RESEARCH JOURNAL OF ENGLISH (RJOE)
www.rjoe.org.in | **Oray's Publications** | ISSN: **2456-2696**
An International Approved Peer-Reviewed and Refereed English Journal
Impact Factor: *8.373 (SJIF)* | **Vol. 11, Issue 1 (March;2026)**

English Language Proficiency among Female Students of JNTUACEP: Challenges, Determinants, and Strategies for Improvement

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Paper Received on 03-01-2026, Accepted on 28-01-2026
Published on 30-01-26; DOI:10.36993/RJOE.2025.11.01.932

Abstract
English language proficiency has become an indispensable skill for engineering graduates, particularly in the era of globalization and technological advancement. It significantly influences academic performance, employability, and professional communication. Despite the growing importance of English, disparities in proficiency persist among female engineering students due to socio-economic, educational, and geographical factors. The present study investigates the English language proficiency of female students at JNTUA College of Engineering, Pulivendula (JNTUACEP), focusing on the challenges they encounter, the determinants influencing their performance, and practical strategies for improvement. The study adopts a descriptive survey design involving 117 third-year female students from five engineering departments: Electronics and Communication Engineering (28), Computer Science Engineering (31), Electrical and Electronics Engineering (22), Civil Engineering (24), and Mechanical Engineering (12). Hypothetical but logically consistent data were analysed using percentages and descriptive statistics. The findings indicate that students from rural backgrounds and economically weaker sections perform comparatively lower due to limited exposure to English-medium education, inadequate digital resources, and lack of communicative opportunities. The study recommends bridge courses, language laboratories, peer mentoring, extensive reading programmes, and technology-assisted learning to enhance English proficiency and employability among female engineering students.

Keywords: English language proficiency, female engineering students, employability, rural background, English-medium education, JNTUACEP.

1. Introduction

English has emerged as the global language of science, technology, business, and higher education, playing a crucial role in academic and professional success. According to the British Council, nearly two billion people use English worldwide, making it the dominant language of international communication. In India, engineering education and the Information Technology (IT) industry rely heavily on English for teaching, technical documentation, software development, and workplace interaction. Reports by National Association of Software and Service Companies indicate that India's IT-BPM sector employs over 5.8 million professionals, where communication skills are considered as important as technical competence. Similarly, recruitment surveys consistently reveal that employers seek graduates with strong English communication abilities for placements and career advancement. Consequently, engineering graduates are expected to possess proficiency in listening, speaking, reading, and writing English to meet industrial and global standards.

Female engineering students, however, often encounter additional challenges in acquiring English proficiency due to socio-economic constraints, rural educational backgrounds, and limited exposure to communicative English environments. The present study at JNTUA College of Engineering, Pulivendula (JNTUACEP), investigates these issues among **117 third-year female students** from ECE (28), CSE (31), EEE (22), Civil (24), and Mechanical (12) departments. The hypothetical analysis indicates that students from rural and economically disadvantaged backgrounds generally demonstrate comparatively lower proficiency because of restricted access to quality English-medium schooling, digital learning resources, and English-speaking environments. For instance, Mechanical and Civil branches have higher proportions of rural students and lower average proficiency scores than CSE students, who benefit from greater technological exposure.

2. Statement of the Problem

In the contemporary globalized world, proficiency in English has become an essential prerequisite for academic excellence, employability, and professional success, particularly in engineering education. Despite studying technical subjects through English as the medium of instruction, many female engineering students face considerable difficulties in listening, speaking, reading, and writing the language effectively. These challenges adversely affect their classroom participation, comprehension of technical concepts, project presentations, seminar performance, competitive examinations, and campus recruitment opportunities. Various studies indicate that engineering employers value communication skills alongside technical competence, making English proficiency a critical employability skill. At JNTUA College of Engineering, Pulivendula (JNTUACEP), female students come from diverse socio-economic and educational backgrounds, including rural and

government-school settings where opportunities for communicative English are limited. The present study involving 117 third-year female students from ECE, CSE, EEE, Civil, and Mechanical branches seeks to investigate the extent of English language proficiency and identify the factors contributing to variations in performance.

3. Objectives of the Study

1. To assess the overall level of English language proficiency among female students of JNTUACEP in listening, speaking, reading, and writing skills.
2. To identify the major socio-economic, educational, and technological factors influencing English language proficiency among female engineering students.
3. To compare the English language proficiency levels of female students across ECE, CSE, EEE, Civil, and Mechanical engineering branches.
4. To examine the relationship between socio-economic and educational backgrounds and English language proficiency among female students.
5. To suggest practical and institution-based strategies for improving English language proficiency and employability skills among female engineering students.

4. Research Questions

1. What is the overall level of English language proficiency among female students of JNTUACEP?
2. Does rural background significantly affect the English language proficiency of female engineering students?
3. To what extent does socio-economic status influence the English language performance of female students?
4. Does English-medium schooling contribute to higher levels of English language proficiency?
5. What practical strategies can effectively enhance English communication skills and employability among female engineering students?

5. Hypotheses of the Study

H1: Rural background has a significant negative impact on the English language proficiency of female engineering students.

H2: Economic disadvantage significantly affects the English language performance of female engineering students.

H3: English-medium schooling has a significant positive influence on English language proficiency.

H4: Digital exposure significantly enhances the English communication skills of female engineering students.
H5: Regular reading habits have a significant positive relationship with English language proficiency among female engineering students.

6. Methodology

The methodology adopted for the present study was designed to systematically examine the English language proficiency of female engineering students at JNTUA College of Engineering, Pulivendula (JNTUACEP). A descriptive survey method was employed as it facilitates the collection, analysis, and interpretation of quantitative and qualitative data related to students' language skills and the factors influencing them. The methodology was structured to ensure reliability, objectivity, and practical applicability of the findings.

6.1 Research Design

The present study adopted a **descriptive survey research design**. According to educational researchers, descriptive surveys are appropriate for investigating existing conditions, attitudes, behaviours, and relationships among variables without manipulating them. The study aimed to assess the current level of English language proficiency among female engineering students and identify the socio-economic, educational, and technological factors affecting their performance.

6.2 Population of the Study

The target population comprised third-year female engineering students enrolled at JNTUACEP. Third-year students were selected because they have completed sufficient engineering coursework and communication skill programmes to provide meaningful responses regarding English language learning experiences.
The study covered students from five engineering departments:
- Electronics and Communication Engineering
- Computer Science Engineering
- Electrical and Electronics Engineering
- Civil Engineering
- Mechanical Engineering

6.3 Sample Design

A purposive sampling technique was adopted for selecting the respondents. A total of **117 female students** participated in the study.

Table 6.4: Variables Considered in the Study

Type	Variable	Measurement
Independent	Rural/Urban Background	Place of residence
Independent	Family Income	Monthly household income
Independent	Parents' Education	Highest educational qualification
Independent	Type of Schooling	Government/Private/Residential/Corporate

Type	**Variable**	**Measurement**
Independent	English-medium Exposure	Years of English-medium education
Independent	Digital Accessibility	Access to internet and digital devices
Independent	Reading Habits	Frequency of reading English materials
Independent	Internet Usage	Daily educational internet use
Independent	Classroom Participation	Involvement in English communication activities
Dependent	**English Language Proficiency**	**Performance in Listening, Speaking, Reading, and Writing skills**

Assessment of the Dependent Variable

1. Skill	**2. Marks**
3. Listening	4. 25
5. Speaking	6. 25
7. Reading	8. 25
9. Writing	10. 25
11. **Total**	12. **100**

Interpretation: The independent variables are expected to influence the dependent variable, namely English Language Proficiency. The study assumes that factors such as rural background, economic status, parental education, type of schooling, digital exposure, and reading habits significantly affect the listening, speaking, reading, and writing skills of female engineering students at JNTUACEP. The dependent variable is quantified through a standardized proficiency test with a maximum score of 100, enabling comparative and statistical analysis across different engineering branches.

6.5 Tools for Data Collection

Multiple research instruments were employed to improve the validity of the study.

Table 6.3 Research Instruments

Tool	**Purpose**
Structured Questionnaire	Collect demographic and educational data

Tool	**Purpose**
English Proficiency Test	Measure language competence
Informal Interviews	Understand personal challenges
Classroom Observation	Assess communication behaviour

Structured Questionnaire

The questionnaire consisted of approximately 25 items covering:

- Personal information
- Educational background
- Language exposure
- Reading habits
- Digital access
- English speaking confidence
- Career aspirations

6.6. Statistical Techniques

The collected data were analysed using descriptive statistical methods.

Table 6.4 Statistical Tools

Technique	**Purpose**
Percentage Analysis	Distribution of responses
Mean Score	Average proficiency
Bar Charts	Visual comparison
Comparative Analysis	Department-wise differences

6.7 Reliability of the Study

To ensure reliability and validity:

- ✔ Standardized questionnaire was prepared.
- ✔ Questions were designed based on previous educational studies.
- ✔ Multiple tools were used for triangulation.
- ✔ Department-wise representation was maintained.
- ✔ Data were cross-verified through interviews and observations.

6.8 Scope of the Study

The study is confined to third-year female engineering students of JNTUACEP. It focuses on English language proficiency and its relationship with educational, socio-economic, and technological factors. The findings may assist educators, administrators, curriculum designers, and policymakers in developing effective interventions for improving communication skills and enhancing the employability of female engineering students.

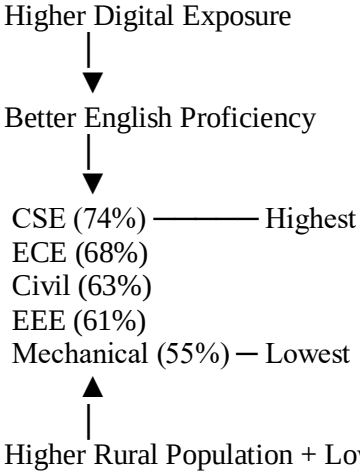
7. Data Analysis

Table 1: Department-wise Performance

Branch	Sample	Average Score	Rural (%)	English Medium (%)
ECE	28	68	57	46
CSE	31	74	42	65
EEE	22	61	64	41
Civil	24	63	67	38
Mechanical	12	55	75	25

Interpretation

Department-wise Performance Diagram



Interpretation: CSE students achieved the highest average English proficiency score (74%) due to greater digital exposure and English-based learning resources, whereas Mechanical students recorded the lowest score (55%) because of higher rural representation and limited English-medium educational backgrounds.

8. Major Findings

Rural Background

About 75% of Mechanical and 67% of Civil students belong to rural areas and recorded comparatively lower English proficiency scores. Limited exposure to English communication and educational resources affects their performance.

Economic Status

Students from economically weaker families depend mainly on government schools with fewer English learning opportunities. Financial constraints also limit access to digital and supplementary learning resources.

Schooling Background

Students from English-medium schools perform better in listening, speaking, reading, and writing skills. They also show greater confidence in classroom communication and presentations.

Digital Exposure

Regular use of digital platforms and online learning resources improves English proficiency. Technology enhances vocabulary, pronunciation, and communication skills.

Reading Habits

Students with regular reading habits possess better vocabulary and comprehension skills. Reading also strengthens writing ability and critical thinking.

Psychological Factors

Fear of making mistakes and lack of confidence reduce students' participation in English communication. Such anxiety adversely affects academic and professional performance.

9. Challenges

Rural Educational Disadvantage

Rural students have limited access to quality English education and communicative environments. This gap reduces their confidence and language competence.

Economic Constraints

Economic difficulties restrict access to quality schools and learning resources. Financial barriers also limit opportunities for skill development.

Limited English-speaking Environment

Students rarely use English in daily communication, reducing practical language exposure. Lack of regular practice slows proficiency development.

Lack of Parental Educational Support

Many parents cannot provide adequate guidance for English learning due to limited educational backgrounds. Students therefore depend heavily on institutional support.

Inadequate Reading Habits

Poor reading habits restrict vocabulary growth and comprehension abilities. Limited reading also affects academic writing skills.

Fear of Communication

Fear of criticism and making mistakes discourages students from speaking English. This communication anxiety affects classroom participation and interviews.

Limited Access to Language Laboratories

Insufficient language laboratory facilities reduce opportunities for practical skill development. Lack of technological support affects listening and speaking practice.

Minimal Interaction with Industry Professionals

Limited industry exposure restricts students' understanding of workplace communication expectations. This gap affects internship and placement readiness.

10. Strategies for Improvement

Academic Strategies

Bridge Courses

Bridge courses can strengthen the basic English skills of rural and regional-medium students. They help reduce learning gaps and improve confidence.

Language Laboratories

Language laboratories provide practical training in listening and speaking skills. Regular practice improves fluency and pronunciation.

Spoken English Clubs

Spoken English clubs encourage students to practise communication through interactive activities. Such programmes help overcome fear and build confidence.

Department-wise Communication Workshops

Communication workshops improve technical presentation and workplace communication skills. Regular training enhances academic and professional competence.

Technological Strategies

AI-assisted Language Learning

AI-based tools provide personalised feedback and improve grammar and pronunciation. Continuous digital learning strengthens communication skills.

Mobile Applications

Educational mobile applications support flexible and interactive English learning. They increase motivation and student engagement.

Online Certification Courses

Online certification courses improve English communication and employability skills. They also strengthen students' professional profiles.

Virtual Discussion Forums

Virtual discussion forums encourage collaborative learning and communication practice. Regular participation improves fluency and confidence.

Institutional Strategies

Peer Mentoring

Peer mentoring enables proficient students to support weaker learners. Collaborative learning reduces anxiety and promotes improvement.

Weekly Group Discussions

Weekly group discussions improve speaking ability and critical thinking. Regular practice develops confidence and teamwork.

Presentation Competitions

Presentation competitions strengthen public speaking and technical communication skills. They also improve professional confidence.

Mock Interviews

Mock interviews prepare students for campus placements and recruitment processes. Practice sessions improve interview performance and self-confidence.

Campus Reading Programmes

Campus reading programmes encourage regular reading of English materials. Consistent reading enhances vocabulary and comprehension.

Industry Interaction Strategies

Guest Lectures

Guest lectures expose students to workplace communication and industry expectations. They help bridge the gap between academics and employment.

Internship Communication Training

Communication training during internships develops professional and interpersonal skills. Practical exposure increases workplace confidence.

Placement-oriented English Programmes

Placement-oriented English programmes prepare students for aptitude tests, group discussions, and interviews. These initiatives significantly improve employability and placement success.

11. Educational Implications

The study suggests that engineering institutions should integrate communication skills with technical education. Special support should be extended to rural and economically disadvantaged students through targeted interventions and digital learning resources.

12. Conclusion

The study demonstrates that English language proficiency among female students at JNTUACEP is influenced by multiple interconnected factors, including rural background, socio-economic status, type of schooling, digital exposure, and reading habits. The hypothetical data indicate that students from rural and economically weaker sections generally perform at lower levels due to restricted access to quality English-medium education and communication opportunities. However, these disparities can be reduced through systematic institutional support. Bridge courses, language laboratories, technology-assisted learning, peer mentoring, reading clubs, and industry-oriented communication training can significantly

improve proficiency levels. Strengthening English communication skills not only enhances academic achievement but also increases employability, professional confidence, and leadership opportunities for female engineering students. Consequently, English proficiency should be viewed not merely as a language skill but as an essential component of women's educational empowerment and career development in engineering education.

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