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COMMUNICATION COMPETENCE AND PERCEIVED EMPLOYABILITY AMONG UNDERGRADUATE ENGINEERING STUDENTS: AN EMPIRICAL STUDY

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ABSTRACT

Communication competence is increasingly recognised as essential to graduate employability in contemporary professional environments. Engineering graduates are expected not only to demonstrate technical proficiency but also to communicate ideas effectively, collaborate with colleagues, participate in professional discussions and present information with clarity and confidence. Despite the inclusion of communication and soft skills courses in engineering curricula, students may still struggle to meet workplace communication expectations. The present study proposes to investigate the relationship between communication competence and perceived employability among undergraduate engineering students. This study will use a quantitative, cross-sectional design and a structured questionnaire administered to approximately 250–300 B.Tech students. The questionnaire will examine four dimensions of communication competence: oral communication, written communication, presentation skills and interpersonal communication. The study will examine perceived employability through students' self-assessments of interview readiness, workplace communication preparedness, and professional confidence. The collected data will be analysed using descriptive statistics, reliability analysis, correlation and multiple regression techniques. The study seeks to identify communication-related strengths and deficiencies among engineering students and examine the extent to which different dimensions of communication competence are associated with perceived employability. The findings are expected to provide pedagogical insights to improve professional communication instruction and strengthen the integration of communication skills into engineering education.

KEYWORDS: *Communication competence; graduate employability; engineering education; professional communication; soft skills; B.Tech. students.*

1. INTRODUCTION

The contemporary employment landscape requires graduates to have a combination of technical knowledge, professional competencies, and effective communication skills. In engineering education, technical proficiency remains fundamental; however, the ability to communicate technical information, collaborate in teams, articulate ideas, and interact professionally is equally important for success in the workplace.

Engineering graduates frequently encounter professional situations that require them to explain complex concepts, prepare technical reports, participate in meetings, deliver presentations, respond to interview questions and communicate with colleagues from different professional backgrounds. These situations demonstrate that communication competence extends beyond grammatical accuracy and vocabulary knowledge. It involves using language effectively, showing appropriate interpersonal behaviour, listening actively, expressing ideas clearly, and showing confidence in professional interactions.

Communication skills also play an important role in campus recruitment and placement processes. Students are expected to participate in group discussions, attend technical and human resource interviews, present their academic projects and demonstrate their ability to work collaboratively. Inadequate communication competence may affect their ability to demonstrate technical knowledge effectively, even when they possess the necessary subject expertise.

Engineering institutions have increasingly incorporated Professional Communication Skills, Technical English and Soft Skills courses into their undergraduate curricula. These courses aim to improve students' linguistic abilities, presentation skills, interpersonal relationships and workplace readiness. Nevertheless, the extent to which students perceive themselves as adequately prepared for professional communication requires systematic investigation.

This study therefore examines the relationship between communication competence and perceived employability among undergraduate engineering students. It focuses on four major dimensions of communication competence and explores how students evaluate their preparedness for employment-related communication situations.

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2. REVIEW OF LITERATURE

2.1 Communication Competence and Engineering Education

Communication competence is a multidimensional construct that involves the ability to convey information appropriately and effectively across different social and professional contexts. In engineering education, communication involves explaining technical information, preparing documentation, participating in collaborative activities and presenting solutions to complex problems.

Wu, Xu and Philbin (2023) investigated the relationship between communication skills and employability among engineering students and practitioners. Their research examined verbal and non-verbal communication skills and demonstrated the importance of communication-related competencies in engineering employability. Their work provides a relevant empirical foundation for examining communication competence in engineering education.

2.2 Communication Skills and Graduate Employability

Employability extends beyond academic qualifications. It involves the knowledge, skills, personal attributes and competencies that enable individuals to obtain employment, perform effectively and develop their professional careers.

Communication competence can contribute to employability by enabling graduates to express their capabilities, interact with colleagues, participate in professional activities and respond effectively to workplace expectations.

Research on engineering graduate employability has also emphasised the need to assess the gap between expected and achieved professional competencies. Shyamalee and Walgama (2025) proposed a methodology for assessing employability skills among recent engineering graduates through questionnaire-based data collection and skills-gap analysis.

2.3 Professional Communication and Workplace Readiness

Professional communication encompasses oral, written, interpersonal and presentation-related abilities. Oral communication supports discussions, interviews, and meetings, while written communication supports professional correspondence, documentation, and report preparation.

Presentation skills enable graduates to communicate ideas systematically and confidently. Interpersonal communication supports teamwork, collaboration, conflict resolution and professional relationships.

These dimensions are particularly relevant to engineering graduates, whose professional responsibilities often involve multidisciplinary collaboration and communicating technical information to different stakeholders.

2.4 Research Gap

Previous research has examined communication skills and engineering employability, including the relationship between verbal and non-verbal communication competencies and employment-related outcomes.

However, further context-specific investigation is warranted into how undergraduate engineering students perceive their competence across distinct dimensions of professional communication and how these perceptions relate to their perceived employment readiness.

This study proposes to address this area through a questionnaire-based investigation of B.Tech students, with particular attention to oral communication, written communication, presentation skills, and interpersonal communication.

Rather than claiming that communication skills have not previously been studied in relation to employability, the study seeks to contribute additional evidence from its specific institutional and regional context.

3. OBJECTIVES OF THE STUDY

The following objectives guide the study:

1. To assess the perceived communication competence of undergraduate engineering students.
2. To examine students' perceptions of their oral, written, presentation and interpersonal communication abilities.
3. To investigate the relationship between communication competence and perceived employability.
4. To identify major communication-related challenges experienced by engineering students in preparing for employment.
5. To examine differences in perceived communication competence across academic years.
6. To suggest appropriate pedagogical strategies for improving professional communication and employability readiness.

4. RESEARCH QUESTIONS

The study seeks to answer the following questions:

1. What is the perceived level of communication competence among undergraduate engineering students?
2. Which dimensions of communication competence are perceived as students' strongest and weakest areas?
3. Is there a significant relationship between communication competence and perceived employability?
4. What communication-related difficulties do students experience while preparing for employment?
5. Are there significant differences in perceived communication competence across academic years?

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5. RESEARCH HYPOTHESES

The following null hypotheses will be tested:

H01: There is no significant relationship between overall communication competence and perceived employability among B.Tech students.

H02: There is no significant relationship between oral communication competence and perceived employability.

H03: There is no significant relationship between written communication competence and perceived employability.

H04: There is no significant relationship between presentation and interpersonal communication competence and perceived employability.

H05: There is no significant difference in perceived communication competence among students belonging to different academic years.

6. RESEARCH METHODOLOGY

6.1 Research Design

The study adopted a quantitative, descriptive and correlational research design. The study used a cross-sectional survey method to collect information from undergraduate engineering students at a specific point in time.

6.2 Population and Sample

The target population consisted of undergraduate B.Tech students enrolled in engineering institutions in Andhra Pradesh and Telangana.

A proposed sample of 250–300 students was considered. Students from different academic years and engineering branches will be invited to participate.

Stratified sampling will be considered where institutional access permits. The final sample size and sampling procedure will be justified based on the research setting and statistical power requirements.

6.3 Research Instrument

A structured questionnaire will be developed to collect data on students' perceived communication competence and readiness for employability.

The questionnaire will consist of the following sections:

- Section A: Demographic and academic information.
- Section B: Oral communication competence.
- Section C: Written communication competence.
- Section D: Presentation and interpersonal communication.
- Section E: Perceived employability and career readiness.

A five-point Likert scale was used:

1 – Strongly Disagree
2 – Disagree
3 – Neither Agree nor Disagree
4 – Agree
5 – Strongly Agree

6.4 Pilot Study and Instrument Validation

Subject experts in English language teaching, professional communication, and research methodology reviewed the questionnaire.

A pilot study involving approximately 30–40 students assessed the questionnaire's clarity and suitability.

We examined internal consistency using Cronbach's alpha and, where appropriate, McDonald's omega. Construct validity will be investigated using suitable factor-analytic procedures when the sample size and data characteristics permit.

6.5 Data Collection Procedure

The questionnaire will be distributed to eligible B.Tech students through an online survey platform or printed questionnaires.

Participation will be voluntary. Participants will be informed about the purpose of the study, confidentiality measures and academic use of the information.

Incomplete, duplicate or otherwise invalid responses will be handled according to predetermined data-screening criteria.

6.6 Statistical Analysis

The collected data will be analysed using SPSS, Jamovi or an equivalent statistical package.

The following techniques will be employed:

1. Frequency and percentage analysis to describe the respondent profile.
2. Mean and standard deviation to examine perceived communication competence.

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3. Reliability analysis to assess internal consistency.
4. Pearson correlation to examine relationships between communication dimensions and perceived employability.
5. Independent samples t-test or ANOVA, where appropriate, to compare student groups.
6. Multiple regression analysis to examine the statistical association between communication dimensions and perceived employability.

The level of statistical significance will be set at $p < .05$, subject to the assumptions of the relevant statistical tests.

7. Proposed Conceptual Framework

The study conceptualises communication competence as the principal explanatory construct and perceived employability as the outcome construct.

The independent variables are:

- Oral communication competence.
- Written communication competence.
- Presentation skills.
- Interpersonal communication competence.

The dependent variable is:

- Perceived employability and career readiness.

Academic year and other relevant demographic characteristics may be included as control variables where justified.

The proposed framework will be examined through correlation and multiple regression analysis. The study will investigate associations rather than establish causal relationships.

8. EXPECTED CONTRIBUTION AND EDUCATIONAL IMPLICATIONS

The study is expected to provide insights into how undergraduate engineering students perceive their communication abilities and professional preparedness.

The findings may help English language educators and engineering institutions identify specific communication areas requiring additional instructional attention.

Based on the actual results, the study may offer recommendations in the following areas:

Oral communication: Structured speaking activities, group discussions, role plays, mock interviews and peer interaction.
Written communication: Professional email writing, report writing, technical documentation and workplace correspondence.
Presentation skills: Individual presentations, project demonstrations, seminar activities and public speaking exercises.
Interpersonal communication: Collaborative assignments, teamwork, active listening and problem-solving activities.
Employability preparation: Integration of placement-oriented communication activities into the Professional Communication Skills curriculum.

The study may also support curriculum development by identifying the communication competencies students consider most relevant to their anticipated professional roles.

9. CONCLUSION

Communication competence constitutes an important component of professional preparedness among undergraduate engineering students. The ability to express ideas clearly, prepare professional documents, deliver presentations, and interact effectively with others helps students demonstrate their technical knowledge and participate in workplace activities.

The proposed research sought to investigate the relationship between different dimensions of communication competence and perceived employability among B. Tech students. Using a structured questionnaire and appropriate statistical analysis, the study aimed to provide evidence to inform communication skills instruction and employability-oriented curriculum development in engineering institutions.

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Appendix A: Proposed Student Questionnaire

Title: Communication Competence and Perceived Employability among Undergraduate Engineering Students
Instructions: Please indicate the extent to which you agree with each statement. Your responses will be used exclusively for academic research and will be treated confidentially.

Section A: Respondent Profile

1. Academic year: First / Second / Third / Fourth.
2. Engineering branch: _____.
3. Medium of schooling: English / Regional language / Other.
4. Have you attended formal communication skills training? Yes / No.
5. Have you participated in campus placement preparation activities? Yes / No.

Section B: Oral Communication

1. I can express my ideas clearly in English.
2. I can participate confidently in group discussions.
3. I can communicate effectively during interviews.
4. I can explain technical concepts in simple language.
5. I can respond confidently to unexpected questions.

Section C: Written Communication

6. I can write grammatically appropriate professional emails.
7. I can prepare clear and concise reports.
8. I can communicate technical information effectively in writing.
9. I can organise my ideas logically in paragraphs.
10. I can prepare professional resumes and cover letters.

Section D: Presentation and Interpersonal Skills

11. I can deliver presentations confidently before an audience.
12. I can organise and present information systematically.
13. I can maintain appropriate eye contact while speaking.
14. I can work effectively in a team.
15. I can listen attentively and respond appropriately.

Section E: Perceived Employability

16. My communication skills prepare me for campus placement interviews.
17. I feel confident communicating in a professional workplace.
18. My communication skills help me collaborate with colleagues.
19. I can participate effectively in professional meetings.
20. I believe my communication competence improves my employment prospects.

Section F: Open-ended Questions

21. Which communication skill do you find most challenging?
22. What activities would help you improve your professional communication skills?
23. What additional communication training would you like your institution to provide?