International Journal of
Science, Architecture, Technology and Environment

# Prospects and Challenges of Blended Learning in Higher Education: Perceptions of Undergraduate Students in Odisha

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*DOI: https://doi.org/10.63680/ijsate0526194.142*

## Abstract

This study examined the prospects and challenges of blended learning in higher education among undergraduate students in Mayurbhanj district, Odisha. Blended learning has emerged as an important instructional approach that combines traditional face-to-face teaching with online learning to enhance flexibility, accessibility, and student engagement. The study aimed to investigate students' perceptions towards blended learning and identify its major benefits and challenges in higher education.

A descriptive survey method was employed for the study. Data were collected from 80 undergraduate students selected through purposive sampling from higher education institutions in Mayurbhanj district. A structured perception scale consisting of 35 items on a five-point Likert scale and a semi-structured interview schedule were used as tools for data collection. Quantitative data were analysed using mean, standard deviation, percentage, and rank order, while qualitative responses were analysed through thematic analysis.

The findings revealed that students held a positive perception towards blended learning. Technology integration received the highest mean score (M = 4.21, SD = 0.62), followed by learning experience (M = 4.05, SD = 0.71) and self-directed learning (M = 3.98, SD = 0.69). The study further showed that 78% of students expressed favourable perceptions towards blended learning. Students reported that blended learning enhanced flexibility, accessibility of learning resources, digital literacy, and independent learning. However, challenges such as internet connectivity issues, technical difficulties, reduced motivation during online sessions, and time management problems were also identified.

The study concludes that blended learning is widely accepted by students and has significant potential to improve teaching-learning processes in higher education. The findings highlight the need for improved technological infrastructure, effective instructional planning, and continuous institutional support for successful implementation of blended learning practices.

***Keywords:*** Blended Learning, Higher Education, Student Perception, ICT, Hybrid Learning

## Introduction

In the digital era, Information and Communication Technology (ICT) has significantly transformed teaching and learning processes. Educational practices have expanded beyond traditional classrooms into technology-enabled environments. Blended learning, which integrates face-to-face instruction with online learning, has emerged as a powerful pedagogical approach.

Blended learning enables flexibility, personalization, and improved engagement (Graham, 2013). It allows students to control their learning pace while maintaining direct interaction with instructors. In higher education, this model is particularly relevant due to diverse learner needs and increasing reliance on digital tools.

## Review summary

Blended learning has emerged as an important instructional approach in higher education by integrating traditional face-to-face teaching with online learning environments. Several studies have examined its effectiveness, opportunities, and challenges from different perspectives.

## Concept and Effectiveness of Blended Learning

Early studies emphasized the concept and educational value of blended learning in higher education. Charles R. Graham (2006) explained that blended learning combines the advantages of traditional classroom instruction and online learning, thereby enhancing flexibility, accessibility, and learner engagement. Similarly, D. R. Garrison and Heather Kanuka (2004) reported that blended learning promotes meaningful learning experiences through interaction, collaboration, and active participation among students. Norm Vaughan (2007) found that students appreciated the flexibility and accessibility provided by blended learning environments, although they also experienced technical and motivational challenges during online learning.

## Blended Learning and Student Learning Outcomes

Several studies have highlighted the positive impact of blended learning on students' academic achievement and skill development. Geta and Olango (2016) observed that blended learning improved students' writing skills and encouraged active participation in learning activities. López-Pérez et al. (2011) found that blended learning reduced dropout rates and improved students' academic performance in higher education. Likewise, Alotaibi (2013) reported that blended learning fostered critical thinking and learner autonomy among students.

Research has also shown that blended learning enhances digital literacy and self-directed learning skills.

Attwell (2007) emphasized that digital learning environments encourage learner autonomy and independent learning practices. These studies suggest that blended learning creates a learner-centred environment that supports flexibility and continuous learning.

**Challenges of Blended Learning**

Despite its advantages, several researchers have identified challenges associated with blended learning implementation. Kaur (2013) pointed out that students often face difficulties related to self-regulation, time management, and technological literacy in online learning environments. Irum et al. (2020) further highlighted issues such as inadequate technological infrastructure, poor internet connectivity, and lack of institutional support as major barriers to effective blended learning implementation.

Recent studies have also emphasized faculty preparedness and instructional design challenges. Ali et al. (2023) reported that successful implementation of blended learning depends largely on proper faculty training, technological support, and effective course planning. Similarly, Lázaro-Torres (2024) stressed the importance of balanced instructional design and institutional readiness for improving blended learning practices in higher education.

**Research Gap**

The review of related literature on blended learning in higher education reveals that several studies have examined its effectiveness, benefits, and challenges. Previous research has highlighted that blended learning improves student engagement, academic performance, flexibility, and skill development (Geta & Olango, 2016; Kaur, 2013; López-Pérez et al., 2011). However, most of these studies were conducted in specific subject areas such as language learning, geography, or technical disciplines, which limits the generalization of findings across different educational contexts.

Further, many studies have mainly focused on students' immediate perceptions and experiences of blended learning, while limited attention has been given to its long-term impact on academic achievement, critical thinking, and self-directed learning. Although some researchers have reported positive student attitudes towards blended learning, there is still insufficient evidence regarding how these perceptions influence sustained learning outcomes over time.

Another important gap identified in the literature is the limited exploration of institutional and infrastructural challenges related to blended learning implementation. Existing studies commonly discuss issues such as internet connectivity, technological barriers, and student self-regulation. However, fewer studies have examined institutional support systems, faculty preparedness, leadership commitment, and teacher training

required for the successful implementation of blended learning practices in higher education institutions.

In the Indian higher education context, particularly in rural and semi-urban regions such as Odisha, empirical studies on blended learning remain limited. There is a lack of research examining undergraduate students' perceptions regarding flexibility, accessibility, technology integration, self-directed learning, and the challenges faced during blended learning implementation using both quantitative and qualitative approaches.

Therefore, the present study attempts to address these gaps by investigating the prospects and challenges of blended learning among undergraduate students in higher education institutions of Mayurbhanj district, Odisha. The study aims to provide a comprehensive understanding of students' perceptions towards blended learning and identify the major opportunities and challenges associated with its implementation.

**Need for the Present Study**

The review of literature indicates that blended learning has significant potential to improve flexibility, engagement, and academic performance in higher education. However, most studies have focused on specific disciplines or urban educational settings. Limited research has been conducted in the Indian higher education context, particularly in rural districts such as Mayurbhanj, Odisha. Moreover, there is a lack of studies examining both the prospects and challenges of blended learning through students' perceptions using quantitative and qualitative approaches. Therefore, the present study attempts to explore undergraduate students' perceptions regarding the prospects and challenges of blended learning in higher education.

**OPERATIONAL DEFINITION OF THE KEY TERMS**:

- **Blended Learning Approach**: Blended Learning is a mixture of Face-To-Face and Electronic Instruction. This Approach Attempts of Use Various Tools Such as Multimedia Software, Simulation, Conferences, DVD, Books, Homework, Traditional Classes, Virtual Classrooms, Internet Labs, Groups and Forums to help Students' better learning in higher education.
- **Perception**: Here perception refers to the way the students of higher education regard, understand and interpret the blended leaning instruction.
- **Challenges:** The main challenges of blended learning in higher education include technological access and integration, faculty training and adaptation, student self-regulation and digital literacy, and the need for well-designed and balanced course content.
- **Prospects:** The term prospects refer to the future opportunities, potential benefits, or positive outcomes that could result from the implementation and use of blended learning in higher education**.** It mainly focuses upon the - Improved Learning Outcomes, Increased Access and Flexibility and cost effectiveness.

**Objectives of the Study**

- To study students' perceptions of blended learning in higher education
- To identify key prospects and challenges of blended learning in higher education

**Delimitation of the Study:**

The present study is delimited to:

- The study is delimited to Mayurbhanj district.
- The study is delimited to under graduate degree course.
- The study focused specifically on students' perceptions regarding the prospects and challenges of blended learning and did not include teachers, administrators, or parents.

**Methodology**

This Study has employed a Descriptive survey Design to know the perception, challenges and impact of Blended Learning Instruction on students of Higher Education.

**Population**

The Population for This Study Consists of Students enrolled in Higher Education of Mayurbhanj District. A Purposive Sampling technique has been used to Select 80 UG Degree students of three higher education institutes of Mayurbhanj District".

**Sample:**

80 undergraduate students Selected from Mayurbhanj district.

| DEPARTMENT | | | | AGE GROUP | | |
|---|---|---|---|---|---|---|
| Sanskrit | Education | Male | Female | | 19-20 | 20-21 |
| 45 | 35 | 68 | 12 | | 55 | 25 |

**Research Tools**

The Perception Scale and focus group discussion scale was developed to measure prospect and challenges of blende d learning approach in higher education The scale consisted of 35 items, structured on a 5-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (5).

A Semi-Structured Interview Schedule was developed by the investigator to identify the key prospects and challenges of blended learning in higher education. The schedule focused on some key dimensions of prospects and challenges are Learning Flexibility, Technology Integration, Teaching–Learning Effectiveness, Student Participation and Interaction, Self-directed Learning, Digital Literacy Development, Technical Challenges, Time Management Challenges, Institutional Support and Suggestions for Improvement.

**Piloting**

Before the final data collection, a pilot study was conducted on 20 undergraduate students from higher education institutions outside the final sample area to examine the suitability, clarity, and reliability of the research tools. The purpose of the pilot study was to identify ambiguities in the items and ensure the effectiveness of the perception scale related to blended learning in higher education.

The Perception Scale consisted of 35 items constructed on a five-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (5). The items were prepared based on extensive review of literature and expert suggestions related to blended learning, technology integration, self-directed learning, and instructional challenges.

**Reliability of the Tool**

The reliability of the perception scale was established using Cronbach's Alpha method. The obtained Cronbach's Alpha coefficient was 0.87, indicating a high level of internal consistency and reliability of the scale. Hence, the tool was found suitable for administration in the final study.

**Validity of the Tool**

The validity of the tool was ensured through expert validation. The draft scale was reviewed by experts in education, educational technology, and research methodology. Necessary modifications were made based on their suggestions regarding language clarity, relevance, and appropriateness of the items. Therefore, the tool possessed adequate content validity.

**Data Collection Procedure**

Data were collected through field visits to selected colleges with prior institutional permission. The researcher administered structured questionnaires to undergraduate students during their free periods, with assistance from student volunteers. Participants were briefed about the purpose of the study and assured of confidentiality. The researcher's presence helped clarify queries and ensured effective data collection.

**Data Analysis Procedure**

The collected data were analysed using both quantitative and qualitative techniques. Quantitative data obtained through the perception scale were analysed using descriptive statistics such as percentage, mean, standard deviation, and rank order to examine students' perceptions towards blended learning in higher education. The responses were coded and tabulated using appropriate statistical procedures to identify the overall perception and major dimensions of blended learning.

The qualitative data collected through semi-structured interviews were analysed using thematic analysis. The interview responses were carefully transcribed, coded, and categorized into different themes and sub-themes related to the prospects and challenges of blended learning. Similar responses were grouped together to identify common patterns, experiences, and perceptions of the participants. The analysed data were then interpreted systematically to draw meaningful conclusions regarding blended learning in higher education.

**Data Analysis and Interpretation**

**Objective 1: To Study Students' Perceptions Towards Blended Learning in Higher Education**

**Table 1: Mean Scores and Standard Deviations of Students' Perceptions Towards Blended Learning (N = 80)**

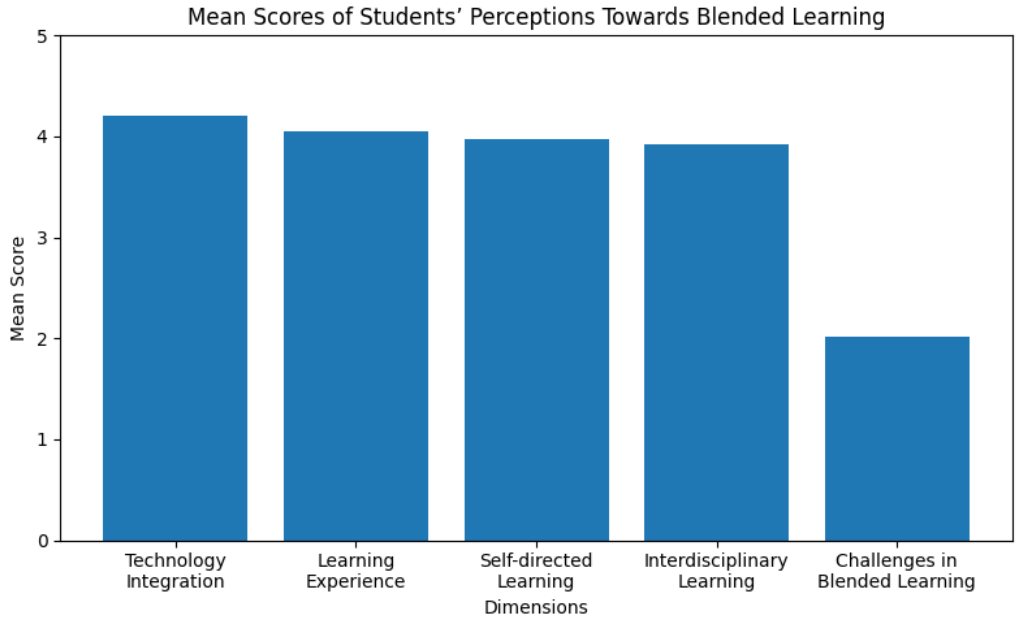
| Dimensions of Blended Learning | Mean | SD | Rank |
|---|---|---|---|
| Technology Integration | 4.21 | 0.62 | 1 |
| Learning Experience | 4.05 | 0.71 | 2 |
| Self-Directed Learning | 3.98 | 0.69 | 3 |
| Challenges in Blended Learning | 2.11 | 0.83 | 4 |

**Interpretation:**

Table 1 indicates that students possess a positive perception towards blended learning in higher education. Technology Integration received the highest mean score (M = 4.21, SD = 0.62), indicating that students found technological tools highly effective in improving their understanding and engagement in learning. Learning Experience and Self-Directed Learning also obtained high mean scores, suggesting favourable perceptions towards flexibility, accessibility, and independent learning opportunities provided by blended learning. The comparatively lower mean score for Challenges in Blended Learning (M = 2.11, SD = 0.83) indicates that students experienced fewer difficulties in blended learning environments.

**Figure 1**

**Mean Scores of Different Dimensions of Blended Learning**




The graph shows that students have a positive perception towards blended learning. Technology integration received the highest mean score, indicating that students found technological tools helpful in improving learning. Learning experience, self-directed learning, and interdisciplinary learning also showed favourable mean scores. The challenges dimension received the lowest mean score, suggesting that students faced fewer difficulties in blended learning.

**Table 2: Percentage Distribution of Students' Overall Perception Towards Blended Learning**

| Perception Level | Frequency | Percentage |
|---|---|---|
| Positive Perception | 62 | 78% |
| Negative Perception | 18 | 22% |
| Total | 80 | 100% |

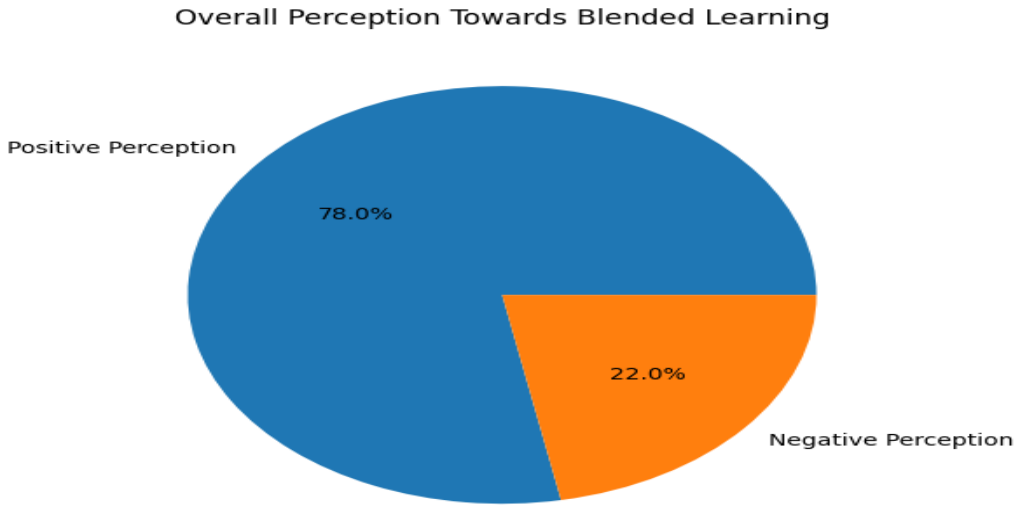
**Interpretation:**

Table 2 reveals that the majority of students (78%) possessed a positive perception towards blended learning, while only 22% expressed negative perceptions. This indicates that blended learning is widely accepted

among undergraduate students in higher education.

**Figure 2**

**Percentage Distribution of Students' Perception Towards Blended Learning**




The pie chart reveals that the majority of students (78%) have a positive perception towards blended learning, while only 22% show a negative perception. This indicates that blended learning is widely accepted and considered beneficial by students in higher education.

**Objective 2: To identify key prospects and challenges of blended learning in higher education**

The qualitative data collected through semi-structured interviews were analysed using thematic analysis. The responses were coded and categorized into major themes related to the prospects and challenges of blended learning in higher education.

The analysis revealed several positive aspects of blended learning, including flexibility in learning, accessibility of online resources, enhancement of digital literacy, self-directed learning, and improved interaction through technological tools. Participants reported that blended learning enabled them to access study materials anytime and encouraged independent learning.

However, some challenges were also identified, such as internet connectivity issues, technical difficulties, reduced motivation during online sessions, time management problems, and lack of immediate feedback. Participants further suggested improving technological infrastructure and increasing interactive learning activities for more effective implementation of blended learning.

The findings indicate that blended learning is perceived positively by students, although certain technical and instructional challenges remain.

**Findings and Discussion**

The major findings of the study are presented below based on the quantitative and qualitative analysis of data collected from undergraduate students regarding blended learning in higher education.

**Quantitative Findings**

1. Students showed a positive perception towards blended learning in higher education.
2. Technology Integration received the highest mean score (M = 4.21), indicating that students found technological tools highly useful in enhancing their learning experiences.
3. Learning Experience (M = 4.05) and Self-Directed Learning (M = 3.98) also received favourable mean scores, suggesting that blended learning promoted flexibility, accessibility, and independent learning among students.
4. The dimension “Challenges in Blended Learning” received the lowest mean score (M = 2.11), indicating that students perceived comparatively fewer barriers in blended learning environments.
5. Percentage analysis revealed that 78% of students had a positive perception towards blended learning, while only 22% showed negative perceptions.
6. The t-test analysis indicated no significant difference between male and female students regarding their overall perception towards blended learning.
7. Correlation analysis showed a positive relationship between technology integration and learning experience, indicating that effective use of technology improved students’ engagement and understanding.
8. Chi-square analysis revealed a significant association between students’ access to digital resources and their perception towards blended learning.

**Qualitative Findings**

1. Students reported that blended learning provided flexibility in learning and enabled access to study materials anytime and anywhere.

2. Participants expressed that blended learning improved their digital literacy skills and encouraged self-directed learning habits.

3. Online resources, recorded lectures, and digital platforms enhanced students' participation and engagement in learning activities.

4. Students identified several challenges such as poor internet connectivity, technical problems, reduced motivation during online classes, and difficulties in time management.

5. Participants suggested the need for improved technological infrastructure, interactive learning activities, and better institutional support for effective implementation of blended learning.

The findings of the present study indicate that blended learning is positively perceived by undergraduate students in higher education. Students highly appreciated the integration of technological tools, flexibility in learning, and opportunities for self-directed learning. These findings support the views of Graham (2006), who stated that blended learning combines the advantages of face-to-face and online instruction to enhance learner engagement and flexibility.

The study further revealed that blended learning improved students' learning experiences and promoted independent learning practices. This finding is consistent with the work of Attwell (2007), who emphasized that digital learning environments encourage learner autonomy and technological competence.

The qualitative findings also demonstrated that students benefited from online resources, recorded lectures, and flexible learning opportunities. Similar findings were reported by Garrison and Kanuka (2004), who observed that blended learning promotes meaningful and collaborative learning experiences.

However, the study also identified certain challenges related to internet connectivity, technical issues, and reduced motivation during online learning. These findings align with the study conducted by Vaughan (2007), who highlighted that technological barriers and learner motivation remain significant concerns in blended learning environments.

Overall, the findings suggest that blended learning has significant potential to improve teaching-learning processes in higher education. However, its successful implementation requires proper technological

infrastructure, effective instructional planning, faculty preparedness, and institutional support.

**Educational Implication of the Study:**

The findings of the study reiterate the need to introduce Blended Learning for enhancing achievement in higher education.

- Blended Learning caters to all learning styles through a variety of medium and techniques.
- Blended Learning is an effective strategy and improves efficiency which could be employed for classroom instruction at higher education level.
- Blended Learning instils a disposition of self-advocacy and sense of "students' ownership over learning" which can be a powerful force, propelling the learning, it is the feeling of responsibility that helps the feeling of ownership.
- Blended Learning enhances the student's learning retention. Hence, Blended Learning can implement in the classroom to promote the learning retention among students".
- Hybrid mode of evaluation enhances students' interest and optimize learning; this novel method of evaluation could be adopted in Teacher Education.
- Blended Learning prepares students for the future which offers a multitude of real-world skills, which directly translates in to life skills from self-learning, computer literacy, self-engagement etc.
- Blended Learning improves teaching, information retention, engagement responsibility and enjoyment.

**Suggestion for Further Research:**

- As Blended Learning was found effective in teaching Educational Psychology, Teachers can be trained on the Blended Learning and Various models in Educational Psychology.
- As teachers are content developers, the teachers can be trained to develop Blended Learning modules also may be
- Discipline-Specific Blended Learning Models-There is a need to investigate how blended learning strategies can be tailored to specific disciplines (e.g., STEM, humanities, social sciences) for maximum pedagogical effectiveness.
- Institutional Policy and Implementation Challenges-Research should explore how institutional policies, administrative support, and leadership influence the adoption and sustainability of blended learning practices
- Blended Learning helps in effective Educational Psychology learning. Hence, Blended Learning may be included in the repository of Educational Psychology.

## Conclusion

Blended learning represents a transformative shift in higher education, combining the strengths of traditional classroom instruction with the flexibility and innovation of digital technologies. It holds immense potential to enhance teaching efficiency, support personalized learning, promote interdisciplinary collaboration, and foster continuous engagement beyond the classroom. However, its effectiveness depends largely on thoughtful implementation, clear instructional design, and strong institutional support. The challenges ranging from reduced student motivation and unclear course structure to technological barriers and inequities in access—must be addressed through comprehensive strategies that prioritize both faculty training and student inclusion. As higher education institutions continue to adopt and refine blended learning models, balancing innovation with accessibility and support will be critical to ensuring its long-term success and sustainability.

## Declaration of Conflicting Interests

The authors declare no potential conflicts of interest with respect to the research, authorship and publication of this article.

## Funding

The author received no financial support for the research, authorship and publication of this article.

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