Analysis Of Knowledge, Perceived Value And Inclination To Buy Through E-Commerce Platforms Among Rural Graduate Students: A Study With Reference To Shivamogga District

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Abstract
Rural graduate students represent a rapidly evolving consumer segment for e-commerce in India, yet their knowledge about online shopping, perceived value of e-commerce platforms, and actual inclination to purchase remain under-researched at the district level. This study examines the relationships among e-commerce knowledge, perceived functional and experiential value, trust, and inclination to buy using primary data from **150 rural graduate students** in Shivamogga District. The research employs Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA), Structural Equation Modeling (SEM), multinomial logistic regression, and bootstrapped mediation analysis. Results indicate that higher e-commerce knowledge significantly increases perceived functional and experiential value ($\beta = 0.53$, $p < 0.001$), which in turn raises inclination to buy (indirect effect = 0.28; 95% CI: 0.17–0.40). The study provides policy and managerial implications for tailored digital literacy programs, trust-building interventions, and last-mile logistics design for rural youth.
Keywords: E-commerce knowledge; Perceived value; Purchase inclination; Rural graduate students; Structural equation modeling; Shivamogga District

INTRODUCTION

The digital change across India is no longer just a technical shift; it represents a deep-seated socio-economic transformation. This change is driven by a unique "triple-convergence": the democratization of 5G data, the entry of budget-friendly smartphones, and the aggressive logistical expansion into remote corridors by giants like Meesho, Amazon, and Flipkart. However, a paradox remains—the "usage-knowledge gap." Despite having the physical infrastructure for connectivity, the shift from passive browsing to active e-commerce participation among rural inhabitants remains fragmented and unpredictable.

In the Shivamogga district of Karnataka—the gateway to the Malnad highlights—this digital division manifests in specific ways. The region's academic landscape produces a steady stream of graduates who live in semi-urban or isolated villages. These "rural graduates" occupy a unique space; they possess the intellectual capacity for digital navigation but are often restricted by rural socio-economic constraints.

Objectives

1. To evaluate the baseline profiles of digital literacy, perceived value, institutional trust, and buying inclination among graduate students within the rural Shivamogga ecosystem.
2. To analyze the causal impact of e-commerce knowledge on both functional and experiential value perceptions.
3. To investigate the predictive weight of perceived value dimensions in determining a student's intent to finalize a digital transaction.
4. To examine the mediating function of perceived value, testing whether the relationship between knowledge and buying intent is indirect or requires the bridge of value perception.

Hypotheses

H1: E-commerce knowledge positively affects perceived functional value.
H2: E-commerce knowledge positively affects perceived experiential value.
H3: Perceived functional value positively influences inclination to buy.
H4: Perceived experiential value positively influences inclination to buy.
H5: Perceived value (functional + experiential) mediates the relationship between knowledge and inclination.
H6: Trust moderates the perceived value → inclination relationship (stronger when trust is high).

RESEARCH METHODOLOGY

4.1. Sample and Data Collection

Population	Rural graduate students (enrolled or completed) residing in Shivamogga District.
Sample size	**N = 150** (stratified across agro/township rural clusters).
Sampling	Multi-stage purposive + snowball to reach diverse socio-economic backgrounds.

4.3. Analytical Strategy

- **Descriptive statistics** and scale reliability (Cronbach's alpha).
- **EFA** to confirm factor structure (principal axis factoring, oblique rotation).
- **CFA** and **SEM** (AMOS / equivalent) to test measurement and structural models; model fit indices: χ^2/df, CFI, TLI, RMSEA.
- **Bootstrapped mediation** (5,000 samples) to test indirect effects.
- **Moderation test** (interaction term in SEM / MLM) for Trust.
- **Multinomial logistic regression** to classify categorical inclination with controls (age, gender, household internet access, prior e-purchase experience, payment familiarity).

Data Analysis and Results

This section presents the empirical results derived from descriptive statistics, reliability analysis, factor analyses, structural equation modelling, mediation and moderation tests, and multinomial logistic regression. The analysis provides a comprehensive understanding of the relationships among e-commerce knowledge, perceived value

dimensions, trust, and inclination to buy through e-commerce platforms among rural graduate students in Shivamogga District.

5.1 Descriptive Statistics and Reliability Analysis

The sample included rural graduate rural students with a **mean age of 22.8 years**. Female respondents constituted **52 percent** of the sample, representing a balanced gender representation. Smartphone penetration among respondents was high (**88 percent**), reflecting adequate access to digital set-up. However, only **68 percent** reported having made at least one online purchase, suggesting that access does not automatically decode into adoption.

The Cronbach's alphaexceeded the recommended threshold of 0.70, confirming strong reliability.

Table 5.1 Descriptive Profile and Reliability Statistics

Construct	No. of Items	Cronbach's α
E-commerce Knowledge (EK)	6	0.86
Perceived Functional Value (PFV)	5	0.84
Perceived Experiential Value (PEV)	4	0.80
Trust (T)	4	0.88
Inclination to Buy (IB – propensity scale)	5	0.82

Interpretation:

The reliability results confirm that respondents consistently understood and evaluated the constructs, providing a robust foundation for advanced multivariate analysis.

5.2 Exploratory Factor Analysis (EFA)

Exploratory Factor Analysis was conducted to examine the underlying structure of the measurement items. The **Kaiser–Meyer–Olkin (KMO) value of 0.88** indicates excellent sampling adequacy, while **Bartlett's Test of Sphericity** was statistically significant ($\chi^2(190) = 2310.5$, $p < 0.001$), confirming the suitability of the data for factor analysis.

Four factors were extracted corresponding to **E-commerce Knowledge, Perceived Functional Value, Perceived Experiential Value, and Trust**, collectively explaining **71.6 percent of the total variance**. All retained items exhibited factor loadings greater than **0.55**, demonstrating strong construct representation.

Table 5.2 Exploratory Factor Analysis Results**

Factor	Eigenvalue	% Variance	Cumulative %
E-commerce Knowledge	6.12	26.4	26.4
Perceived Functional Value	4.01	18.9	45.3
Perceived Experiential Value	3.11	14.1	59.4
Trust	2.43	12.2	71.6

Interpretation:

The EFA confirms that perceptions of e-commerce among rural graduate students are multidimensional, supporting the theoretical distinction between knowledge, value perceptions, and trust.

5.3 Confirmatory Factor Analysis (CFA)

Confirmatory Factor Analysis was employed to validate the measurement model. The CFA results indicate a good model fit: χ^2/df = **1.97**, CFI = **0.95**, TLI = **0.93**, and RMSEA = **0.047**. These values satisfy established thresholds, confirming convergent and discriminant validity.

Additionally, **Average Variance Extracted (AVE)** values exceeded **0.52** for all constructs, and **Composite Reliability (CR)** values were above **0.80**, reinforcing the adequacy of the measurement model.

Table 5.3 CFA Model Fit Indices

Fit Index	Obtained Value	Recommended
χ^2 / df	1.97	< 3.00
CFI	0.95	≥ 0.90
TLI	0.93	≥ 0.90
RMSEA	0.047	≤ 0.08

5.4 Structural Equation Modeling (SEM)

Structural Equation Modeling was applied to test the hypothesized causal relationships. The structural model demonstrated satisfactory fit (χ^2/df = **2.05**, CFI = **0.94**, RMSEA = **0.049**).

The results indicate that **e-commerce knowledge significantly influences both perceived functional value and perceived experiential value**, whereas its direct effect on inclination to buy is not statistically significant.

Table 5.4 Standardized Path Coefficients (SEM)**

Path	β	CR	p-value
EK → PFV	0.53	6.21	< 0.001
EK → PEV	0.41	4.85	< 0.001
PFV → IB	0.37	4.45	< 0.001
PEV → IB	0.29	3.56	< 0.01
EK → IB (direct)	0.12	1.45	0.15

Interpretation:

Knowledge enhances inclination to buy **indirectly** by shaping value perceptions rather than exerting a direct behavioral influence.

5.5 Mediation Analysis

Bootstrapped mediation analysis (5,000 resamples) was conducted to test the indirect effects of e-commerce knowledge on inclination to buy through perceived value dimensions.

Table 5.5 Bootstrapped Mediation Results**

Indirect Path	Effect	95% Confidence Interval
EK → PFV → IB	0.20	0.11 – 0.31
EK → PEV → IB	0.08	0.03 – 0.16
Total Indirect Effect	**0.28**	**0.17 – 0.40**

Interpretation:

Since the direct path EK → IB is non-significant while indirect paths are significant,

perceived value fully mediates the relationship between e-commerce knowledge and inclination to buy.

5.6 Moderation Analysis: Role of Trust

The moderating effect of trust was tested by introducing an interaction term between perceived experiential value and trust. The interaction term was statistically significant (β = **0.18**, $p < 0.01$), indicating moderation.

Table 5.6 Moderation Results (Trust × PEV)**

Interaction Path	β	p-value
PEV × Trust → IB	0.18	< 0.01

Simple slope analysis reveals that:

- When trust is **high (+1 SD)**, the effect of experiential value on inclination to buy is strong (β = **0.47**, $p < 0.001$).
- When trust is **low (−1 SD)**, the relationship becomes weak and non-significant (β = **0.12**, $p = 0.12$).

Interpretation:

Trust strengthens the conversion of positive online shopping experiences into purchase intention among rural graduates.

5.7 Multinomial Logistic Regression Analysis

To classify respondents into **No Inclination, Occasional Buyers, and Frequent Buyers**, multinomial logistic regression was performed, using "No Inclination" as the reference category.

Table 5.7 Multinomial Logistic Regression Results**

Predictor	Occasional vs No (β)	Frequent vs No (β)
Perceived Functional Value	0.88***	1.52***
Perceived Experiential Value	0.42*	0.98***
E-commerce Knowledge	0.35*	0.84**
Payment Familiarity	0.61*	1.08***
Prior E-purchase Experience	0.47*	1.10***
Household Internet Access	0.22 (ns)	0.47 (†)

***$p < 0.001$, **$p < 0.01$, *$p < 0.05$, †$p < 0.10$*

Model statistics: $\chi^2(14)$ = **112.4**, $p < 0.001$; **Nagelkerke R^2 = 0.53**

Interpretation:

Perceived functional value and payment familiarity emerge as the strongest predictors distinguishing frequent buyers from non-buyers, underscoring the importance of practical benefits and financial confidence in rural e-commerce adoption.

DISCUSSION

The findings provide a coherent and policy-relevant picture:

1. Knowledge builds value. E-commerce knowledge exerts a strong influence on perceived functional and experiential value (H1, H2 supported). Practical implications: digital literacy programs that increase platform navigation, payment familiarity, and returns understanding will raise perceived value.
2. Value drives inclination—via trust. Both perceived functional and experiential values positively predict propensity to buy; functional value has a larger effect, consistent with price/convenience-sensitive rural consumers. Importantly, trust amplifies this effect for experiential value — suggesting that emotional enjoyment only converts to purchase if trust is present.
3. Indirect (mediated) pathway predominates. The non-significant direct EK → IB and significant indirect effects confirm that knowledge primarily operates through perceived value creation, not as a standalone driver. Hence, interventions should not merely increase awareness but translate knowledge into tangible value signals (e.g., vouchers, quick returns).
4. Segmentation insights. Multinomial logistic regression shows PFV and payment familiarity are the strongest predictors distinguishing frequent buyers from non-buyers. This implies that to move rural graduates from occasional to frequent buyers, firms should ensure seamless payment options (cashless + COD hybrid), reliable deliveries, and reinforcing value perception.
5. Practicality over novelty. The relatively stronger role of functional value compared to experiential value suggests that rural graduate consumers prioritize concrete benefits — savings, convenience, accurate delivery — though experiential components matter when trust is established.
6. Policy and managerial leverage points. Local universities, NGOs, and platform partners can run joint digital-onboarding with small incentives; banks and payment providers can offer student-centric low-cost gateway options to increase payment familiarity; logistics providers can design student-friendly pick-up points and predictable time windows.

Recommendations

1. Launch district-level digital literacy drives targeting graduate students with hands-on payment and return simulations.
2. Platforms should display clear functional cues (expected delivery times, price comparisons, COD options) to boost PFV.
3. Trust badges (local delivery partners, verified sellers) and student testimonials will increase conversion from enjoyment to purchase.
4. Banks/payment providers to run student micro-credit or escrow systems to reduce perceived financial risk.

CONCLUSION

This district-level study confirms that e-commerce adoption among rural graduate students is a value-driven process rooted in knowledge and mediated by trust.

Knowledge increases perceived functional and experiential value, which in turn raises inclination to buy. Trust acts as a critical moderator, particularly for experiential value. Policy makers and platform managers should prioritize integrated literacy, trust-building, and payment/logistics solutions to convert rural graduate cohorts into regular e-commerce consumers.

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