International Journal of Educational Innovations
ISSN 3078-5677

International Journal of Educational Innovations
Volume 2, Issue 2, 64-73
https://doi.org/10.46451/ijei.260117

Received: 15 October, 2025
Accepted: 10 December, 2025
Published: 17 January, 2026

Non-Verbal Communication in Academic Presentations: Evidence from Engineering Technology Undergraduates

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Abstract
This study examines the role of non-verbal communication, particularly body language in enhancing audience engagement and overall impact during academic presentations. Data were collected from 100 first-year undergraduates enrolled in the English Language Skills Enhancement II module at a state university in Sri Lanka. Each participant delivered a 4–5 minute individual presentation as a part of course based assessment. Presentations were evaluated using a structured rubric assessing fluency, body language (eye contact, gestures, posture, facial expressions), audibility, clarity of voice, audience engagement and overall impact. Common nonverbal communication challenges were identified through systematic video-based observation. A purposive sub-sample of 30 presenters who achieved high fluency scores was selected to examine the relative influence of fluency and body language on audience engagement and overall impact. Multiple linear regression analyses revealed that body language was the strongest predictor of presentation effectiveness. While fluency contributed modestly to overall impact, it did not significantly predict audience interaction. These findings corroborate prior research emphasizing the role of kinesic behaviours such as gestures, posture, facial expressions and eye contact in sustaining attention, reinforcing verbal messages and fostering rapport. The study demonstrates that linguistic proficiency alone is insufficient for impactful communication and underscores the need for explicit instruction in nonverbal delivery strategies.

Keywords
Nonverbal communication, academic presentations, fluency, audience engagement

Background

Non-verbal communication refers to the transmission of information through channels other than words including gestures, posture, facial expressions, eye contact and vocal qualities. In

academic presentations, particularly within technically demanding disciplines such as engineering technology, non-verbal cues play a critical role in clarifying complex ideas and sustaining audience attention and enhancing overall communicative effectiveness. While technical accuracy and verbal fluency are often prioritized in presentation training, inadequate nonverbal delivery can substantially diminish presentation impact.

Research consistently demonstrates that presenters who maintain purposeful eye contact, employ controlled gestures and adopt an open posture are perceived as more credible, confident and persuasive than those who display closed or distracting body language (Adams, 2022; Patil et al., 2024). Mehrabian's Communication Model (1972) further highlights the salience of non-verbal and paralinguistic cues in meaning-making, suggesting that communicative effectiveness is shaped not only by what is said, but by how it is delivered. Subsequent studies have reinforced this view, indicating that positive body language facilitates rapport, enhances message clarity and supports audience comprehension (Grayson & Napthine-Hodgkinson, 2020; Adams, 2022).

Empirical work on gestures, gaze, posture and facial expressions further illustrates their role in reinforcing verbal messages and supporting cognitive processing, particularly when complex or abstract content is presented (Verderber et al., 2009; Beattie, 2010; Ekman & Friesen, 1969). Accordingly, this study seeks to investigate the role of non-verbal communication particularly body language in enhancing audience engagement during academic presentations. It specifically aims to determine whether the absence of effective body language diminishes the impact of a presentation, even when the speaker demonstrates verbal fluency.

Previous Studies

Previous research has consistently identified oral presentation skills as a significant challenge for engineering undergraduates, particularly within English-medium instructional contexts. Mohamed and Asmawi (2018) highlight a range of factors affecting Technical Oral Presentation (TOP) performance, including low self-confidence, inadequate preparation, limited content mastery and insufficient practice opportunities. Importantly, their findings also draw attention to delivery-related deficiencies such as poor eye contact and ineffective time management suggesting that challenges extend beyond linguistic competence to encompass non-verbal aspects of presentation delivery.

Pedagogical interventions aimed at addressing these shortcomings have also been explored. Shinge and Kotabagi (2020), in their investigation of freshman engineering students' presentation performances, identified persistent weaknesses in delivery and audience management. Their proposed "Vis-à-Vis Approach," involving individualised post-assessment feedback, underscores the importance of targeted instructional support in developing presentation competence. However, while this approach improves general presentation skills, it does not explicitly isolate or quantify the role of specific non-verbal behaviours in enhancing audience engagement.

More recent studies have adopted a multimodal perspective, foregrounding the role of gaze, facial expressions and gestures in engineering presentations. Lee (2023) provides compelling evidence that deliberate use of gaze and facial expressions distinguishes high-performing presenters from low-performing ones, enabling presenters to project competence and establish rapport with audiences. The study further emphasises the need for explicit instruction and modelling of non-verbal strategies, particularly within authentic communicative contexts such as engineering proposal presentations. Extending this line of inquiry, Lee (2024) demonstrates

that co-speech gestures especially iconic and deictic gestures play a crucial role in reinforcing technical explanations and directing audience attention to visual materials. Although beat and metaphoric gestures occurred less frequently, they nonetheless contributed to meaning-making, reinforcing the pedagogical value of gesture-based communication in technical discourse.

These findings align with earlier research by Crawford Camiciottoli (2015), who highlights the combined role of stress, gaze, and gestures in supporting audience comprehension across academic disciplines. Collectively, these studies affirm that multimodal communication enhances clarity, engagement, and interpretability, particularly when complex or abstract concepts are involved.

Focusing specifically on non-verbal communication in EFL contexts, Sopyanti et al. (2025) examine kinesic behaviours including gestures, facial expressions, eye contact, and posture among undergraduate presenters. Their findings reinforce the significance of non-verbal cues in improving clarity, sustaining audience attention, and strengthening overall message delivery. However, while these studies establish the importance of non-verbal communication, they primarily adopt qualitative or descriptive approaches and often focus on isolated behaviours rather than their interaction with verbal fluency.

Taken together, the reviewed literature underscores the critical role of non-verbal communication in academic presentations, particularly in engineering and technical disciplines. Nevertheless, a clear research gap remains. There is a paucity of empirical studies that statistically compare the relative impact of verbal fluency and body language on audience engagement and overall presentation effectiveness**.** Moreover, research within the Sri Lankan higher education context especially among engineering technology undergraduates is notably limited.

Addressing this gap, the present study seeks to quantitatively examine how non-verbal communication, in conjunction with fluency, influences audience engagement and overall presentation impact, thereby contributing context-specific evidence to the existing body of literature.

Objectives

The objectives of this study are to:

- evaluate the use of body language and identify common nonverbal challenges encountered by novice presenters in academic contexts;
- examine the relative impact of fluency and body language on audience engagement;
- investigate the extent to which fluency and body language predict the overall impact of academic presentations.

Methodology

The study was conducted within the English Language Skills Enhancement Module (IS1203), a compulsory course designed to develop academic and communication skills among first-year engineering technology undergraduates at a state university in Sri Lanka. The module places particular emphasis on oral presentation skills, audience awareness and effective delivery in academic settings.

The participants comprised 100 first-year undergraduates all of whom had completed their Pre-academic English course and English Language Skills Enhancement I Module (IS1103). As a part of summative assessment, each student delivered a 4-5-minute individual presentation on

a topic of their choice. The task was intended to assess both verbal and nonverbal communication skills in an authentic academic context.

All presentations were evaluated by two trained examiners using a structured assessment rubric encompassing fluency, eye contact, gestures, posture, facial expressions, audibility and clarity of voice, audience engagement, and overall impact. To facilitate of nonverbal behaviours, all presentations were video- recorded and reviewed post hoc. As a means of enhancing reliability and to reduce subjectivity, all presentations were independently assessed by two examiners using the same rubric. Prior to assessment, a calibration session was conducted to ensure shared interpretation of the scoring criteria. Inter-rater discrepancies were reviewed and resolved through discussion thereby strengthening the consistency and trustworthiness of the evaluation process.

From the full data set, a purposive sub- sample of 30 presentations was selected for inferential analysis based on high fluency performance (see appendix 1), novelty of the topic selected and quality of visual support materials based on readability, clarity, consistency in colour, formatting and style. This sampling strategy enabled focused examination of the influence of body language (see 2.1.2) on audience engagement (see 2.1.3) when verbal fluency (see 2.1.1) was already established. Qualitative analyses including correlation and multiple linear regression were conducted using the R statistical software.

Fluency

In this study, *fluency* refers to the speaker's ability to deliver speech smoothly with minimal hesitation, unnatural pauses or excessive fillers. Data were obtained from video recordings and coded using a predefined fluency rubric (see Appendix 1).

Body language

Body language was defined as the use of non-verbal cues, including posture, gestures, facial expressions and eye contact, to support verbal communication. These elements were measured through visual analysis of recorded presentations, focusing on consistency, appropriateness, and alignment with spoken content (see Appendix 2)

Audience engagement

Audience engagement refers to the presenter's ability to maintain audience attention and interaction through non-verbal strategies (see Appendix 3)

Results and Discussions

Table 1 presents the mean scores obtained by 100 freshman undergraduates in their first presentation. The scores reflect various aspects of body language.

Table 1

Mean Scores Obtained for Body Language (out of 5 marks)

Posture	**Eye Contact**	**Gestures**	**Facial Expressions**
Mean 3.78	Mean 2.88	Mean 2.05	Mean 2.35

The presenters generally maintained an upright posture with only minor lapses (Mean=3.78), indicating basic awareness of their body language. However, occasional signs of nervousness that caused slight deviations in posture were observed.

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The presenters were able to establish and maintain eye contact with their audience (Mean=2.88), but they occasionally relied on slides or notes for reference which negatively impacted audience connection.

Although hand gestures were infrequent (Mean= 2.05), participants used both varied and purposeful gestures such as iconic (representational) and metaphoric (symbolic) gestures. However, gestures were mostly limited to beat gestures which are rhythmic movements that emphases the flow of speech.

Facial Expressions (Mean = 2.35) were notably minimal. Presenters showed little emotional response to the content making presentations monotonous and making the audience feel less engaged.

To summarize, while the presenters demonstrated a generally solid foundation in posture and eye contact, there are clear areas for improvement in gestures and facial expressions. Enhancing these aspects of body language would help create a more engaging and interactive presentation, fostering better audience connection, and increasing overall presentation effectiveness.

Common body language issues in academic presentations

Table 2 presents common non-verbal communication challenges observed during presentations, with an emphasis on posture, gestures, eye contact and facial expressions.

The key findings from the analysis present several common non-verbal communication issues among presenters. The most prominent issue was insufficient use of gestures (54.54%) which made presentations disengaging. Similarly, shifting weight from one foot to another (43.18%) was a significant indicator of nervousness which significantly impacted connection with the audience. Observers viewed that constantly shifting weight was distracting, and it drew attention away from the content. A substantial proportion of presenters (34.09%) avoided eye contact, either looking at the floor, ceiling, or screen too much. Avoiding eye contact made the presenter seemed unprepared or lacking confidence. A large number of presenters (45.45%) were seen relying too heavily on their notes or slides, neglecting eye contact with the audience. This reduced connection with the audience, making the presentation more like a reading session. Over 30% presenters failed to engage all sections of the audience evenly leading to disengagement from parts of the audience. Many presenters (30.77%) appeared to have flat or neutral facial expressions which made their presentations feel monotonous and disengaging. A lack of facial expression created the impression that the speaker was not passionate or interested in the topic making the delivery appear monotonous or unenthusiastic. This detailed analysis highlights the areas where presenters could improve, allowing facilitators to focus on the areas that need to be addressed.

Table 2
Common Non-verbal Communication Challenges

Category	Issue	Percentage
Posture	Slouching or leaning forward/backward indicating lack of interest or confidence	13.63%
	Shifting weight from one foot to another, showing discomfort or nervousness	43.18%

 ISSN 3078-5677

	Crossed arms or closed posture, indicating defensiveness or disengagement	13.63%
	Leaning on an object	1.13%
	Hands in pockets	9.09%
	Walking back and forth	5.68%
	Turning one's back to audience	2.27%
Gestures	Overuse of hand or arm movements, distracting from the message	5.68%
	Insufficient use of gestures, making the presentation appear stiff or flat	54.54%
	Inappropriate gestures, not matching the message or context	7.95%
	Fidgeting with hands or objects, distracting from the presentation	21.59%
	Lack of gesture coordination, causing disconnect between speech and movements	0%
	Pointing excessively	0%
	Excessive use of gesticulation	0%
Eye Contact	Avoiding eye contact by looking at the floor, ceiling or screen	34.09%
	Excessive eye contact with one individual or part of the audience	44.31%
	Relying on notes or slides without making eye contact with the audience	45.45%
	Failing to engage all sections of the audience evenly	31.81%
Facial Expressions	Lack of expression, making the presentation monotonous or disengaging	39.77%
	Inappropriate facial expressions (e.g., smiling during serious topics)	9.09%
	Exaggerated facial expressions, that appear forced or unnatural	0%
	Tension in the face, suggesting nervousness or discomfort	31.81%

ISSN 3078-5677

Impact of fluency and body language on audience engagement
A multiple linear regression analysis was conducted to assess the influence of fluency and body language on interaction with audience. The overall model was highly significant, $F(2, 29) = 122.1$, $p < .001$, and explained approximately 89.4% of the variances in audience interaction (R^2).

The findings demonstrate that body language is the dominant factor influencing audience interaction during academic presentations. Although fluency is often emphasized in presentation training, this analysis shows that it does not significantly predict audience engagement once body language is accounted for. Instead, gestures, posture, facial expressions, and eye contact strongly drive audience interaction, aligning with prior research (e.g., Lee, 2023; Sopyanti et al., 2025).

Impact of fluency and body language on overall impact
A multiple linear regression analysis was conducted to examine the extent to which fluency and body language predict the overall impact of academic presentations. The model was statistically significant, $F(2, 29) = 108.5$, $p < .001$, and accounted for approximately 88.2% of the variance in overall impact ($R^2 = .882$).

The results demonstrate that both fluency and body language significantly contribute to presentation effectiveness. However, body language exerts a stronger influence on overall impact compared to fluency. This finding supports the hypothesis that non-verbal communication plays a critical role in shaping audience perceptions of presentation quality.
In line with previous research (e.g., Sopyanti et al., 2025; Lee, 2023), the analysis confirms that effective use of body language such as gestures, posture and eye contact enhances audience engagement and strengthens the overall delivery of academic presentations. Even when presenters demonstrate verbal fluency, the absence of strong non-verbal communication reduces the perceived impact of their performance.

These results reinforce the argument that non-verbal communication is central to effective presentation delivery. Even fluent speakers may fail to engage their audience if they neglect body language, whereas presenters who employ strong non-verbal cues are more likely to foster interaction and rapport.

The findings align with Mehrabian's Communication Model (1972) and extend prior research by empirically demonstrating the relative dominance of non-verbal cues over verbal fluency in determining presentation effectiveness. Consistent with Lee (2023, 2024) and Sopyanti et al. (2025), the results confirm that gestures, gaze, posture, and facial expressions function as critical resources for sustaining attention, reinforcing meaning, and projecting confidence in engineering presentation contexts.

Conclusion
This study examined the role of non-verbal communication, particularly body language in enhancing audience engagement and overall impact during academic presentations by engineering technology undergraduates. The findings demonstrate that linguistic and technical proficiency alone are insufficient for effective academic communication. Rather, deliberate and strategic use of non-verbal cues is essential for engaging audiences and maximising presentation effectiveness. Accordingly, the study underscores the need for greater pedagogical emphasis on body language within academic communication and presentation skills training.

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Appendix 1

Band 1: Very Poor Fluency: At this level, the speaker struggles considerably to express their ideas. There are long, frequent pauses and hesitations that severely disrupt the flow of the presentation.

Band 2: Limited Fluency: The speaker's fluency is limited by frequent pauses and hesitation, often interrupting the presentation's flow. While the speaker may convey basic ideas, these ideas are not always expressed clearly or confidently, and the audience may have to work to understand them. Pronunciation is inconsistent, with noticeable errors that can make parts of the speech unclear.

Band 3: Adequate Fluency: At this level, the speaker manages to express most of their ideas clearly, though there are still noticeable pauses and some hesitation throughout the presentation. Pronunciation is generally understandable, with only occasional mispronunciations or unclear words. The speaker may struggle with certain words or phrases, but the audience can usually follow the main points without much difficulty. Ideas are presented in a relatively organized manner, though transitions between points may feel somewhat awkward or forced. While the presentation is coherent overall, the delivery may not always flow smoothly, and the speaker may need to work on improving their fluency for greater clarity.

Band 4: Good Fluency: The speaker demonstrates good fluency, with only occasional pauses or hesitations. The speech flows naturally for the most part, and the speaker communicates their ideas clearly. Pronunciation is generally accurate, with only rare errors that do not hinder comprehension. Transitions between ideas are mostly smooth, and the speaker presents their points logically and coherently.

Band 5: Excellent Fluency: At the highest level, the speaker delivers their presentation with remarkable fluency. There are no noticeable pauses or hesitations, and the speech flows effortlessly from one point to the next. Pronunciation is clear, accurate, and consistent throughout, making it easy for the audience to follow and engage with the speaker. Ideas are presented in a well-organized and logical sequence, with seamless transitions that enhance the clarity of the argument.

Appendix 2

Body Language Rubric

Posture

- **5 – Excellent:** Upright, confident, relaxed; conveys professionalism and engagement.
- **4 – Good:** Mostly upright, occasional minor slouching; generally attentive.
- **3 – Satisfactory:** Neutral posture, some slouching or stiffness; engagement inconsistent.
- **2 – Needs Improvement:** Frequently slouched or rigid; distracts from message.
- **1 – Poor:** Closed, disengaged, or inappropriate posture; undermines communication.

Gestures

- **5 – Excellent:** Natural, purposeful, enhances message; well-timed and varied.
- **4 – Good:** Appropriate gestures, occasionally repetitive or slightly distracting.
- **3 – Satisfactory:** Limited gestures, sometimes awkward; adds minimal emphasis.
- **2 – Needs Improvement:** Overused, distracting, or absent; weak support for message.
- **1 – Poor:** Inappropriate or confusing gestures; detracts from communication.

Facial Expressions

- **5 – Excellent:** Expressive, matches tone and content; conveys warmth and clarity.
- **4 – Good:** Generally expressive, occasional mismatch with message.
- **3 – Satisfactory:** Limited expression; sometimes neutral or inconsistent.
- **2 – Needs Improvement:** Flat, forced, or mismatched expressions; reduces impact.
- **1 – Poor:** Blank, inappropriate, or distracting expressions; hinders communication.

Eye Contact

- **5 – Excellent:** Consistent, confident, inclusive; builds strong connection.
- **4 – Good:** Regular eye contact, occasional lapses; maintains audience engagement.
- **3 – Satisfactory:** Intermittent eye contact; sometimes avoids or over-focuses.
- **2 – Needs Improvement:** Rare or inconsistent eye contact; weak audience connection.
- **1 – Poor:** Avoids eye contact or stares uncomfortably; disengages audience.

Appendix 3

Audience Engagement

Level 5 – Excellent

- Audience is highly attentive and responsive throughout.
- Frequent interaction (questions, comments, laughter, nodding).

Level 4 – Good

- Audience is mostly attentive with occasional lapses.
- Some interaction or visible signs of interest.

Level 3 – Satisfactory

- Audience shows moderate attention; some disengagement noticeable.
- Limited interaction (few questions or responses).
- Connection is present but inconsistent.

Level 2 – Needs Improvement

- Audience attention is weak; noticeable distractions or disengagement.
- Minimal interaction or participation.

Level 1 – Poor

- Audience is disengaged, inattentive or unresponsive.
- No interaction or participation.

 ISSN 3078-5677