

# Age-Based Differences in Factors Influencing Online Shopping Behaviour: An Extended UTAUT2 Perspective

Ashok Kumar#1, Amit Kumar#2

#1Extension Lecturer, I.G Govt. PG College, Tohana, Haryana, India  
ashokdhaka99@gmail.com

#2Extension Lecturer, I.G Govt. PG College, Tohana, Haryana, India  
Amitphd11@gmail.com

## Abstract

This study examines the influence of age on consumers' perceptions of factors affecting online shopping behaviour in the National Capital Region (NCR) of India. Drawing on the Extended Unified Theory of Acceptance and Use of Technology (UTAUT2), the study examines the variations in personal innovativeness, utilitarian motivation, price value, subjective norms, effort expectancy, performance expectancy, attitude, self-efficacy, hedonic motivation, habit, and facilitating conditions across different age groups. Data were collected from 800 online shoppers through a structured questionnaire using both online and offline modes. One-way ANOVA was employed to analyse age-based variations among respondents. The findings reveal significant differences across age groups for all examined factors. Consumers aged 36–45 years showed higher concern for utilitarian motivation and facilitating conditions, while younger consumers (16–25 years) emphasized effort expectancy and performance expectancy. The study provides valuable insights for e-retailers to develop age-specific marketing strategies and enhance online shopping experiences.

**Keywords:** Online Shopping Behaviour; Consumer Behaviour; E-Retailing; UTAUT2; Consumer Behaviour

## 1. Introduction

The rapid increase in internet access and smartphone usage has significantly contributed to the growth of the e-commerce industry in India. The Indian e-commerce market, which was valued at \$46.2 billion in 2020, is projected to reach \$188 billion by 2025 and \$350 billion

by 2030 (Khurana, 2022). This expansion has brought major changes in the way businesses operate in the country. With greater internet penetration, consumer behaviour has shifted noticeably toward online shopping. Many consumers in India are moving from traditional shopping methods to digital platforms. The COVID-19 pandemic further accelerated this trend by encouraging more people to shop online. As a result, the e-retail market is expected to grow to between \$120 billion and \$140 billion, with an annual growth rate of 25–30% by the financial year 2026 (Tandon, 2021). Online shopping has attracted a large number of consumers, influencing the overall retail sector and supporting the development of the e-commerce industry. It is not only growing quickly but also contributing positively to the economy. Therefore, it is important for e-retailers to understand consumer behaviour in order to design effective marketing strategies, improve customer satisfaction, and build long-term relationships.

This study focuses on identifying the factors that influence consumer behaviour while purchasing from e-retailers in the NCR region. The term “e-retailing” or “e-tailing” refers to

the business-to-consumer (B2C) aspect of e-commerce (Pradhan, 2020). It involves the sale of goods and services through the internet, where sellers are known as e-tailers (Turban et al., 2018). It is also referred to as online or internet retailing, where customers can access information about products and services and make purchases through digital platforms (Levy et al., 2012). In simple terms, e-retail involves electronic transactions between businesses and customers without the use of physical paperwork (Pradhan, 2020).

One common e-retail business model is the merchant model, where sellers offer their products and services through an online platform. In this model, the retailer directly sells to customers using an online ordering system. Examples of such pure-play e-retailers include Amazon and Flipkart (Pradhan, 2020).

## **2. Theoretical Foundations**

### **Extended unified theory of acceptance and use of technology (UTAUT2)**

The Unified Theory of Acceptance and Use of Technology (UTAUT) was developed by Venkatesh et al. (2003) by integrating key elements from eight well-known models, including the Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM), Motivational Model, Theory of Planned Behaviour (TPB), a combined TAM-TPB model, Model of PC Utilization, Innovation Diffusion Theory (IDT), and Social Cognitive Theory (SCT). The model identifies four main factors that influence technology adoption: performance expectancy, effort expectancy,

social influence, and facilitating conditions. It also includes four moderating variables—age, gender, experience, and voluntariness of use—that affect these relationships. Later, Venkatesh et al. (2012) extended this model and introduced UTAUT2 to better explain consumer technology adoption. This updated model added three new constructs: hedonic motivation, price value, and habit. These additions made the model more suitable for consumer contexts by considering enjoyment, cost perception, and repeated usage behavior. Individual differences such as age, gender, and experience were also considered important in influencing behavioural intention and actual use. Hedonic motivation plays an important role in technology adoption as it reflects feelings of enjoyment and pleasure during usage (Chopdar & Shivkumar, 2019). Habit has also become significant, as many users develop a routine of staying online and engaging with digital platforms regularly (Tak & Panwar, 2017). Price value is another key factor, especially in online shopping, where consumers evaluate the benefits of technology against its cost. Several studies have successfully applied the UTAUT2 model in different contexts. For example, it has been used to examine online shopping adoption in India (Tandon et al., 2016; Tak & Panwar, 2017; Chopdar & Shivkumar, 2019; Tandon & Kiran, 2018) and China (An et al., 2016). It has also been applied in mobile banking (Jiang et al., 2024; Baptista & Oliveira, 2015; Alalwan et al., 2018), e-learning (El-Masri & Tarhini, 2017; Gunasinghe et al., 2020), mobile payment (Ding et al., 2025; Gupta & Arora, 2020), mobile

commerce (Tarhini et al., 2019), travel applications (Gupta et al., 2018) and some other field (Du & Liang 2024; Pegan et al., 2025; Chu et al., 2022; Palas et al., 2022). The present study uses the UTAUT2 framework to examine factors influencing consumers' online shopping intention and usage behavior. Although prior studies have applied UTAUT2 in the Indian context, their findings are not always consistent, indicating the need for further research. Additionally, researchers have suggested that combining UTAUT with personal traits such as personal innovativeness can improve understanding of technology adoption (Thakur & Srivastava, 2015). Therefore, this study extends the UTAUT2 model by including four additional constructs: personal innovativeness, attitude, self-efficacy, and utilitarian motivation.

In total, the study considers eleven factors that influence consumers' behavioural intention toward online shopping: performance expectancy, effort expectancy, social influence, facilitating conditions, habit, price value, hedonic motivation, utilitarian motivation, attitude, self-efficacy, and personal innovativeness.

### **3. Research Methodology**

#### **3.1 Sample and data collection**

Convenience sampling method is used in the study and data collection is conducted using a structured questionnaire as a part of the survey methodology. The questionnaire was divided into two sections: the second section concentrated on the main constructions, while the first section gathered demographic data.

The current study uses both online and offline data collection since it has been shown to be an effective and efficient method of gathering information from the target group (Luo, 2009; Wilson & Laskey, 2003). Online modalities were utilized for data collecting in previous research projects about online commerce. Online data collection was found to have a greater response rate in previous studies (Nair et al., 2015). The Krejcie & Morgan table has been used to determine the sample size (Krejcie & Morgan, 1970). According to Cochran's formula (Krejcie and Morgan 1970), at a confidence level of 95%, a minimum sample size of 384 respondents would be required based on a 95% confidence interval and a 5% significance threshold. Based on an unframed population, the sample size for the current study is 800 respondents. Keeping in view the Krejcie and Morgan (1970) table as well as the studies of Zehira and Narcıkara (2016), Tandon and Kiran (2018), Gao et al. (2018) and Chawla and Joshi (2019) the sample size of 800 has been decided fit for current study. 800 of the 962 responses that were gathered were used for analysis after the incomplete questionnaires were eliminated.

#### **3.2 Measurement**

The items measuring performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, habit, and price value were adapted from Venkatesh et al. (2012), self-efficacy from Singh and Srivastava (2018), attitude from Taylor and Todd, (1995), utilitarian motivation from Kim et al. 2012, and personal innovativeness from Dewi et al. (2020) to suit the online shopping

context. These items were measured using a 5-point Likert scale anchored by 1 (strongly disagree) and 5 (strongly agree).

#### 4. Results of Analysis of variance test (ANOVA)

This test is usually used to compare the mean values of three or more groups of respondents

based on their demographic attributes. In this study, analysis of variance test is used for personal innovativeness, utilitarian motivation, price value, effort expectancy, performance expectancy, self-efficacy, habit, facilitating conditions, and attitude to validate the differences in their opinions across their age.

**Table 1. Validity Measures of Measurement Model**

| Constructs              | CR    | AVE   | MSV   | MaxR(H) |
|-------------------------|-------|-------|-------|---------|
| Utilitarian motivation  | 0.946 | 0.814 | 0.075 | 0.955   |
| Price Value             | 0.937 | 0.788 | 0.121 | 0.937   |
| Personal Innovativeness | 0.954 | 0.839 | 0.020 | 0.956   |
| Effort Expectancy       | 0.900 | 0.696 | 0.175 | 0.926   |
| Self-efficacy           | 0.831 | 0.569 | 0.175 | 0.928   |
| Performance Expectancy  | 0.834 | 0.571 | 0.152 | 0.910   |
| Facilitating conditions | 0.896 | 0.744 | 0.161 | 0.932   |
| Attitude                | 0.850 | 0.596 | 0.139 | 0.921   |
| Hedonic motivation      | 0.820 | 0.535 | 0.215 | 0.831   |
| Habit                   | 0.839 | 0.571 | 0.215 | 0.867   |
| Subjective Norms        | 0.917 | 0.734 | 0.094 | 0.924   |

Source: Primary Data

The reliability and validity of the measurement model were assessed using Cronbach's alpha, Composite Reliability (CR), Average Variance Extracted (AVE), Maximum Shared Variance (MSV), and discriminant validity measures. The results indicate that all constructs demonstrated satisfactory internal consistency and reliability. Composite Reliability values ranged from 0.820 to 0.954, exceeding the recommended threshold of 0.70 (Fornell & Larcker, 1981), confirming strong construct reliability. Similarly, Cronbach's alpha

coefficients ranged from 0.831 to 0.956, with an overall scale reliability of 0.897, indicating excellent internal consistency (Cronbach, 1951; Nunnally, 1978).

Construct validity was established as all standardized factor loadings exceeded the recommended threshold of 0.50, indicating that the observed variables adequately represented their respective latent constructs. Convergent validity was further supported, with all AVE values ranging from 0.535 to 0.839, exceeding the recommended value of 0.50. Moreover, the

CR values for all constructs were greater than their corresponding AVE values, satisfying the criteria proposed by Fornell and Larcker (1981).

Discriminant validity was evaluated using the Fornell–Larcker criterion and the Maximum Shared Variance (MSV). The MSV values for all constructs were lower than their respective AVE values, confirming adequate discriminant validity (Hair et al., 2006; Kline, 2005). Additionally, the correlations among all latent constructs were below the recommended threshold of 0.85 (Moolla & Bisschoff, 2013),

indicating the absence of multicollinearity and cross-loading issues. These findings demonstrate that each construct is empirically distinct and measures a unique theoretical concept.

Overall, the measurement model satisfies the established criteria for reliability, construct validity, convergent validity, and discriminant validity. Therefore, the scales used in this study are both reliable and valid, providing a robust foundation for subsequent statistical analyses and hypothesis testing.

**Table 2. Results of One-way ANOVA Regarding Factors that Consumers Consider in Buying from E-retailers Based on Age.**

| Factors                 | Age          | N   | Mean   | SD      | F-Value | P-Value |
|-------------------------|--------------|-----|--------|---------|---------|---------|
| Personal Innovativeness | upto 15      | 12  | 3.1250 | .95048  | 11.964  | .000    |
|                         | 16-25        | 320 | 2.8828 | .99644  |         |         |
|                         | 26-35        | 291 | 2.7560 | .89765  |         |         |
|                         | 36-45        | 146 | 2.5565 | .83034  |         |         |
|                         | 46-60        | 18  | 3.6250 | 1.05806 |         |         |
|                         | more than 60 | 13  | 4.2308 | .25944  |         |         |
|                         | Total        | 800 | 2.8194 | .95676  |         |         |
| Utilitarian Motivation  | upto 15      | 12  | 3.4792 | .60733  | 6.400   | .000    |
|                         | 16-25        | 320 | 3.4406 | 1.16000 |         |         |
|                         | 26-35        | 291 | 3.5954 | 1.16658 |         |         |
|                         | 36-45        | 146 | 4.0394 | .88410  |         |         |
|                         | 46-60        | 18  | 4.0000 | 1.20049 |         |         |
|                         | more than 60 | 13  | 3.7692 | .83205  |         |         |
|                         | Total        | 800 | 3.6247 | 1.12619 |         |         |
| Price Value             | upto 15      | 12  | 4.3750 | .88227  | 2.655   | .022    |
|                         | 16-25        | 320 | 4.1406 | .91559  |         |         |
|                         | 26-35        | 291 | 4.0249 | 1.00731 |         |         |
|                         | 36-45        | 146 | 4.3151 | .77574  |         |         |
|                         | 46-60        | 18  | 4.0556 | .99468  |         |         |
|                         | more than 60 | 13  | 4.5577 | .75107  |         |         |
|                         | Total        | 800 | 4.1388 | .93095  |         |         |
| Subjective Norms        | upto 15      | 12  | 3.8542 | .36084  | 5.961   | .000    |
|                         | 16-25        | 320 | 3.5344 | .76768  |         |         |
|                         | 26-35        | 291 | 3.6761 | .70169  |         |         |
|                         | 36-45        | 146 | 3.8630 | .66959  |         |         |
|                         | 46-60        | 18  | 4.1111 | .29978  |         |         |
|                         | more than 60 | 13  | 3.6923 | .77831  |         |         |
|                         | Total        | 800 | 3.6663 | .72611  |         |         |
| Effort Expectancy       | upto 15      | 12  | 4.0000 | .73855  | 7.424   | .000    |
|                         | 16-25        | 320 | 4.1133 | .82207  |         |         |
|                         | 26-35        | 291 | 4.0112 | .77632  |         |         |
|                         | 36-45        | 146 | 4.0599 | .75046  |         |         |
|                         | 46-60        | 18  | 4.0278 | 1.25114 |         |         |
|                         | more than 60 | 13  | 2.7500 | .38188  |         |         |
|                         | Total        | 800 | 4.0406 | .81449  |         |         |

|                         |              |     |        |         |        |      |
|-------------------------|--------------|-----|--------|---------|--------|------|
| Performance Expectancy  | upto 15      | 12  | 3.8333 | .88763  | 11.919 | .000 |
|                         | 16-25        | 320 | 4.2422 | .71313  |        |      |
|                         | 26-35        | 291 | 3.9845 | .70511  |        |      |
|                         | 36-45        | 146 | 4.2175 | .81910  |        |      |
|                         | 46-60        | 18  | 3.3889 | 1.04748 |        |      |
|                         | more than 60 | 13  | 3.1923 | .86695  |        |      |
|                         | Total        | 800 | 4.1016 | .76946  |        |      |
| Attitude                | upto 15      | 12  | 3.9375 | .60420  | 4.983  | .000 |
|                         | 16-25        | 320 | 3.7320 | .66533  |        |      |
|                         | 26-35        | 291 | 3.8144 | .79406  |        |      |
|                         | 36-45        | 146 | 3.7757 | .76210  |        |      |
|                         | 46-60        | 18  | 2.9861 | 1.25871 |        |      |
|                         | more than 60 | 13  | 3.3846 | .86972  |        |      |
|                         | Total        | 800 | 3.7506 | .76072  |        |      |
| Self-Efficacy           | upto 15      | 12  | 3.9383 | .61082  | 2.976  | .011 |
|                         | 16-25        | 320 | 3.8953 | .70459  |        |      |
|                         | 26-35        | 291 | 3.9450 | .84230  |        |      |
|                         | 36-45        | 146 | 3.9435 | .68214  |        |      |
|                         | 46-60        | 18  | 3.4167 | 1.05719 |        |      |
|                         | more than 60 | 13  | 3.3846 | .40331  |        |      |
|                         | Total        | 800 | 3.9041 | .76304  |        |      |
| Hedonic Motivation      | upto 15      | 12  | 3.5833 | .70173  | 17.388 | .000 |
|                         | 16-25        | 320 | 3.5070 | .82153  |        |      |
|                         | 26-35        | 291 | 3.6624 | .88793  |        |      |
|                         | 36-45        | 146 | 3.6113 | .71199  |        |      |
|                         | 46-60        | 18  | 3.0694 | 1.32511 |        |      |
|                         | more than 60 | 13  | 1.5577 | .10963  |        |      |
|                         | Total        | 800 | 3.5422 | .87618  |        |      |
| Habit                   | upto 15      | 12  | 3.2017 | .65569  | 15.704 | .000 |
|                         | 16-25        | 320 | 2.9422 | 1.02696 |        |      |
|                         | 26-35        | 291 | 3.2139 | .92428  |        |      |
|                         | 36-45        | 146 | 2.5223 | 1.01367 |        |      |
|                         | 46-60        | 18  | 2.1250 | 1.12867 |        |      |
|                         | more than 60 | 13  | 1.8846 | .28165  |        |      |
|                         | Total        | 800 | 2.9341 | 1.02271 |        |      |
| Facilitating Conditions | upto 15      | 12  | 3.8542 | .51631  | 6.380  | .000 |
|                         | 16-25        | 320 | 3.8617 | .75184  |        |      |
|                         | 26-35        | 291 | 3.7878 | .77172  |        |      |
|                         | 36-45        | 146 | 4.0925 | .69233  |        |      |
|                         | 46-60        | 18  | 3.2083 | .81912  |        |      |
|                         | more than 60 | 13  | 3.6154 | .75426  |        |      |
|                         | Total        | 800 | 3.8581 | .76002  |        |      |

The one-way ANOVA analysis was conducted to examine whether there are significant differences in personal innovativeness, utilitarian motivation, price value, subjective norms, effort expectancy, performance expectancy, attitude, self-efficacy, hedonic motivation, habit, and facilitating conditions across different age groups (Table 1).

The results show that personal innovativeness differs significantly across age groups, as indicated by an F-value of 11.919 ( $p = .000$ ). The mean scores suggest that respondents aged

above 60 years exhibit higher levels of personal innovativeness compared to other groups.

Utilitarian motivation also shows a significant variation based on age ( $F = 6.400$ ,  $p = .005$ ). Respondents in the 36–45 age group report higher utilitarian motivation than others. For price value, the F-value of 2.655 ( $p = .022$ ) indicates a significant difference among age groups. The findings suggest that respondents above 60 years are more sensitive to price value. Subjective norms significantly vary with age ( $F = 5.961$ ,  $p = .000$ ), with respondents aged

46–60 being more influenced by social factors related to e-retailers. Effort expectancy also differs significantly across age groups ( $F = 7.424, p = .000$ ). Younger respondents aged 16–25 show higher concern regarding the ease of using e-retail platforms. Similarly, performance expectancy shows significant differences ( $F = 11.994, p = .001$ ), with respondents aged 36–45 perceiving greater usefulness of e-retailers. Attitude towards e-retailers also varies significantly by age ( $F = 4.983, p = .000$ ). Respondents aged up to 15 and those in the 26–35 age group display a more positive attitude compared to others. Self-efficacy shows significant differences across age groups ( $F = 2.976, p = .000$ ). Higher levels are observed among respondents aged 26–35 and 46–60. Hedonic motivation demonstrates a strong significant difference ( $F = 17.388, p = .000$ ), with respondents aged 26–35 showing greater enjoyment in using e-retail platforms. Habit also varies significantly with age ( $F = 15.704, p = .000$ ). Respondents aged 26–35 are more likely to have developed habitual usage of e-retailers. Finally, facilitating conditions differ significantly across age groups ( $F = 6.380, p = .000$ ), with respondents aged 36–45 perceiving better support and resources for using e-retail services.

## 5. Conclusion

Respondents from the age group of 36–45 are more concerned about utilitarian motivation and facilitating conditions than others. Respondents from the age group of 16–25 are more concerned about effort expectancy and performance expectancy than other

respondents. Respondents from the age group of 26–35 have more hedonic motivation and are more habitual in purchasing from e-retailers than other respondents. Respondents from the age group above 60 years are more concerned about price value than others. Respondents between the ages of 36 and 45 have a more favourable word of mouth and greater consumer loyalty toward e-retailers than other age groups. Furthermore, the 26–35 age group has a greater repurchase intention than other age groups. Young people between the ages of 16 and 25 care more about the level of E-services of e-retailers. Younger people trust e-retailers more than older people.

People between the ages of 26 and 35 are more committed to online shopping than people in other age groups, and individuals up to 45 years old are more satisfied than seniors.

## 6. Limitations of the study

The study's conclusions should be regarded cautiously due to some limitations. First, while the impacts of shifting customers' viewpoints cannot be ascertained due to the cross-sectional nature of this study, theoretical implications may be taken into account with the aid of qualitative and longitudinal research. Second, the results could not fully represent all Indian customers, as the study's respondents were based in the National Capital Region. Nonetheless, more consumer studies throughout Indian areas may be conducted, to enhancing the generalisability of the study's conclusions. More study in a range of demographics will be necessary in order to form the data in a generalised way.

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