JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue
JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)
An International Scholarly Open Access, Peer-reviewed, Refereed Journal

English Language Skills Improvement through OER and Artificial Intelligence: A Comparative Study

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Abstract

English language proficiency is a crucial determinant of academic achievement, employability, and global competitiveness in higher education. Despite its importance, a significant segment of undergraduate students in Indian universities—particularly those from rural and semi-urban backgrounds—continue to face challenges in acquiring proficient English language skills. The emergence of **Open Educational Resources (OER)** and **Artificial Intelligence (AI)**–based learning tools has created new possibilities for addressing these challenges through personalized, accessible, and learner-centered approaches.

This study examines the impact of OER and AI on English language skill development among undergraduate students affiliated with **Satavahana University, Telangana**, through a comparative analysis of traditional classroom instruction and technology-assisted learning. Using a descriptive survey method, data were collected from 120 undergraduate students across affiliated colleges. The study assessed improvements in reading, writing, listening, and speaking skills, as well as learner motivation and confidence. The findings reveal that students exposed to OER and AI tools demonstrate significantly greater improvement in language proficiency compared to those relying solely on conventional methods. The paper concludes that integrating OER and AI into undergraduate English education can enhance learning outcomes, promote inclusivity, and align with the objectives of the National Education Policy (NEP) 2020.

Keywords: English Language Learning; Open Educational Resources; Artificial Intelligence; Satavahana University; Undergraduate Students; Telangana.

Introduction

English occupies a central position in Indian higher education as the primary medium of instruction, research communication, academic publishing, and professional engagement. Proficiency in English is increasingly recognized as a foundational skill influencing students' academic success, social mobility, and

employability. Universities expect undergraduate students to engage with academic texts, participate in discussions, write assignments, and access global digital knowledge repositories in English.

However, a persistent gap exists between institutional expectations and students' actual language competence. This gap is particularly visible in state universities and affiliated colleges, where a majority of learners come from Telugu-medium backgrounds. **Satavahana University, Telangana**, which caters largely to rural and semi-urban student populations, reflects this broader challenge. Many undergraduate students enrolled in its affiliated colleges struggle with basic English communication skills due to limited exposure, traditional teaching practices, and lack of language-support infrastructure.

The rapid growth of digital education technologies—especially Open Educational Resources (OER) and Artificial Intelligence (AI)—has introduced innovative solutions for language learning. These technologies offer flexible, self-paced, and interactive environments that can supplement classroom instruction and address learner diversity. This paper investigates the effectiveness of OER and AI tools in improving English language skills among undergraduate students of Satavahana University.

Conceptual Background

Open Educational Resources and Language Learning

Open Educational Resources are teaching and learning materials freely accessible for use, adaptation, and redistribution. In the context of English language learning, OER includes open textbooks, MOOCs, video lectures, podcasts, interactive exercises, and reading materials. Indian initiatives such as SWAYAM, NPTEL, e-PG Pathshala, Spoken Tutorial, and British Council OER platforms have expanded access to quality English language resources.

For undergraduate students of Satavahana University, OER provides:

- Exposure to authentic language use
- Opportunities for self-directed learning
- Cost-free access to quality content
- Support beyond classroom limitations

Artificial Intelligence in English Language Education

Artificial Intelligence has transformed language learning through intelligent tutoring systems, speech recognition, automated assessment, chatbots, and adaptive learning platforms. AI tools enable real-time feedback on grammar, pronunciation, and vocabulary usage, allowing learners to practice without fear of embarrassment or evaluation anxiety.

AI-based applications support:

- Personalized learning paths
- Continuous formative assessment
- Improved speaking and listening skills
- Increased learner motivation

The integration of AI with OER creates a powerful ecosystem for inclusive and effective language learning.

Review of Literature

Existing literature highlights the growing role of digital technologies in language education. UNESCO (2019) emphasizes that OER contributes to equity, quality, and lifelong learning. Studies by Mishra and Singh (2021) demonstrate that Indian undergraduate students using OER-based platforms show improved reading comprehension and vocabulary acquisition.

Holmes et al. (2022) report that AI-driven language tools significantly enhance pronunciation accuracy, speaking fluency, and learner confidence. Indian studies further indicate that AI-supported mobile applications reduce language anxiety and encourage active participation among first-generation learners.

However, limited research focuses on **comparative empirical studies** involving OER, AI, and traditional learning within state universities such as Satavahana University. This study addresses this research gap.

Objectives of the Study

The objectives of the present study are:

1. To assess English language skills of undergraduate students using traditional teaching methods.
2. To examine the effectiveness of OER and AI-based learning tools.
3. To compare language skill development between traditional and technology-assisted learners.
4. To analyze students' perceptions of OER and AI in English language learning.

Research Methodology

Both groups were observed over a structured instructional period to ensure uniform exposure to the respective learning approaches.

Research Design

A descriptive and comparative research design was adopted. Both groups were observed over a structured instructional period to ensure uniform exposure to the respective learning approaches.

Population and Sample

The population comprised undergraduate students from colleges affiliated with Satavahana University, Telangana. A sample of 120 students was selected using random sampling techniques.

- Group A (Traditional Method): 60 students
- Group B (OER and AI Method): 60 students

Data Collection Tools

The reliability of the questionnaire was tested using pilot study methods, and necessary modifications were incorporated.

- Structured questionnaire
- English language proficiency test
- Observation checklist
- Student feedback schedule

Parameters of Assessment

The study evaluated:

- Reading skills
- Writing skills
- Listening skills
- Speaking skills
- Learner motivation and confidence

Data Analysis and Results

The comparative analysis indicates that students in Group B (OER and AI Method) consistently outperformed Group A across all four language skill parameters, suggesting measurable pedagogical effectiveness of technology-supported learning.

Reading and Vocabulary Skills

Students using OER and AI tools demonstrated higher comprehension levels and improved vocabulary due to frequent exposure to digital reading materials and contextual learning.

Writing Skills

AI-based grammar and writing assistants enabled learners to identify errors and improve sentence construction. Group B students showed greater coherence and accuracy in written assignments.

Listening Skills

Listening comprehension improved significantly among students exposed to audio-visual OER content, including lectures, podcasts, and interactive videos.

Speaking Skills

AI chatbots and speech-recognition tools provided safe and interactive practice environments, resulting in enhanced pronunciation accuracy, fluency, and learner confidence.

Learner Attitudes

Group B students reported higher motivation, reduced fear of English usage, and increased willingness to participate in academic discussions.

Discussion

The findings clearly indicate that OER and AI-based learning approaches outperform traditional classroom methods in enhancing English language skills. Conventional pedagogy in affiliated colleges often remains examination-oriented, limiting opportunities for active language use. In contrast, OER and AI promote learner autonomy, continuous practice, and personalized feedback.

For Satavahana University, integrating these technologies aligns with NEP 2020, which emphasizes digital learning, multilingualism, and skill development. University libraries and language laboratories can serve as hubs for OER access and AI-enabled learning support.

Limitations of the Study

- The study is limited to undergraduate students affiliated with Satavahana University.
- The sample size is limited to 120 students, which may affect general applicability.
- The study relies on self-reported data, which may involve response bias.
- Long-term impact of OER and AI tools was not measured.

Implications for Higher Education

- Supports inclusive education for rural and first-generation learners
- Enhances academic performance and employability skills
- Strengthens digital literacy and lifelong learning
- Reinforces the role of university libraries in digital pedagogy

Suggestions

1. **Curricular Integration**: English language courses at the undergraduate level under Satavahana University should formally integrate OER platforms and AI-based learning tools as supplementary learning components.
2. **AI-Enabled Language Laboratories**: Affiliated colleges should establish low-cost AI-enabled language labs equipped with speech-recognition software, grammar-check tools, and conversational chatbots to support continuous language practice.
3. **Faculty Capacity Building**: Regular faculty development programmes should be conducted to train teachers in the pedagogical use of OER and AI tools for English language instruction.
4. **Library-Centered OER Support**: College libraries should act as digital learning hubs by curating quality OER content and guiding students in the effective use of AI-based language learning applications.
5. **Localized OER Development**: Universities should encourage the creation of localized OER content that considers the linguistic background and learning needs of Telugu-medium and first-generation learners.

6. **Blended Learning Models**: A blended learning approach combining classroom instruction with OER and AI-supported self-learning should be adopted to maximize learning outcomes.
7. **Continuous Assessment and Feedback**: AI-based formative assessment tools may be used to provide instant feedback and track learner progress in English language skills.
8. **Future Research Scope**: Further studies may be conducted with larger samples, experimental designs, and longitudinal approaches to measure long-term impact of OER and AI on language proficiency.

Conclusion

The study concludes that OER and Artificial Intelligence significantly improve English language skills among undergraduate students of Satavahana University, Telangana. Students exposed to these technologies demonstrate better proficiency, confidence, and engagement compared to those relying solely on traditional teaching methods. Systematic adoption of OER and AI can transform English language education, promote equity, and enhance graduate employability in Indian higher education. The findings strongly support NEP 2020's emphasis on digital learning, technology integration, and skill-oriented education. The study underscores the need for institutional-level policy interventions to mainstream OER and AI integration in undergraduate language education across state universities. The integration of OER and AI represents not merely a technological shift, but a pedagogical transformation in undergraduate language education.

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