

## The Influence of Achievement Motivation on Consumer Adoption of Artificial Intelligence Applications: An Empirical Study

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### Abstract

Artificial Intelligence (AI) applications have become increasingly integrated into consumers' personal, educational, and professional activities, necessitating a deeper understanding of the factors influencing their adoption. While existing research on AI adoption has predominantly emphasized technological determinants, comparatively limited attention has been devoted to the role of psychological factors. Grounded in McClelland's Need for Achievement Theory and supported by technology adoption literature, the present study examined the influence of achievement motivation on consumer adoption of Artificial Intelligence applications. A quantitative, descriptive-correlational research design was employed, and data were collected from 450 consumers using a structured questionnaire. The collected data were analyzed using descriptive statistics, Pearson's Product-Moment Correlation, and Simple Linear Regression analysis using Jamovi Statistical Software Version 2.7.12. The findings revealed a strong positive and statistically significant relationship between achievement motivation and consumer adoption of AI applications ( $r = .796$ ,  $p < .001$ ). Furthermore, achievement motivation significantly predicted AI adoption behaviour ( $\beta = .796$ ,  $t = 27.866$ ,  $p < .001$ ), explaining 63.4% of the variance in consumer adoption of Artificial Intelligence applications ( $R^2 = .634$ ). The findings highlight the importance of psychological determinants in understanding consumer adoption behaviour and contribute to the existing literature by extending traditional technology adoption research beyond technological factors.

**Keywords:** Achievement Motivation, Artificial Intelligence Adoption, Consumer Behaviour, Need for Achievement Theory, Technology Adoption.

### 1. Introduction

Artificial Intelligence (AI) has emerged as one of the most transformative technologies of the twenty-first century, significantly influencing sectors such as education, healthcare, business, finance, and communication. AI-powered applications, including ChatGPT, virtual assistants, recommendation systems, and intelligent automation tools, have transformed the way individuals interact with technology. As the use of AI continues to expand, understanding the factors influencing consumers' adoption of these applications has become an important area of research.

Existing studies on AI adoption have largely focused on technological determinants, including perceived usefulness, perceived ease of use, performance expectancy, trust, and social influence, as explained by models such as the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT). While these frameworks have significantly advanced technology adoption research, they primarily emphasize technological characteristics and pay comparatively less attention to individual psychological factors that may influence adoption behaviour.

Achievement motivation is a key psychological construct that explains an individual's desire to accomplish challenging goals, improve performance, and achieve success. According to McClelland's Need for Achievement Theory, individuals with high achievement motivation actively seek opportunities and resources that enhance their productivity and effectiveness. Since AI applications facilitate decision-making, task automation, creativity, and efficiency, achievement-oriented individuals may be more inclined to adopt these technologies to accomplish their personal and professional goals.

Despite the rapid growth of AI adoption research, empirical evidence examining the influence of achievement motivation on consumer adoption of AI applications remains limited. Addressing this gap, the present study investigates the relationship between achievement motivation and consumer adoption of Artificial Intelligence applications. By integrating a psychological perspective with established technology adoption theories, the study extends the existing literature beyond technological determinants and provides insights for educators, technology developers, marketers, and policymakers seeking to promote the effective adoption and utilization of AI applications.

## **2. Problem Statement**

The rapid growth of Artificial Intelligence (AI) applications has transformed the way individuals learn, work, and make decisions, making the understanding of AI adoption an important area of research. Existing studies have primarily explained AI adoption through technological factors such as perceived usefulness, perceived ease of use, trust, performance expectancy, and social influence. While these factors have significantly contributed to technology adoption research, they provide limited understanding of the psychological characteristics that influence consumers' adoption behaviour.

Achievement motivation, a key psychological construct explained by McClelland's Need for Achievement Theory, reflects an individual's desire to achieve success, improve performance, and accomplish challenging goals. Given that AI applications enhance productivity, efficiency, and decision-making, individuals with higher achievement motivation may be more inclined to adopt these technologies. However, empirical evidence examining the influence of achievement motivation on consumer adoption of Artificial Intelligence applications remains limited, particularly in the Indian context. Therefore, the present study investigates whether achievement motivation significantly influences consumers' adoption of Artificial Intelligence applications, thereby addressing an important gap in the existing literature.

## **3. Objectives of the Study**

The present study aims to investigate the role of achievement motivation in influencing consumers' adoption of Artificial Intelligence applications. Specifically, the study seeks to achieve the following objectives:

1. To determine the level of achievement motivation among consumers.
2. To determine the level of consumer adoption of Artificial Intelligence applications.
3. To examine the relationship between achievement motivation and consumer adoption of Artificial Intelligence applications.
4. To determine the predictive effect of achievement motivation on consumer adoption of Artificial Intelligence applications.

These objectives are designed to provide a comprehensive understanding of the influence of motivational factors on consumers' adoption behaviour toward Artificial Intelligence technologies and to contribute to the existing literature on technology adoption from a psychological perspective.

## **4. Significance of the Study**

The present study is significant from theoretical, practical, and policy perspectives as it contributes to the growing body of literature on Artificial Intelligence adoption by emphasizing the role of psychological factors, particularly achievement motivation, in influencing consumers' adoption behaviour.

### **4.1 Theoretical Significance**

The study extends the literature on Artificial Intelligence adoption by incorporating **achievement motivation** as a psychological determinant. Grounded in **McClelland's Need for Achievement Theory** and supported by technology adoption literature, it broadens the theoretical understanding of consumer AI adoption beyond technological factors.

#### **4.2 Practical Significance**

The findings may help technology developers, organizations, educators, and marketers understand how achievement motivation influences AI adoption. This can support the design of user-centric AI applications and strategies that encourage greater technology acceptance.

#### **4.3 Educational Significance**

The study highlights the role of achievement motivation in AI adoption, providing insights for educators and institutions to promote AI-enabled teaching, learning, and professional development.

#### **4.4 Policy Significance**

The findings may assist policymakers in developing initiatives that promote responsible AI adoption, digital literacy, and technology readiness among consumers.

#### **4.5 Future Research Significance**

The study provides a foundation for future research by encouraging the examination of additional psychological and behavioural factors influencing AI adoption across diverse populations and contexts.

### **5. Hypotheses of the Study**

#### **5.1 Hypothesis 1: Relationship Between Achievement Motivation and Consumer Adoption of Artificial Intelligence Applications**

**H0<sub>1</sub>:** There is no significant relationship between achievement motivation and consumer adoption of Artificial Intelligence applications.

**H1<sub>1</sub>:** There is a significant relationship between achievement motivation and consumer adoption of Artificial Intelligence applications.

#### **5.2 Hypothesis 2: Predictive Effect of Achievement Motivation on Consumer Adoption of Artificial Intelligence Applications**

**H0<sub>2</sub>:** Achievement motivation does not significantly predict consumer adoption of Artificial Intelligence applications.

**H1<sub>2</sub>:** Achievement motivation significantly predicts consumer adoption of Artificial Intelligence applications.

The hypotheses were tested using Pearson's Product-Moment Correlation and Simple Linear Regression analyses to examine the relationship and predictive influence of achievement motivation on consumers' adoption of Artificial Intelligence applications.

### **6. Literature Review**

The adoption of Artificial Intelligence (AI) applications has emerged as an important area of research across education, business, and consumer behaviour due to the rapid integration of intelligent technologies into everyday life. Previous studies have primarily examined AI adoption from technological perspectives, emphasizing factors such as perceived usefulness, ease of use, trust, performance expectancy, and social influence. However, recent research has increasingly highlighted the importance of psychological characteristics in shaping technology adoption behaviour. Among these, achievement motivation has gained attention as a potential determinant of individuals' willingness to adopt innovative technologies that enhance performance and productivity. The present review synthesizes the existing literature on achievement motivation, consumer adoption of Artificial Intelligence applications, psychological factors influencing technology adoption, and the relationship between achievement motivation and AI adoption. It also identifies the research gap that forms the basis of the present investigation.

#### **6.1 Achievement Motivation**

Achievement motivation refers to an individual's desire to achieve challenging goals, attain excellence, and improve performance through effort and persistence. Grounded in **McClelland's Need for Achievement Theory**, it reflects goal orientation, responsibility, and a commitment to success. Previous studies have shown that achievement motivation positively influences performance, decision-making, innovation, and technology utilization (Smith et al., 2019; Werdhiastutie et al., 2020). Individuals with higher achievement motivation are more likely to adopt technologies that enhance productivity and facilitate goal attainment, making it a relevant factor in understanding AI adoption behaviour.

## 6.2 Consumer Adoption of Artificial Intelligence Applications

Artificial Intelligence (AI) applications have become increasingly integrated into education, business, healthcare, and everyday life. Research on AI adoption has largely been guided by models such as **TAM**, **UTAUT**, **IDT**, and **VAM**, which identify perceived usefulness, trust, performance expectancy, and social influence as key determinants of technology acceptance (Kelly et al., 2022; Sohn & Kwon, 2020; Ismatullaev & Kim, 2022). However, recent studies suggest that technological factors alone cannot fully explain AI adoption, highlighting the need to examine users' psychological characteristics and motivational dispositions.

## 6.3 Psychological Factors and Technology Adoption

Technology adoption is influenced not only by technological features but also by users' psychological characteristics. Factors such as attitudes, trust, innovativeness, confidence, and motivation significantly affect technology acceptance behaviour (Park et al., 2022; Mantello et al., 2023). This growing emphasis on psychological determinants has broadened technology adoption research and highlights the importance of examining motivational constructs in explaining consumers' adoption of Artificial Intelligence applications.

## 6.4 Achievement Motivation and Artificial Intelligence Adoption

Motivation plays a significant role in influencing technology adoption behaviour. Existing studies indicate that motivated individuals are more likely to adopt technologies that enhance learning, productivity, and performance (An et al., 2023; Zheng et al., 2024). Although motivational factors have been widely examined, **achievement motivation** has received comparatively little attention in AI adoption research. According to **McClelland's Need for Achievement Theory**, achievement-oriented individuals actively seek performance-enhancing opportunities, suggesting that they are more likely to adopt AI applications. However, empirical evidence supporting this relationship remains limited, particularly in developing countries.

## 6.5 Artificial Intelligence and Consumer Behaviour

The increasing use of Artificial Intelligence has transformed consumer behaviour across various digital platforms. Research indicates that AI technologies influence consumer trust, engagement, attitudes, decision-making, and purchase intentions (Jain et al., 2023; Shi et al., 2025). While previous studies have emphasized technological and behavioural determinants of AI adoption, the role of achievement motivation remains underexplored. This gap provides the foundation for the present study, which investigates the influence of achievement motivation on consumer adoption of Artificial Intelligence applications.

## 7. Conceptual Framework

The conceptual framework of the present study illustrates the proposed relationship between achievement motivation and consumer adoption of Artificial Intelligence (AI) applications. Drawing upon McClelland's Need for Achievement Theory and established technology adoption literature, the framework proposes that individuals with higher levels of achievement motivation are more likely to adopt AI applications to enhance productivity, efficiency, and goal attainment. Accordingly, achievement motivation is treated as the independent variable, while consumer adoption of Artificial Intelligence applications serves as the dependent variable. The proposed framework provides the foundation for testing the study's hypotheses and guiding the empirical analysis.

Figure 1. Conceptual Framework of the Study



The conceptual framework of the present study is grounded in **McClelland's Need for Achievement Theory (1961)** and supported by contemporary technology adoption literature. The framework proposes that **achievement motivation** serves as a significant psychological determinant of consumers' adoption of Artificial Intelligence (AI) applications. According to McClelland's theory, individuals possessing a high need for achievement tend to exhibit greater goal orientation, persistence, competitiveness, and a strong desire for personal accomplishment and performance enhancement.

In the context of Artificial Intelligence adoption, achievement-motivated individuals are expected to perceive AI applications as valuable tools for improving productivity, efficiency, learning, decision-making, and overall performance. Consequently, these individuals may demonstrate greater willingness to adopt and utilize AI-powered technologies to achieve personal and professional goals. Therefore, the present study conceptualizes achievement motivation as the independent variable influencing consumers' adoption behaviour toward Artificial Intelligence applications.

Achievement motivation is represented through dimensions such as **goal orientation, persistence, and success orientation**, which collectively reflect an individual's tendency to strive for excellence and accomplish challenging objectives. Consumer adoption of Artificial Intelligence applications is represented through indicators such as **usage behaviour, perceived usefulness, and future adoption intention**, which collectively capture consumers' acceptance and utilization of AI technologies. Based on this conceptualization, the framework proposes that individuals with higher levels of achievement motivation are more likely to adopt and utilize Artificial Intelligence applications for enhancing productivity, performance, and goal attainment.

**Table 1: Summary of Selected Studies on AI Adoption and Motivational Factors**

| Author(s) & Year         | Focus of Study                                      | Key Findings                                                                 | Research Implication                                                    |
|--------------------------|-----------------------------------------------------|------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| Sohn & Kwon (2020)       | AI service adoption                                 | Trust and perceived usefulness significantly influenced adoption intentions  | Technology-related factors are important determinants of AI adoption    |
| Ismatullaev & Kim (2022) | Consumer acceptance of AI technologies              | Perceived value and usefulness positively affected adoption behaviour        | Consumer perceptions shape AI adoption decisions                        |
| Kelly et al. (2022)      | AI technology acceptance                            | Performance expectancy and trust predicted AI usage intentions               | AI adoption is influenced by both technological and behavioural factors |
| An et al. (2023)         | Motivational influences on AI-assisted technologies | Motivation positively affected technology usage intentions                   | Psychological variables influence AI adoption                           |
| Zheng et al. (2024)      | Generative AI adoption behaviour                    | Motivational factors significantly predicted behavioural intention to use AI | Motivation is an important antecedent of AI acceptance                  |

The reviewed studies indicate that although substantial progress has been made in identifying technological and behavioural determinants of Artificial Intelligence adoption, relatively limited attention has been devoted to examining **achievement motivation** as a psychological predictor of AI adoption behaviour. This identified gap provides the theoretical and empirical foundation for the present study, which seeks to investigate the influence of achievement motivation on consumers' adoption of Artificial Intelligence applications.

## 8. Theoretical Framework

The theoretical framework provides the conceptual foundation for explaining the relationship between achievement motivation and consumer adoption of Artificial Intelligence (AI) applications. The present study is primarily grounded in McClelland's Need for Achievement Theory, which explains how individuals' desire for achievement influences their behavioural decisions and pursuit of performance-enhancing opportunities. To strengthen the explanation of technology adoption behaviour, the framework is further supported by the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT), which highlight the role of perceived usefulness, performance expectancy, and behavioural intention in the acceptance of emerging technologies. Together, these theories offer a comprehensive basis for understanding how achievement motivation influences consumers' willingness to adopt AI applications.

### 8.1 Introduction to the Theoretical Framework

The present study is grounded in an integrated theoretical framework combining **McClelland's Need for Achievement Theory** (McClelland, 1961), the **Technology Acceptance Model (TAM)** (Davis, 1989), and the **Unified Theory of Acceptance and Use of Technology (UTAUT)** (Venkatesh et al., 2003). While TAM and UTAUT explain technology adoption through technological factors such as perceived usefulness, ease of use, and performance expectancy, McClelland's theory highlights the role of achievement motivation in shaping goal-oriented behaviour. Integrating these theories provides a comprehensive framework for understanding how psychological motivation and technological perceptions jointly influence consumers' adoption of Artificial Intelligence applications.

### 8.2 Theoretical Foundations

The present study draws upon established theoretical perspectives to explain the relationship between achievement motivation and consumer adoption of Artificial Intelligence (AI) applications. The theoretical foundations combine a psychological perspective, represented by McClelland's Need for Achievement Theory, with technology adoption perspectives, namely the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT). Together, these theories provide a comprehensive framework for understanding how motivational characteristics and technological perceptions influence consumers' AI adoption behaviour.

#### 8.2.1 McClelland's Need for Achievement Theory

McClelland's **Need for Achievement Theory** (1961) explains that individuals with a high need for achievement are motivated to accomplish challenging goals, improve performance, and attain personal success. Such individuals are characterized by goal orientation, persistence, and a desire for continuous self-improvement. Previous studies have shown that achievement motivation positively influences performance, innovation, and technology adoption (Smith et al., 2019; Werdhiastutie et al., 2020). In the context of Artificial Intelligence, achievement-oriented individuals are expected to adopt AI applications that enhance productivity, decision-making, and overall performance, making this theory the primary foundation of the present study.

#### 8.2.2 Technology Acceptance Model (TAM)

The **Technology Acceptance Model (TAM)**, proposed by Davis (1989), explains technology adoption through two key constructs: **perceived usefulness** and **perceived ease of use**. According to TAM, individuals are more likely to adopt a technology when they perceive it as useful and easy to use. Although TAM effectively explains technology acceptance behaviour, it does not explicitly account for psychological characteristics. Therefore, the present study incorporates TAM as a supporting framework to explain how achievement motivation may influence consumers' perceptions and adoption of Artificial Intelligence applications.

#### 8.2.3 Unified Theory of Acceptance and Use of Technology (UTAUT)

The **Unified Theory of Acceptance and Use of Technology (UTAUT)**, developed by Venkatesh et al. (2003), proposes that technology adoption is influenced by **performance expectancy**, **effort expectancy**, **social influence**, and **facilitating conditions**. Among these, performance expectancy is particularly relevant to the present study, as achievement-motivated individuals are more likely to adopt AI applications that improve

productivity and performance. Accordingly, UTAUT complements the primary theoretical framework by providing additional support for understanding consumer adoption of Artificial Intelligence applications.

### **8.3 Relationship Between Achievement Motivation and Artificial Intelligence Adoption**

Drawing on **McClelland's Need for Achievement Theory** and technology adoption literature, achievement motivation is expected to play an important role in consumers' adoption of Artificial Intelligence (AI) applications. Achievement-oriented individuals actively seek opportunities and technologies that enhance productivity, improve performance, and support goal attainment. Since AI applications facilitate decision-making, efficiency, and creativity, individuals with higher achievement motivation are more likely to adopt and utilize these technologies. Previous studies have also reported that motivational factors positively influence technology adoption and usage behaviour (An et al., 2023; Zheng et al., 2024). Therefore, achievement motivation is expected to positively influence consumer adoption of Artificial Intelligence applications.

### **8.4 Proposed Theoretical Relationship**

Based on **McClelland's Need for Achievement Theory**, supported by the **Technology Acceptance Model (TAM)** and the **Unified Theory of Acceptance and Use of Technology (UTAUT)**, the present study proposes that achievement motivation positively influences consumers' adoption of Artificial Intelligence applications. Consumers with higher achievement motivation are expected to perceive AI technologies as valuable tools for enhancing productivity, performance, and goal attainment, thereby increasing their likelihood of adopting these applications.

### **8.5 Justification for the Theoretical Framework**

The integrated theoretical framework is justified on **theoretical, empirical, and practical** grounds, as it combines psychological and technology adoption perspectives to explain consumer adoption of Artificial Intelligence (AI) applications.

#### **8.5.1 Theoretical Justification**

**McClelland's Need for Achievement Theory** explains how achievement motivation influences goal-oriented behaviour, while **TAM** and **UTAUT** explain the technological factors underlying adoption decisions. Together, these theories provide a comprehensive framework for understanding AI adoption behaviour.

#### **8.5.2 Empirical Justification**

Previous studies have shown that both motivational and technological factors significantly influence technology adoption. Building on this evidence, the present study examines achievement motivation as a psychological predictor of consumer adoption of Artificial Intelligence applications.

#### **8.5.3 Practical Justification**

The proposed framework offers practical insights for technology developers, educators, marketers, and policymakers by highlighting the role of achievement motivation in promoting the effective adoption and utilization of Artificial Intelligence applications.

## **9. Research Gap and Rationale of the Study**

Existing research on Artificial Intelligence (AI) adoption has primarily focused on technological determinants such as perceived usefulness, perceived ease of use, performance expectancy, trust, and social influence, as explained by frameworks including TAM, UTAUT, IDT, and VAM. Although these models have significantly advanced technology adoption research, they provide limited insight into the influence of psychological characteristics on consumers' AI adoption behaviour.

Among the psychological factors, achievement motivation has received comparatively little empirical attention despite its established role in explaining goal-oriented behaviour, performance enhancement, and persistence. Individuals with high achievement motivation are more likely to seek technologies that improve productivity and support goal attainment. However, evidence examining its influence on consumer adoption of AI applications, particularly in the Indian context, remains limited.

Accordingly, the present study addresses this gap by investigating the influence of achievement motivation on consumer adoption of Artificial Intelligence applications. By integrating a psychological perspective with established technology adoption theories, the study contributes to a more comprehensive understanding of the factors influencing AI adoption behaviour.

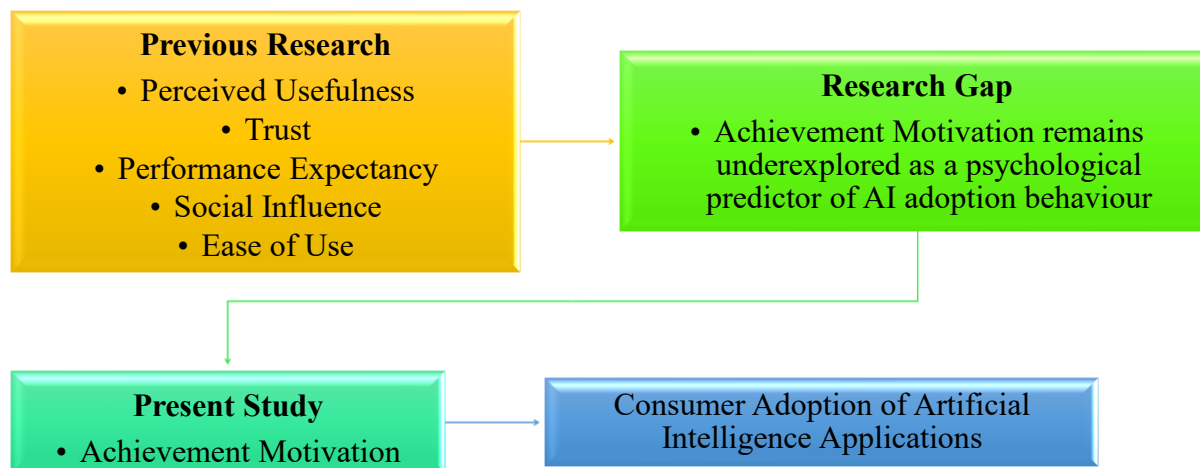


Figure 2: Research Gap Diagram

Table 2: Identification of Research Gap

| Area Investigated in Previous Studies                    | Status in Existing Literature |
|----------------------------------------------------------|-------------------------------|
| Perceived Usefulness and AI Adoption                     | Extensively Studied           |
| Trust and AI Adoption                                    | Extensively Studied           |
| Performance Expectancy and AI Adoption                   | Extensively Studied           |
| Social Influence and AI Adoption                         | Moderately Studied            |
| Psychological Determinants of AI Adoption                | Comparatively Limited         |
| Achievement Motivation and AI Adoption                   | Limited Empirical Evidence    |
| Predictive Role of Achievement Motivation in AI Adoption | Underexplored                 |

## 10. Research Methodology

This study employed a quantitative research approach to examine the influence of achievement motivation on consumer adoption of Artificial Intelligence (AI) applications. A descriptive-correlational research design was adopted to investigate the relationship between the study variables and assess the predictive effect of achievement motivation on AI adoption. Data were collected using a structured questionnaire and analyzed using appropriate descriptive and inferential statistical techniques to test the proposed hypotheses.

### 10.1 Research Design

The present study employed a quantitative, descriptive-correlational research design to examine the relationship between achievement motivation and consumer adoption of Artificial Intelligence (AI) applications. The design was considered appropriate as it enabled the measurement of consumers' achievement motivation and their AI adoption behaviour and facilitated the examination of the predictive influence of achievement motivation on AI adoption.



### **10.2 Population of the Study**

The target population comprised consumers aged 18 years and above who had prior awareness and experience of using Artificial Intelligence applications, including ChatGPT, Gemini, Microsoft Copilot, Perplexity AI, Siri, Alexa, Grammarly AI, and other AI-powered digital tools. The population included students, employees, professionals, self-employed individuals, and business owners who utilized AI applications for academic, professional, or personal purposes.

### **10.3 Sample and Sampling Technique**

The study employed a convenience sampling technique to select respondents aged 18 years and above who had prior experience using Artificial Intelligence (AI) applications. Respondents were approached through educational institutions and associated professional and social networks in Ghaziabad district, Uttar Pradesh. The final sample comprised 450 consumers, including students, employees, professionals, self-employed individuals, and business owners. The sample size was considered adequate for conducting correlation and regression analyses.

### **Demographic Distribution of Respondents**

Demographic information, including gender, age, educational qualification, occupation, and frequency of AI application usage, was collected to describe the characteristics of the sample. The demographic profile is presented using frequency and percentage distributions in the Results and Discussion section.

### **10.4 Variables of the Study**

The present study investigated the influence of achievement motivation on consumer adoption of Artificial Intelligence applications. The variables included in the study are described below:

#### **10.4.1 Independent Variable**

##### **Achievement Motivation**

Achievement motivation refers to an individual's desire to attain excellence, accomplish challenging goals, improve performance, and achieve success through sustained effort, persistence, and goal-oriented behaviour. In the present study, achievement motivation was operationalized through dimensions such as goal orientation, achievement striving, persistence, challenge seeking, and success orientation.

#### **10.4.2 Dependent Variable**

##### **Consumer Adoption of Artificial Intelligence Applications**

Consumer adoption of Artificial Intelligence applications refers to the extent to which individuals accept, utilize, and integrate AI-powered technologies into their academic, professional, and personal activities. In the present study, AI adoption behaviour was assessed through indicators such as usage behaviour, perceived usefulness, behavioural intention, productivity enhancement, and recommendation intention.

### **10.5 Research Instrument**

Data were collected using a structured questionnaire comprising three sections:

**Section A** gathered demographic information, including respondents' gender, age, educational qualification, occupation, and frequency of Artificial Intelligence (AI) application usage.

**Section B** measured achievement motivation using an adapted and researcher-validated scale developed from the achievement motivation literature. The scale consisted of 10 items designed to assess respondents' goal orientation, achievement striving, persistence, challenge seeking, and success orientation.

**Section C** measured consumer adoption of Artificial Intelligence applications using an adapted researcher-developed scale based on the Technology Acceptance Model (TAM), the Unified Theory of Acceptance and Use of Technology (UTAUT), and contemporary AI adoption literature. The scale comprised 10 items assessing respondents' AI adoption behaviour, including perceived usefulness, behavioural intention, usage behaviour, productivity enhancement, and recommendation intention.

All questionnaire items were measured using a five-point Likert scale, ranging from **1 (Strongly Disagree)** to **5 (Strongly Agree)**.

### 10.6 Development and Validation of the Instrument

The research instrument was developed following an extensive review of the literature on **achievement motivation, technology adoption, consumer behaviour, and Artificial Intelligence applications**. The questionnaire was designed based on **McClelland's Need for Achievement Theory**, the **Technology Acceptance Model (TAM)**, the **Unified Theory of Acceptance and Use of Technology (UTAUT)**, and contemporary AI adoption studies to ensure adequate coverage of the study constructs.

The draft instrument was reviewed by a panel of experts from the fields of educational psychology, consumer behaviour, marketing, and information technology to establish **content validity**. Based on their suggestions, necessary revisions were made to improve the clarity and relevance of the items. Prior to the main survey, the instrument was pilot tested and evaluated for **construct validity** and **internal consistency reliability**, confirming its suitability for data collection.

### 10.7 Scale Format

All items included in the research instrument were measured using a five-point Likert scale to capture the respondents' level of agreement with each statement. The response categories and corresponding numerical scores were as follows:

| Response          | Score |
|-------------------|-------|
| Strongly Disagree | 1     |
| Disagree          | 2     |
| Neutral           | 3     |
| Agree             | 4     |
| Strongly Agree    | 5     |

Higher scores on the Achievement Motivation Scale indicated higher levels of achievement-oriented behaviour, while higher scores on the Artificial Intelligence Application Adoption Scale indicated stronger adoption behaviour and greater acceptance of AI applications. The use of a five-point Likert scale was considered appropriate because of its simplicity, reliability, ease of administration, and widespread acceptance in behavioural and technology adoption research.

### 10.8 Validity and Reliability of the Instrument

#### Content Validity

Content validity was established through expert evaluation by a panel of five specialists in educational psychology, consumer behaviour, marketing, and information technology. Based on their recommendations, necessary revisions were made to improve the clarity, relevance, and adequacy of the questionnaire items.

#### Construct Validity

Construct validity was assessed using **Exploratory Factor Analysis (EFA)** in **Jamovi Statistical Software Version 2.7.12**. The suitability of the data was confirmed through the **Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy** and **Bartlett's Test of Sphericity**. EFA was performed using the **Minimum Residual extraction method** with **Oblimin rotation**. All retained items exhibited factor loadings above the recommended threshold of **0.30**, supporting the construct validity of the instrument.

Table 3: KMO and Bartlett's Test of Construct Validity

| Test                                                  | Value  |
|-------------------------------------------------------|--------|
| Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy | 0.807  |
| Bartlett's Test of Sphericity ( $\chi^2$ )            | 4050   |
| Degrees of Freedom (df)                               | 190    |
| Significance Level (p)                                | < .001 |

Table 4: Factor Loadings of the Research Instrument

| Item | Factor Loading | Item | Factor Loading |
|------|----------------|------|----------------|
| AM1  | 0.823          | AI1  | 0.889          |
| AM2  | 0.836          | AI2  | 0.834          |
| AM3  | 0.896          | AI3  | 0.572          |
| AM4  | 0.873          | AI4  | 0.677          |
| AM5  | 0.838          | AI5  | 0.629          |
| AM6  | 0.851          | AI6  | 0.705          |
| AM7  | 0.853          | AI7  | 0.550          |
| AM8  | 0.881          | AI8  | 0.672          |
| AM9  | 0.885          | AI9  | 0.618          |
| AM10 | 0.836          | AI10 | 0.541          |

Table 5: Factor Statistics and Variance Explained

| Factor | SS Loadings | Variance Explained (%) | Cumulative Variance (%) |
|--------|-------------|------------------------|-------------------------|
| 1      | 2.18        | 10.90                  | 10.90                   |
| 2      | 1.86        | 9.28                   | 20.18                   |
| 3      | 1.82        | 9.10                   | 29.28                   |
| 4      | 1.78        | 8.92                   | 38.20                   |
| 5      | 1.51        | 7.54                   | 45.74                   |
| 6      | 1.45        | 7.24                   | 52.98                   |
| 7      | 1.09        | 5.45                   | 58.43                   |

**Interpretation**

The extracted factors explained **58.43%** of the total variance, exceeding the recommended threshold of **50%**. The satisfactory factor loadings and cumulative variance explained provide evidence of the construct validity of the research instrument.

To assess the potential influence of common method bias, **Harman's Single-Factor Test** was conducted. The first unrotated factor explained **34.71%** of the total variance, which is below the recommended threshold of **50%**, indicating that common method bias was not a significant concern in the study.

### Pilot Study

A pilot study involving **57 respondents**, who were excluded from the final sample, was conducted to evaluate the clarity, validity, and reliability of the instrument. The pilot results confirmed satisfactory levels of construct validity and internal consistency, supporting the suitability of the questionnaire for the main study.

### Reliability Analysis

Internal consistency reliability was assessed using **Cronbach's Alpha**.

**Table 6: Reliability of the Research Instrument**

| Scale                  | Cronbach's Alpha |
|------------------------|------------------|
| Achievement Motivation | 0.966            |
| AI Adoption Behaviour  | 0.838            |
| Overall Instrument     | 0.882            |

The reliability coefficients exceeded the recommended threshold of **0.70**, indicating satisfactory internal consistency of the research instrument and confirming its suitability for data collection and subsequent statistical analysis.

### 10.9 Data Collection Procedure

Data were collected using a structured questionnaire administered personally to respondents between May 2026 and June 2026. Prior to the main survey, the instrument was pilot tested with 57 respondents (excluded from the final sample), and necessary revisions were made based on expert feedback and pilot study findings.

A convenience sampling technique was employed to select respondents aged 18 years and above who had prior experience using Artificial Intelligence applications. Participants were approached through educational institutions and associated professional and social networks in Ghaziabad district, Uttar Pradesh.

Before administering the questionnaire, respondents were informed about the purpose of the study, assured of the confidentiality of their responses, and their informed consent was obtained. A total of 450 valid responses were collected. The completed questionnaires were coded, entered into Microsoft Excel, and analyzed using Jamovi Statistical Software Version 2.7.12.

### 10.10 Ethical Considerations

The present study was conducted in accordance with established ethical principles governing social science research. Participation in the study was entirely voluntary, and all respondents were informed about the objectives, nature, and purpose of the research prior to their participation.

Informed consent was obtained from all participants before administering the questionnaire. The respondents were assured that their participation was voluntary and that they could withdraw from the study at any stage without any adverse consequences. Furthermore, participants were informed that their responses would remain confidential and anonymous and would be used solely for academic and research purposes.

No personally identifiable information was collected during the data collection process. The collected data were stored securely, analyzed in aggregate form, and reported without revealing the identity of any participant. The study adhered to the principles of confidentiality, anonymity, voluntary participation, and responsible research conduct throughout the research process.

The collected data were analyzed using Jamovi Statistical Software Version 2.7.12. Descriptive statistics, including frequency, percentage, mean, and standard deviation, were used to summarize the demographic characteristics of the respondents and the study variables. Inferential statistics comprised Pearson's Product-Moment Correlation to examine the relationship between achievement motivation and consumer adoption of Artificial Intelligence (AI) applications, and Simple Linear Regression Analysis to assess the predictive effect of achievement motivation on AI adoption.

**Assumption Testing for Parametric Analysis**

Prior to inferential analysis, the assumption of normality was assessed using skewness, kurtosis, histograms, and Normal Q-Q plots.

**Table 7: Normality Assessment of Study Variables**

| Variable               | N   | Mean  | SD   | Skewness | Kurtosis |
|------------------------|-----|-------|------|----------|----------|
| Achievement Motivation | 450 | 40.66 | 3.02 | 0.278    | 0.472    |
| AI Adoption Behaviour  | 450 | 41.30 | 3.91 | 0.041    | -0.077   |

The skewness and kurtosis values for both variables were within the acceptable range of  $\pm 1$ , indicating approximate normality. Visual inspection of the histograms and Normal Q-Q plots also confirmed that the data did not exhibit substantial deviations from normality. Therefore, the assumptions for applying Pearson's Product-Moment Correlation and Simple Linear Regression analyses were considered satisfied.

**Control Variables**

Demographic variables, including gender, age, educational qualification, occupation, and frequency of AI application usage, were analyzed descriptively to provide contextual information about the study sample.

**10.12 Level of Significance**

All hypotheses were tested at the **0.05 level of significance ( $p < .05$ )**.

Results with p-values less than 0.05 were considered statistically significant.

**11. Results and Discussion**

This section presents the findings of the study based on the statistical analysis of the data collected from 450 respondents. Descriptive statistics were used to summarize the demographic characteristics and study variables, while Pearson's Product-Moment Correlation and Simple Linear Regression analyses were employed to test the proposed hypotheses. The findings are presented and discussed in relation to the objectives of the study and existing literature on achievement motivation and consumer adoption of Artificial Intelligence applications.

**11.1 Demographic Profile of Respondents**

A total of 450 consumers participated in the study. The demographic characteristics of respondents were analyzed using frequencies and percentages.

**Table 8: Demographic Characteristics of Respondents (N = 450)**

| Variable | Category    | Frequency | Percentage (%) |
|----------|-------------|-----------|----------------|
| Gender   | Male        | 215       | 47.78          |
|          | Female      | 235       | 52.22          |
|          | Other       | 0         | 0.00           |
| Age      | 18–25 Years | 228       | 50.67          |
|          | 26–35 Years | 136       | 30.22          |

|                                  |                  |            |            |
|----------------------------------|------------------|------------|------------|
|                                  | 36–45 Years      | 81         | 18.00      |
|                                  | Above 45 Years   | 5          | 1.11       |
| <b>Educational Qualification</b> | Higher Secondary | 38         | 8.44       |
|                                  | Graduate         | 273        | 60.67      |
|                                  | Postgraduate     | 135        | 30.00      |
|                                  | Doctorate        | 2          | 0.44       |
|                                  | Other            | 2          | 0.44       |
| <b>Occupation</b>                | Student          | 188        | 41.78      |
|                                  | Employee         | 174        | 38.67      |
|                                  | Self-Employed    | 21         | 4.67       |
|                                  | Professional     | 46         | 10.22      |
|                                  | Business Owner   | 20         | 4.44       |
|                                  | Other            | 1          | 0.22       |
| <b>AI Usage Frequency</b>        | Daily            | 284        | 63.11      |
|                                  | Weekly           | 163        | 36.22      |
|                                  | Monthly          | 2          | 0.44       |
|                                  | Rarely           | 1          | 0.22       |
| <b>Total</b>                     |                  | <b>450</b> | <b>100</b> |

### Interpretation

The respondents represented diverse demographic backgrounds. Female respondents (52.22%) slightly outnumbered male respondents (47.78%). The majority of participants were aged 18–25 years (50.67%), with most being graduates (60.67%). Students (41.78%) and employees (38.67%) constituted the largest occupational groups. Furthermore, most respondents reported using Artificial Intelligence applications daily (63.11%) or weekly (36.22%), indicating substantial familiarity with AI technologies and supporting the suitability of the sample for the present study.

### 11.2 Descriptive Statistics of Study Variables

**Table 9: Descriptive Statistics of Achievement Motivation and AI Adoption**

| Variable                | N   | Mean  | SD   | Minimum | Maximum |
|-------------------------|-----|-------|------|---------|---------|
| Achievement Motivation  | 450 | 40.66 | 3.02 | 30      | 48      |
| AI Application Adoption | 450 | 41.30 | 3.91 | 24      | 49      |

The descriptive statistics revealed that the respondents demonstrated a relatively high level of achievement motivation, with a mean score of **40.66** ( $SD = 3.02$ ). Similarly, the mean score for consumer adoption of Artificial Intelligence applications was **41.30** ( $SD = 3.91$ ), indicating a high level of acceptance and utilization of AI applications among the respondents. The observed ranges of scores further suggest adequate variability within the data, thereby supporting the suitability of the dataset for subsequent inferential analyses.

## 11.3 Testing of Hypothesis 1

**H01** There is no significant relationship between achievement motivation and consumer adoption of Artificial Intelligence applications.

**Table 10: Correlation Between Achievement Motivation and AI Adoption**

| Variables                            | r     | p-value |
|--------------------------------------|-------|---------|
| Achievement Motivation & AI Adoption | 0.796 | < .001  |

#### Interpretation

The results of Pearson's Product-Moment Correlation analysis revealed a strong positive and statistically significant relationship between achievement motivation and consumer adoption of Artificial Intelligence applications ( $r = .796$ ,  $p < .001$ ). The findings indicate that individuals possessing higher levels of achievement motivation tend to demonstrate greater adoption and utilization of Artificial Intelligence applications. Therefore, the null hypothesis was rejected, and the alternative hypothesis was accepted.

## 11.4 Testing of Hypothesis 2

**H02** Achievement motivation does not significantly predict consumer adoption of Artificial Intelligence applications.

**Table 11: Simple Linear Regression Analysis Predicting Consumer Adoption of Artificial Intelligence Applications**

#### Model Summary

| Model | R     | R <sup>2</sup> |
|-------|-------|----------------|
| 1     | 0.796 | 0.634          |

| Predictor              | B      | SE    | t      | p      | $\beta$ |
|------------------------|--------|-------|--------|--------|---------|
| Constant               | -0.664 | 1.510 | -0.439 | .661   | —       |
| Achievement Motivation | 1.032  | .037  | 27.866 | < .001 | 0.796   |

#### Interpretation

The results of the simple linear regression analysis indicated that achievement motivation significantly predicted consumer adoption of Artificial Intelligence applications ( $\beta = .796$ ,  $t = 27.866$ ,  $p < .001$ ). The model explained approximately 63.4% of the variance in consumer adoption behaviour ( $R^2 = .634$ ), indicating substantial predictive power.

The findings suggest that consumers with higher levels of achievement motivation are significantly more likely to adopt and utilize Artificial Intelligence applications. The relatively high explanatory power of the model indicates that achievement motivation constitutes an important psychological determinant of Artificial Intelligence adoption behaviour.

Therefore, the null hypothesis was rejected, and the alternative hypothesis was accepted.

## 11.5 Discussion of Findings

The present study examined the influence of achievement motivation on consumer adoption of Artificial Intelligence (AI) applications. The findings revealed a strong positive and statistically significant relationship between achievement motivation and AI adoption behaviour ( $r = .796$ ,  $p < .001$ ). Furthermore, achievement

motivation significantly predicted consumer adoption of AI applications ( $\beta = .796$ ,  $t = 27.866$ ,  $p < .001$ ), explaining 63.4% of the variance in AI adoption behaviour ( $R^2 = .634$ ). These findings indicate that individuals with higher levels of achievement motivation are more likely to adopt and utilize Artificial Intelligence applications in their personal, academic, and professional activities.

The findings support the acceptance of the alternative hypothesis and suggest that achievement-oriented individuals actively seek technologies that enhance productivity, efficiency, and goal attainment. Artificial Intelligence applications provide valuable support for decision-making, information processing, creativity, and task automation, making them attractive tools for individuals striving to improve their performance and accomplish their goals.

The results are consistent with previous studies demonstrating that motivational factors positively influence AI adoption behaviour (An et al., 2023; Zheng et al., 2024). These studies reported that individuals who perceive AI technologies as useful for improving performance and achieving desired outcomes exhibit stronger intentions to adopt and continue using such technologies. The present study extends this evidence by identifying achievement motivation as a significant psychological predictor of consumer adoption of Artificial Intelligence applications.

From a theoretical perspective, the findings are supported by McClelland's Need for Achievement Theory, which proposes that achievement-oriented individuals actively pursue opportunities and resources that facilitate superior performance and personal accomplishment. Since Artificial Intelligence applications enhance productivity, efficiency, and decision-making, consumers with higher achievement motivation are naturally more inclined to adopt these technologies. The findings also extend traditional technology adoption research by demonstrating that psychological characteristics, in addition to technological factors emphasized by TAM and UTAUT, play a significant role in shaping AI adoption behaviour.

The findings have important practical implications for technology developers, educators, marketers, and policymakers. Emphasizing the performance-enhancing benefits of Artificial Intelligence applications may encourage greater adoption among achievement-oriented users. Overall, the study contributes to the growing literature on AI adoption by establishing achievement motivation as an important psychological determinant of consumer adoption behaviour and providing valuable insights for promoting the effective and responsible use of Artificial Intelligence technologies.

## **12. Theoretical Contribution of the Study**

The present study contributes to the Artificial Intelligence adoption literature by identifying achievement motivation as a significant psychological predictor of consumer adoption behaviour. Grounded in McClelland's Need for Achievement Theory and supported by the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT), the study extends traditional technology adoption research beyond technological determinants. By integrating motivational psychology with technology acceptance theories, it provides a broader understanding of the behavioural mechanisms underlying AI adoption. Furthermore, the study offers empirical evidence from the Indian context, addressing a gap in the existing literature and contributing to a deeper understanding of consumer adoption of Artificial Intelligence applications.

## **13. Limitations of the Study**

The present study has certain limitations that should be considered while interpreting the findings. First, the use of a cross-sectional research design limits the ability to establish causal relationships between achievement motivation and consumer adoption of Artificial Intelligence (AI) applications. Second, the study relied on self-reported questionnaire data, which may be subject to response bias. Third, the adoption of a convenience sampling technique and the inclusion of respondents primarily from Ghaziabad district, Uttar Pradesh, may limit the generalizability of the findings to other populations and geographical contexts. Finally, the study examined achievement motivation as the primary psychological predictor of AI adoption behaviour. Future research may incorporate additional variables, such as technology readiness, trust in AI, perceived usefulness, digital literacy, and social influence, and employ longitudinal or experimental research designs to provide a more comprehensive understanding of consumer adoption of Artificial Intelligence applications.



## 14. Recommendations

Based on the findings of the study, the following recommendations are proposed:

- **Promote AI Awareness and Digital Literacy:** Educational institutions, organizations, and technology providers should conduct awareness and digital literacy programs to enhance consumers' understanding and effective use of Artificial Intelligence applications.
- **Highlight Performance Benefits of AI:** Technology developers and marketers should emphasize the productivity, efficiency, and decision-making benefits of AI applications to encourage adoption among achievement-oriented consumers.
- **Develop User-Centric AI Applications:** AI applications should be designed with user-friendly interfaces, reliability, and personalization features to improve user experience and facilitate wider adoption.
- **Strengthen Trust and Responsible AI Practices:** Organizations should ensure transparency, data privacy, and ethical AI practices to enhance consumer trust and encourage sustained adoption of AI technologies.
- **Incorporate Motivational Factors into AI Adoption Strategies:** Technology providers and marketers should consider achievement motivation when designing promotional strategies and consumer engagement initiatives to improve AI adoption.
- **Encourage Future Research:** Future studies should examine additional psychological and technological factors, such as technology readiness, trust in AI, digital literacy, and personality traits, using diverse populations and longitudinal research designs.

## 15. Conclusion

Artificial Intelligence (AI) has become an integral part of contemporary society, making it increasingly important to understand the factors influencing its adoption. The present study examined the influence of achievement motivation on consumer adoption of Artificial Intelligence applications. The findings revealed a strong positive relationship between achievement motivation and AI adoption behaviour, with achievement motivation emerging as a significant predictor of consumers' willingness to adopt AI technologies.

The study extends the existing literature by demonstrating that psychological characteristics, in addition to technological factors, play a significant role in shaping AI adoption behaviour. Grounded in McClelland's Need for Achievement Theory and supported by the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT), the findings highlight the importance of integrating motivational and technological perspectives to better understand consumer behaviour toward Artificial Intelligence applications.

From a practical perspective, the findings suggest that organizations, technology developers, educators, and policymakers should promote AI applications by emphasizing their ability to enhance productivity, performance, and goal attainment. Overall, the study establishes achievement motivation as an important psychological determinant of consumer adoption of Artificial Intelligence applications and contributes to a broader understanding of the behavioural factors influencing the acceptance and utilization of emerging technologies.

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