role of financial literacy and attitudes in shaping financial behavior. Kamel and Sahid (2021), grounded in the Theory of Planned Behavior (TPB), demonstrated that financial literacy positively influences financial behavior, with financial attitude acting as a key determinant. Similarly, Azidzul et al. (2023) and Marbun and Mariana (2023) highlighted positive financial attitude, supported by adequate financial literacy, promote

stable financial behavior among university students. Wahyuni and Prasetyo (2024) further noted that financial attitude directly affects financial behavior, while financial literacy influences behavior indirectly through psychological mentality. These findings indicate that attitude serves as a crucial mechanism linking knowledge to behavior.

Beyond literacy, self-control and self-efficacy have been identified as important psychological drivers. Pratama et al. (2024) found that self-efficacy negatively affects risky credit behavior, whereas financial literacy and lifestyle factors increase risk-taking tendencies. Faisal et al. (2023) showed that self-control positively influences students' saving behavior, while Setyowati et al. (2023) confirmed the mediating role of self-control between financial literacy, peer influence, and saving behavior. Damayanti et al. (2023) and Budiman et al. (2024) further demonstrated that internal psychological traits such as locus of control mediate the relationship between financial attitude and financial management behavior. These findings suggest that self-control plays both a direct and indirect role in shaping saving decisions. Based on these results, the following hypotheses are proposed:

H1: Self-control significantly influences saving behavior.
H2: Self-control significantly influences financial attitude.

The influence of family background has also been widely discussed in the literature. Prasetyo et al. (2021) found that parental income and financial literacy significantly affect saving behavior, while Wulandari et al. (2022) identified indirect effects of family environment on saving behavior through intention and self-control. These findings indicate that family plays a foundational role in shaping financial norms, discipline, and attitudes toward saving from an early age. Accordingly, this study proposes:

H3: Family influence significantly affects saving behavior.
H4: Family influence significantly affects financial attitude.

Similarly, peer influence has been identified as a significant social determinant of financial behavior among youth. Faisal et al. (2023) demonstrated that peer influence positively affects saving behavior, while Komalasari and Mulyadi (2023) found peer influence to be significant in retirement saving decisions alongside financial literacy and attitudes. Mpaata et al. (2020) and Khoirunnisaa and Johan (2020) also highlighted that peer interactions shape financial management behavior, particularly during early adulthood when social comparison is strong. Based on these results, the following hypotheses are proposed:

H5: Peer influence significantly affects saving behavior.
H6: Peer influence significantly affects financial attitude.
H7: Financial attitude significantly affects saving behavior.

Recent studies increasingly highlight the importance of mediating mechanisms in financial behavior models. Wahyuni and Hafiz (2023) found that behavioral intention mediates the relationship between financial literacy, attitudes, and consumption and investment behavior. Ayuningsih and Dewi (2023) demonstrated that financial literacy acts as both a mediator and moderator between social influence and saving behavior. Elrayah and Tufail (2024) emphasized the partial mediating role of financial capacities between financial education and behavior. These findings support the argument that financial attitude may function as a key mediating variable linking social and psychological factors to saving behavior. Drawing on TPB and prior empirical evidence, this study proposes that financial attitude mediates the relationship between family influence, peer influence, self-control, and saving behavior. Accordingly, the following hypotheses are developed:

H8. Financial attitude mediates the relationship between family influence and saving behavior.
H9. Financial attitude mediates the relationship between peer influence and saving behavior.
H10. Financial attitude mediates the relationship between self-control and saving behavior.

The conceptual structure linking saving behavior, financial attitudes, and financial literacy is shown in Figure 1. Savings behavior is strongly influenced by financial literacy, which in turn is shaped by peer pressure, familial influence, and self-control. It also develops a financial attitude, which in turn drives saving behavior.

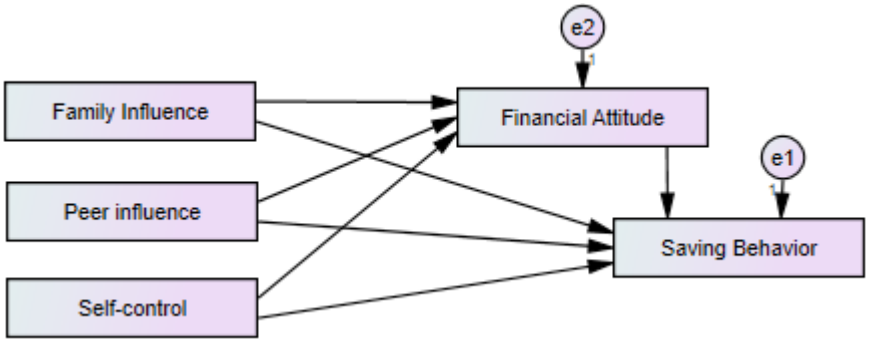

Figure 1. Conceptual framework

Methods

Research Design

This study employs a descriptive and analytical research design utilizing a quantitative approach to investigate the mediating role of financial attitude in the relationship between family influence, peer influence, self-control, and saving behavior among university students in Nepal. The quantitative method was chosen for its ability to quantify variables and test hypothesized relationships through statistical techniques, as evidenced by previous behavioral finance research (Shim et al., 2010).

Population and Sample

The target population includes undergraduate and graduate students from Tribhuvan University, Pokhara University, and Kathmandu University, as these individuals are increasingly faced with financial decision-making responsibilities in early adulthood (Sabri & MacDonald, 2010). In line with watts (2022), the sample size was determined using the formula $n = Z^2 \times p\,(1 - p) / e^2$, where $Z = 1.645$ (95% confidence level), $p = 0.5$, and $e = 0.05$ (margin of error), yielding a total of 271 respondents. Data were collected over ten weeks using both online (Google Forms) and offline (paper-based) surveys, employing a convenience sampling technique typically utilized in behavioral and attitudinal studies when randomized access is restricted (Lim et al., 2014). The study adhered to ethical procedures, including informed consent and confidentiality assurance, as outlined by Chen et al. (2023), demonstrating our commitment to research ethics and the well-being of the participants.

Instruments Development

The questionnaire comprised two sections: demographic information and assessments of the five core constructs. Family influence was evaluated using four items adapted from Gutter et al. (1999) and Shim et al. (2010). In contrast, peer influence was measured through three items derived from Hayhoe et al. (2005) and Lim et al. (2014). Self-control was assessed through three items derived from the studies by Hofmann et al. (2012) and Strömbäck et al. (2017). The financial attitude was evaluated through three items modified from the works of Furnham (1984) and Sabri and MacDonald (2010). Saving behavior was assessed through three items created by Chowa et al. (2012) and Xiao and Porto (2017). All items were evaluated using a 5-point Likert scale, with responses ranging from 1 (strongly disagree) to 5 (strongly agree), following established methodologies in financial behavior research (Phimnoi & Kijkasiwat, 2024; Pratama et al., 2024). The use of these established methodologies ensures the credibility and reliability of the study's findings. Data were coded in Microsoft Excel and subsequently analyzed using SPSS. Descriptive statistics, including mean, standard deviation, and coefficient of variation, were employed to summarize the data. Cronbach's Alpha was computed to evaluate the internal consistency reliability of the constructs. Inferential analysis utilized PLS-SEM to examine variable relationships.

Results

Based on the procedure outlined in the preceding chapter, the acquired data are summarized, analyzed, and interpreted in this chapter. It includes descriptive analysis of demographic data using SPSS. Along with this, the relationship between different variables was analyzed using PLS-SEM. Table 1 shows the demographic characteristics of the 579 respondents. The sample is male-dominated, with 72.4% male and 27.6% female participants. Most respondents fall within the 25–34 age group (80.7%), followed by those aged 18–24 years (18.1%), indicating a predominantly young sample. Most participants hold a Master’s

degree (75.1%) and are affiliated with the Management faculty (81.0%). Regarding income, most respondents (62.5%) earn between 30,000 and 40,000, placing them in the middle-income category. Overall, the sample mainly consists of young, educated males from the management discipline with moderate income levels.

Table 1. Demographic statistics

Variables	Categories	Frequency	Percent
Gender	Male	419	72.40
	Female	160	27.60
Age	18-24	105	18.10
	25-34	467	80.70
	35-44	6	1.00
	44 and above	1	0.20
Educational Qualification	Bachelors	131	22.60
	Masters	435	75.10
	Masters and above	13	2.20
Faculty	Management	469	81.00
	Science	80	13.80
	Humanities	6	1.00
	Technology	24	4.10
Income (monthly)	Unemployed	100	17.30
	Below 30000	65	11.20
	30000-40000	362	62.50
	40000-50000	22	3.80
	Above 50000	30	5.20

Source: Authors

Table 2 show that family influence (M = 4.37) and self-control (M = 4.45) are strong among the 579 respondents, indicating their significant role in shaping students' financial behavior. Peer influence records a low mean score (M = 1.75), suggesting minimal impact on financial decisions. Financial attitude has the highest mean (M = 4.53), reflecting a positive outlook toward financial matters. Saving behavior is also high (M = 4.45), indicating regular saving practices among students. Overall, family influence, self-control, and positive financial attitudes strongly influence saving behavior, while peer influence plays a limited role.

Table 2. Descriptive analysis of variables

Variable	N	Min	Max	Mean	SD
Family Influence	579	1	5	4.37	0.812
Peer Influence	579	1	5	1.75	0.955
Self-Control	579	1	5	4.45	0.806
Financial Attitude	579	1	5	4.53	0.753
Saving Behavior	579	1	5	4.45	0.827

Source: Authors

Diamantopoulos et al. (2008) emphasized that the measurement (outer) model is essential for assessing construct reliability and validity, while the structural model examines relationships among variables. A measurement model defines the link between observed indicators and latent constructs (Bollen, 2001), ensuring accurate representation of the intended concepts. In this study, Family Influence, Peer Influence, Self-Control, Financial Attitude, and Saving Behavior are each measured using five indicators. Figure 2 presents the overall measurement model used for construct assessment.

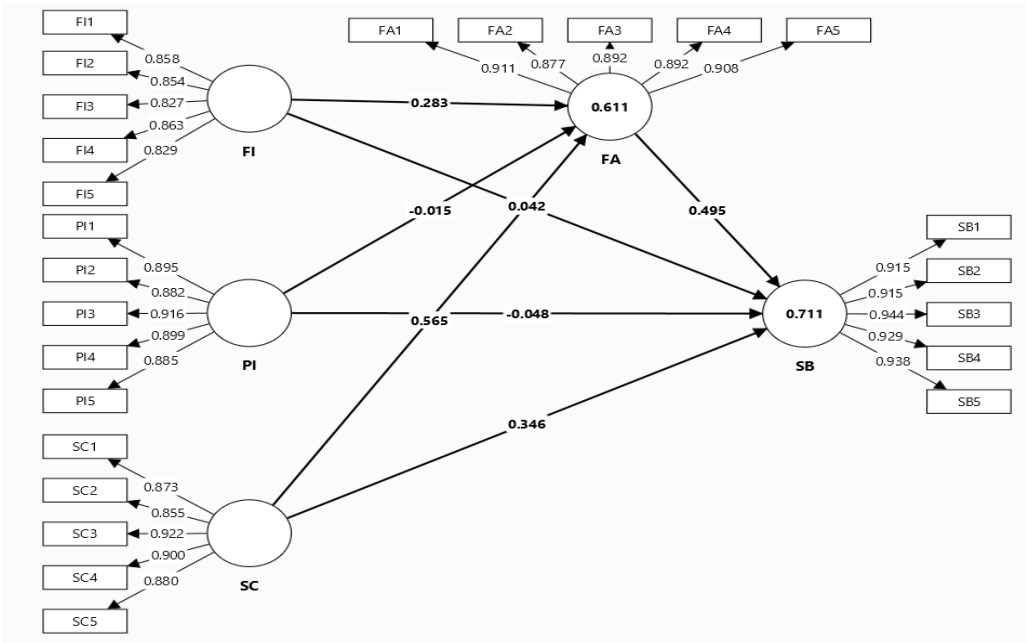

Figure 2. Measurement model

Table 3 presents the Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE) for the constructs in the study. Internal consistency reliability is evaluated according to Hair et al. (2019), supporting the model's convergent validity. Cronbach's alpha, all values exceed the recommended threshold of 0.70, as suggested by Hair et al.

(2021), and the composite reliability (CR) values, including both rho_a and rho_c, are all above 0.90, indicating strong and best reliability of the constructs.

Table 3. Construct Reliability and Validity

Variables	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
FA	0.939	0.940	0.953	0.803
FI	0.901	0.902	0.927	0.717
PI	0.939	0.947	0.953	0.802
SB	0.96	0.960	0.969	0.862
SC	0.932	0.934	0.948	0.786

Source: Authors

Discriminant validity was assessed using the Fornell–Larcker criterion and the Heterotrait–Monotrait Ratio (HTMT). According to Fornell and Larcker (1981), discriminant validity is established when the square root of AVE for each construct exceeds its correlations with other constructs. Table 4 shows that this condition is satisfied, confirming adequate discriminant validity. Additionally, HTMT values were examined following Henseler et al. (2015), where values below 0.85 indicate sufficient discriminant validity. As shown in Table 5, all HTMT values fall below the recommended threshold, confirming that the constructs are distinct. Although the highest HTMT value is observed between Financial Attitude and Saving Behavior (0.842), it remains within acceptable limits. Overall, both criteria confirm adequate discriminant validity in the model.

Table 4. Fornell-Larcker Criterion

Items	FA	FI	PI	SB	SC
FA	0.896				
FI	0.641	0.847			
PI	-0.447	-0.542	0.896		
SB	0.803	0.6	-0.462	0.928	
SC	0.748	0.618	-0.491	0.766	0.886

Source: Authors

Table 5. Heterotrait-Monotrait Ratio (HTMT)

Variables	FA	FI	PI	SB	SC
FA					
FI	0.695				
PI	0.471	0.584			
SB	0.842	0.642	0.478		
SC	0.797	0.671	0.514	0.809	

Source: Authors

Model fit was assessed using the Standardized Root Mean Square Residual (SRMR) in line with Hu and Bentler (1999) and Henseler et al. (2015). As shown in Table 6, the SRMR value for both the saturated and estimated models is 0.05, which is below the recommended threshold of 0.08. This indicates a good to excellent model fit, suggesting that the PLS-SEM model adequately represents the observed data.

Table 6. Model Fit

	Original sample (O)	Sample mean (M)	95%	99%
Saturated model	0.05	0.029	0.033	0.036
Estimated model	0.05	0.029	0.033	0.036

Source: Authors

The findings of the hypothesis test are summarized in Table 7. H1 (SC → SB) is supported, suggesting that saving behavior is positively and significantly impacted by self-control ($\beta = 0.346$, $t = 6.308$, $p < 0.001$). Additionally, H2 (SC → FA) is supported, indicating that self-control has a significant positive impact on financial attitudes ($\beta = 0.565$, $t = 9.816$, $p < 0.001$). Since family influence has no discernible impact on saving behavior, H3 (FI → SB) is not supported ($\beta = 0.042$, $t = 1.062$, $p = 0.288$). On the other hand, H4 (FI → FA) is supported, demonstrating a strong positive effect of family influence on financial attitude ($\beta = 0.283$, $t = 4.777$, $p < 0.001$), suggesting an indirect function of family in influencing saving behavior. Peer influence does not significantly affect saving behavior ($\beta = -0.048$, $t = 1.464$, $p = 0.143$) or financial attitude ($\beta = -0.015$, $t = 0.335$, $p = 0.738$), hence H5 (PI → SB) and H6 (PI → FA) are not supported. H7 (FA → SB) is validated, indicating that saving behavior is positively impacted by financial attitude ($\beta = 0.495$, $t = 8.694$, $p < 0.001$). In conclusion, Table 7's results show that the most important factors influencing saving behavior are financial attitude and self-control. Peer influence is negligible, but family influence has an indirect impact through financial attitude.

The mediation analysis, presented in Table 8, underscores the role of financial attitude as a mediator. It partially mediates the relationship between family influence and saving behavior (H8), as indicated by a Variance Accounted For (VAF) value of 0.769. This suggests that a significant portion of the impact of family influence on saving behavior is conveyed through financial attitude. However, the mediation effect of FA in the relationship between PI and SB is not significant, leading to the rejection of Hypothesis H9 (VAF = 0.134). Finally, financial attitude partially mediates the relationship between self-control and saving behavior (H10), with a variance accounted for (VAF) of 0.446. This indicates that self-control affects saving both directly and indirectly through financial attitude. These findings highlight the crucial role of financial attitude as a mediating factor and identify self-control and family influence as primary antecedents of saving behavior among students. In contrast, peer influence seems to play a minimal role.

Table 7. Path results

Hypothesis	Relationship	Effect	Mean	SD	t-stat	Pvalue	Results
H1	SC -> SB	0.346	0.346	0.055	6.308	0.0000	Accept
H2	SC -> FA	0.565	0.564	0.058	9.816	0.0000	Accept
H3	FI -> SB	0.042	0.043	0.04	1.062	0.2880	Reject
H4	FI -> FA	0.283	0.282	0.059	4.777	0.0000	Accept
H5	PI -> SB	-0.048	-0.047	0.033	1.464	0.1430	Reject
H6	PI -> FA	-0.015	-0.02	0.046	0.335	0.7380	Reject
H7	FA -> SB	0.495	0.496	0.057	8.694	0.0000	Accept

Source: Authors

Table 8. Mediation analysis

Hypothesis	Relationship	Direct Effect	Indirect Effect	Total Effect	VAF	Mediation	Results
H8	FI → FA → SB	0.04	0.14	0.182	0.769	Partial	Accept
H9	PI → FA → SB	-0.05	-0.01	-0.055	0.134	No	Reject
H10	SC → FA → SB	0.35	0.28	0.625	0.446	Partial	Accept

Source: Authors

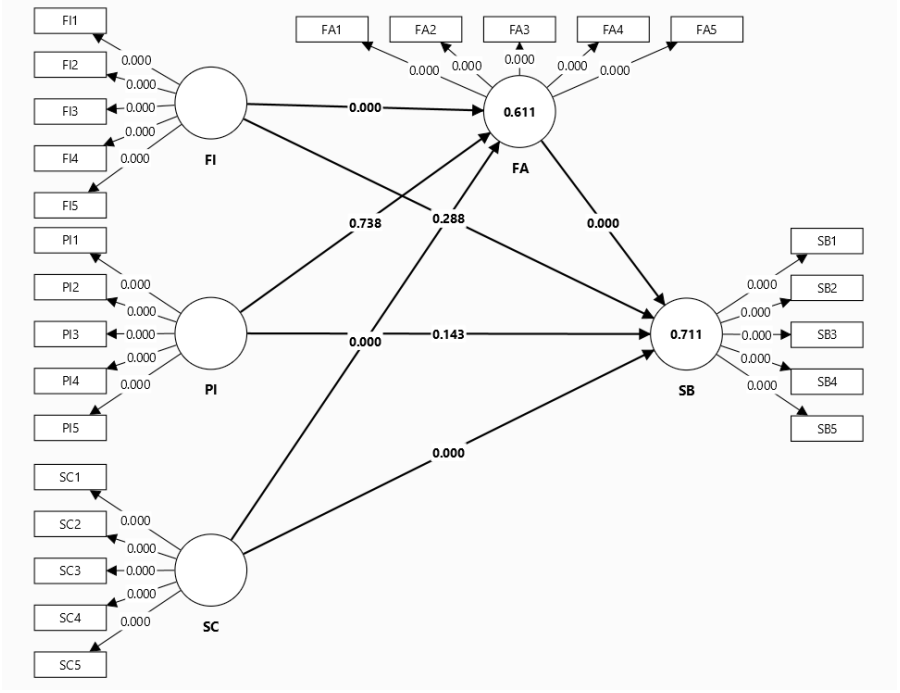

Figure 3. Structural equation model

Discussion

This research examined the impact of family, peers, and self-control on saving behavior, considering financial attitude as a mediating variable, based on a sample of 579 university students in Nepal. The analysis indicated varied results among the variables. The influence of family exhibited an insignificant direct effect on saving behavior, suggesting that exposure to family financial norms does not inherently lead to actual savings practices among students. This finding differs from the research conducted by Kurniasari et al. (2023) and Shim et al. (2010), which indicated that parental influence plays a significant role in shaping children's financial habits. However, this study, consistent with the findings of Salikin et al. (2012), indicates that higher parental income or education does not necessarily correlate with increased student savings. This may result from variations in socio-economic and cultural contexts or age-related financial independence within our sample. Peer influence was also found to be statistically insignificant, consistent with Angela and Pamungkas (2022), who also rejected the peer influence hypothesis. The phenomena of social conformity and consumerism in youth may elucidate the limited positive impact peers exert on savings behavior (Ajzen, 1991). Conversely, Dangol and Maharjan (2018) found that discussions about financial matters with peers had a positive effect on savings among Nepalese youth, indicating that contextual factors like financial discussions and peer financial literacy levels may be significant.

Self-control exhibited a robust and statistically significant correlation with saving behavior, consistent with the research conducted by Siswanti (2020) and Rey et al. (2021). This finding indicates that individuals possessing higher impulse control and long-term planning abilities are more inclined to participate in savings activities. Tang et al. (2018) further underscore the significance of self-control in fostering healthy financial behaviors. Financial attitude partially mediated the relationship between family influence and saving behavior, corroborating the assertions of Sabri et al. (2020) and Xiao and Porto (2017) that attitudes developed from family teachings influence financial decisions. This indicates that although family may not directly influence savings behavior, their impact occurs indirectly by shaping financial attitudes. The relationship between peer influence and saving behavior was not mediated by financial attitude. This aligns with the findings of Hartono and Isbanah (2022) and Goyal et al. (2021), indicating that peer pressure frequently promotes consumption rather than savings. The lack of robust mediation suggests that peer influence may be insufficient in effectively shaping long-term financial objectives. Finally, financial attitude served as a partial mediator in the relationship between self-control and saving behavior. This indicates that individuals exhibiting higher self-discipline are more inclined to cultivate positive financial attitudes, which subsequently affect their savings. This highlights the significance of internal psychological characteristics in financial behavior, aligning with the theory of planned behavior (Ajzen, 1991).

Conclusion

This study concludes that self-control significantly influences saving behavior among university students in Nepal, both directly and indirectly via financial attitude. Family influence does not directly affect saving behavior; rather, it indirectly shapes financial attitudes. Peer influence was determined to be neither directly nor indirectly significant, indicating that peers may not contribute positively to the promotion of savings behavior in this context. The findings underscore the importance of internal behavioral characteristics, especially self-discipline and attitudes, in shaping financial behavior, surpassing the influence of external social factors. This knowledge is crucial for understanding and addressing saving behavior among students.

The results have significant implications for educators, policymakers, and financial institutions. Educational programs should prioritize the enhancement of self-control and the cultivation of positive financial attitudes among students. Policymakers may emphasize behavioral components in youth financial literacy initiatives. Financial institutions, on the other hand, have a unique opportunity to promote saving behavior. They may consider developing savings products that encourage self-discipline through goal setting, reminders, or reward-based mechanisms, thereby empowering students to save more effectively. Future research may examine the mediating role of financial attitudes, as well as the direct and indirect effects of various factors on saving behavior. Stronger evidence may come from longitudinal or experimental settings. Empirical testing of behavioral interventions in financial literacy programs is necessary, and larger, more varied samples in Nepal could enhance the generalizability of results.

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Conflict of Interest

"The authors declare no conflict of interest."

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