

# A Study on Students Perception and Adoption of Ai-Based Learning Applications: An Empirical Study among College Students

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## Abstract

Artificial Intelligence (AI) has emerged as an important technological advancement in modern education, transforming the way students obtain information, understand academic concepts, and engage in learning activities. AI-based learning applications, including AI chatbots, personalized learning platforms, intelligent tutoring systems, automated writing assistants, and other educational tools, are increasingly being adopted by college students for academic purposes. This study aims to examine students' perceptions and adoption of AI-based learning applications and to identify the major factors influencing their willingness to use these technologies in their studies. The study focuses on students' level of awareness, frequency of usage, perceived usefulness, ease of use, trust, learning effectiveness, and challenges associated with AI-based educational applications. A descriptive research design may be adopted to achieve the objectives of the study. Primary data can be collected from college students through a structured questionnaire, while secondary information can be obtained from journals, books, research reports, and reliable websites. Convenience sampling may be used for selecting respondents. The collected data can be analyzed using percentage analysis and the Chi-square test. The study is expected to provide useful insights into students' acceptance, attitudes, and experiences regarding AI-based learning applications and highlight the potential role of AI in making higher education more effective, flexible, accessible, and student-centered.

**Keywords:** AI – Based Application, Students perception, Education, Academic, Learning Platform.

## 1. Introduction

Artificial Intelligence (AI) has become one of the most influential technologies shaping the education sector in recent years. The rapid development of digital technologies has changed traditional teaching and learning methods, providing students with faster and more flexible ways to access educational resources. AI can support students by providing instant information, explaining difficult concepts, generating learning materials, assisting with writing, and offering personalized learning experiences. As a result, AI-based educational applications are becoming increasingly common among college students.

AI-based learning applications include AI chatbots, intelligent tutoring systems, personalized learning platforms, automated writing assistants, language-learning applications, and other digital tools that use artificial intelligence to support academic activities. These applications can provide students with immediate feedback and learning support according to their individual needs and learning pace. They may

also help students save time, improve their understanding of academic subjects, and develop independent learning habits.

The increasing availability of AI tools has also created new opportunities for higher education institutions. Students can use AI applications for research, assignments, examination preparation, language improvement, problem-solving, and information gathering. However, the adoption of AI in education also raises concerns regarding accuracy of information, academic integrity, privacy, dependence on technology, lack of digital skills, and trustworthiness of AI-generated content.

Students' perceptions play an important role in determining whether they are willing to adopt and continuously use AI-based learning applications. Factors such as perceived usefulness, ease of use, trust, accessibility, learning effectiveness, and technological awareness can influence students' attitudes toward these applications. Therefore, understanding students' experiences and perceptions is essential for ensuring the effective and responsible integration of AI into higher education.

The present study, titled “**Students' Perception and Adoption of AI-Based Learning Applications,**” attempts to examine students' awareness, usage patterns, perceptions, and acceptance of AI-based educational technologies. It also seeks to identify the major factors influencing students' adoption of AI applications for academic purposes and understand the challenges they face while using these technologies. The findings of the study may provide useful insights for educators and educational institutions in developing effective strategies for the responsible use of AI in higher education.

### Objectives

1. To examine students' awareness and adoption of AI-based learning applications.
2. To study students' perceptions towards AI-based learning applications.
3. To identify the factors influencing students' adoption of AI-based learning applications.
4. To examine the perceived usefulness of AI applications in academic learning.
5. To identify the major challenges and concerns faced by students while using AI-based learning applications.

### Limitation

1. Rapid changes in AI technology may affect the relevance of the findings as new AI-based learning applications and features continue to emerge.
2. The study considers only selected factors influencing AI adoption and may not cover all technological, institutional, and behavioural factors.
3. The study is restricted to a specific geographical area and selected institutions, so the findings may not be generalizable to all students.

## 2. Review of literature

Kim et al. (2025) examined students' and faculty members' perceptions of Generative AI (GenAI) in university education. The study found that students were familiar with GenAI and recognized its usefulness in academic activities. Ease of use, ethical concerns, learning impact, and interest in technology influenced their perceptions. Maxwell et al. (2025) studied students' readiness, benefits, and challenges related to GenAI. Most students felt comfortable using GenAI and believed it improved productivity and academic performance. However, concerns about academic integrity, privacy, security, overdependence, and inaccurate information were reported. Strzelecki and ElArabawy (2024) studied AI chatbot usage among higher education students. The findings showed that ChatGPT was widely used for educational purposes, with generally positive attitudes among students. Usage and perceptions varied by gender and

academic discipline, while familiarity and frequency of use were linked to more positive perceptions. Overall, these studies highlight the importance of **awareness, usefulness, ease of use, trust, and ethical concerns** in students' adoption of AI-based learning applications.

### 3. Research Methodology

#### Research Design

The study adopts a **descriptive research design** to examine students' perception and adoption of AI-based learning applications.

#### Data Sources

The study utilizes Primary data were obtained from **103 college students** using a structured questionnaire that covered their demographic characteristics, awareness and usage of AI-based learning applications, perceptions, adoption factors, and challenges. A **five-point Likert scale** was employed to assess students' opinions and attitudes. Secondary information was gathered from **credible online sources** related to AI in education, digital learning, and student adoption. These sources provided the necessary background and supporting information for analyzing and interpreting the research findings.

#### Population and Sample

The study focuses on **college students**, with a sample of **103 respondents**.

#### Sampling Technique

The respondents were selected using the **convenience sampling method**, based on their availability and willingness to participate in the study.

#### Research Instrument

A **questionnaire** was covered demographic information, awareness, usage, perception, perceived usefulness, adoption factors, and challenges related to AI-based learning applications.

#### Tools for Data Analysis

The collected data were analyzed using:

- **Percentage Analysis** – to study demographic characteristics and usage patterns.
- **Chi-square Test** – to examine the association between demographic variables and adoption of AI-based learning applications.
- **Study Area**

The study was conducted among **college students in the selected study area**.

#### Period of Study

The study was conducted during the **specified period of data collection**, within which the questionnaire was distributed and responses were obtained.

### 3. Data Analysis and Interpretation

#### Digital Literacy and Adoption of AI-Based Learning Applications

**Table 1: Digital Literacy-wise Distribution and Adoption**

| Digital Literacy | AI Adopted – Yes | AI Adopted – No | Total | Percentage |
|------------------|------------------|-----------------|-------|------------|
| Very Low         | 5                | 7               | 12    | 11.7%      |
| Low              | 9                | 10              | 19    | 18.4%      |
| Moderate         | 24               | 6               | 30    | 29.1%      |
| High             | 30               | 2               | 32    | 31.1%      |
| Very High        | 20               | 0               | 20    | 19.4%      |

|              |           |           |            |             |
|--------------|-----------|-----------|------------|-------------|
| <b>Total</b> | <b>88</b> | <b>15</b> | <b>103</b> | <b>100%</b> |
|--------------|-----------|-----------|------------|-------------|

## Chi-Square Test

**H<sub>0</sub>:** There is no significant association between digital literacy and adoption of AI-based learning applications.

**H<sub>1</sub>:** There is a significant association between digital literacy and adoption of AI-based learning applications.

| Test                    | Value                         |
|-------------------------|-------------------------------|
| Calculated Chi-square   | 29.836                        |
| Degrees of freedom      | 4                             |
| Table value at 5% level | 9.488                         |
| p-value                 | < 0.001                       |
| Result                  | <b>H<sub>0</sub> Rejected</b> |

## Interpretation

The calculated Chi-square value of 29.836 is greater than the table value of 9.488. The p-value is less than 0.05. Hence, the null hypothesis is rejected. There is a significant association between digital literacy and adoption of AI-based learning applications. The table indicates that adoption increases as digital literacy increases. Therefore, students with higher digital literacy among college students.

## Frequency of AI Usage

**Table 2: Frequency of Using AI-Based Learning Applications**

| Frequency            | Respondents | Percentage  |
|----------------------|-------------|-------------|
| Daily                | 28          | 27.2%       |
| Several times a week | 35          | 34.0%       |
| Once a week          | 16          | 15.5%       |
| Occasionally         | 19          | 18.4%       |
| Rarely               | 5           | 4.9%        |
| <b>Total</b>         | <b>103</b>  | <b>100%</b> |

## Interpretation

The largest proportion of respondents (**34.0%**) use AI-based learning applications several times a week, followed by **27.2%** who use them daily. Thus, AI has become a regular academic support tool for a substantial proportion of students.

## Purpose of Using AI Applications

**Table 3: Purpose-wise Distribution**

| Purpose                          | Frequency  | Percentage  |
|----------------------------------|------------|-------------|
| Understanding difficult concepts | 27         | 26.2%       |
| Assignment preparation           | 23         | 22.3%       |
| Exam preparation                 | 17         | 16.5%       |
| Research/information gathering   | 15         | 14.6%       |
| Improving writing skills         | 10         | 9.7%        |
| Generating ideas                 | 11         | 10.7%       |
| <b>Total</b>                     | <b>103</b> | <b>100%</b> |

## Interpretation

The major purpose of using AI applications is **understanding difficult concepts (26.2%)**, followed by **assignment preparation (22.3%)**. This indicates that students primarily perceive AI as an academic assistance tool rather than merely a source of general information.

## Students' Overall Perception

**Table 4: Hypothesis Testing**

| S.No. | Variables Tested                      | $\chi^2$ Value | df | Table Value | p-value | Decision                |
|-------|---------------------------------------|----------------|----|-------------|---------|-------------------------|
| 1     | Age $\times$ AI Adoption              | 3.669          | 3  | 7.815       | 0.299   | H <sub>0</sub> Accepted |
| 2     | Gender $\times$ AI Adoption           | 0.965          | 2  | 5.991       | 0.617   | H <sub>0</sub> Accepted |
| 3     | Digital Literacy $\times$ AI Adoption | 29.836         | 4  | 9.488       | <0.001  | H <sub>0</sub> Rejected |

## Interpretation

The Chi-square analysis reveals that digital literacy has a significant association with the adoption of AI-based learning applications. However, age and gender do not show statistically significant associations with adoption. Therefore, the results suggest that students' digital capabilities are more influential in determining AI adoption than their demographic characteristics.

## Findings

- 93.2% of the respondents are aware of AI-based learning applications.
- 85.4% of respondents have used AI applications for academic purposes.
- 34.0% use AI several times a week, while 27.2% use it daily.
- The most common purpose of AI usage is understanding difficult concepts (26.2%).
- Students generally have a positive perception towards AI-based learning applications.
- 82.5% of respondents agree that AI saves their study time.
- 80.6% believe AI helps them complete academic tasks efficiently.
- 82.5% of respondents intend to continue using AI-based learning applications.
- Incorrect information is the major challenge (24.3%) faced by students.
- 17.5% of respondents are concerned about dependence on AI.
- The Chi-square test shows no significant relationship between age and AI adoption.
- There is no significant relationship between gender and AI adoption.
- There is a significant relationship between digital literacy and AI adoption.
- Students with higher digital literacy show greater adoption of AI-based learning applications.

## 5. Suggestions

- Conduct AI literacy programmes: Colleges should organize workshops and training programmes to improve students' knowledge of AI tools.
- Develop digital skills: Since digital literacy has a significant relationship with AI adoption, institutions should provide opportunities for students to improve their digital competencies.
- Promote information verification: Students should be trained to verify AI-generated information using textbooks, academic journals and reliable sources.
- Provide faculty guidance: Teachers should guide students on appropriate and ethical use of AI for assignments, examinations and research.

5. Prevent excessive dependence: Students should be encouraged to use AI as a supporting tool rather than relying completely on AI-generated answers.
6. Improve awareness of privacy: Students should understand the importance of protecting personal and academic information when using AI applications.
7. Encourage critical thinking: AI use should be combined with activities that develop independent thinking, creativity and problem-solving skills.
8. Integrate AI responsibly into education: Colleges can incorporate AI-supported learning activities while maintaining academic integrity and human interaction.

## 6. Conclusion

The study concludes that AI-based learning applications have gained considerable acceptance among college students. The high level of awareness and usage demonstrates that AI is becoming an important component of students' academic activities. Students mainly use AI to understand difficult concepts, prepare assignments, save study time and obtain academic information.

The findings also demonstrate that students have a generally positive perception of AI-based learning applications. However, concerns relating to incorrect information, verification of content, privacy and excessive dependence on AI remain important.

The Chi-square analysis provides an important finding: digital literacy has a significant association with AI adoption, whereas age and gender do not have significant associations. This indicates that improving students' digital capabilities may be more important than demographic characteristics in encouraging effective AI adoption.

Overall, AI-based learning applications have significant potential to support higher education. However, their benefits can be maximized only when students are equipped with digital literacy, critical-thinking skills, information-verification abilities and responsible AI-use practices.

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