

Enhancing Listening Comprehension in ESL Learners through Mental Modelling: A Cognitive Approach

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ABSTRACT

This research explores the potential of mental modelling as a cognitive and pedagogical strategy to enhance listening skills and comprehension among English as a Second Language (ESL) learners, particularly those from socio-economically disadvantaged groups (SEDGs) in Karaikal and Puducherry. Drawing on foundational theories from educational psychology and cognitive science, this study adopts a mixed-methods approach to compare student outcomes between students who use visual/diagrammatic mental modelling and those who rely on verbal or written responses. The findings reveal that learners employing mental modelling techniques demonstrate significantly improved cognitive engagement, creativity, empathy, and conceptual retention. These insights reinforce the utility of mental models as both instructional scaffolds and assessment mechanisms, especially in under-resourced ESL learning contexts. This work aligns closely with the vision of India's National Education Policy (NEP) 2020 to foster experiential and holistic learning practices. The results indicate that mental modelling can be an alternative formative assessment method to listening comprehension in ESL classrooms. This approach encourages active meaning-making and also allows experiential learning in line with the vision of NEP 2020. It may be especially valuable in resource-limited classrooms where students find it difficult to express understanding in traditional written responses.

Keywords: Mental modelling; ESL learners; Listening comprehension; Educational psychology; Cognitive engagement; NEP 2020; Assessment strategies

INTRODUCTION

Listening is one of the most fundamental skills in language acquisition and serves as the foundation for the development of speaking, reading, and writing skills. Despite its importance, listening often receives less instructional attention than other language skills in English as a Second Language (ESL) classrooms. Learners are frequently expected to comprehend spoken language without adequate strategies to actively process and interpret auditory information. This challenge becomes particularly significant among learners from socio-economically disadvantaged groups (SEDGs), who may have limited exposure to English outside the classroom.

Recent developments in educational psychology have highlighted the importance of learner-centred approaches that actively engage students in constructing meaning. Rather than viewing

learning as the passive reception of information, cognitive theories emphasise the learner's role in interpreting, organising, and integrating new knowledge with existing experiences. In this context, mental modelling has emerged as a promising cognitive strategy to support comprehension and learning.

Mental modelling is the process by which learners construct internal representations of information to understand, interpret, and predict events or situations. According to Johnson-Laird (1983), individuals create mental models to simulate reality and make sense of information presented to them. During listening activities, learners construct internal representations of characters, settings, actions, and relationships, thereby transforming auditory information into meaningful cognitive structures.

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The cognitive foundations of mental modelling can be explained through several complementary theories. Mental Model Theory proposes that comprehension occurs when learners build internal representations of situations and events described in language. Similarly, Dual Coding Theory (Paivio, 1990) suggests that information is processed through both verbal and visual systems. When learners translate spoken information into visual representations such as drawings or diagrams, comprehension and memory retention are strengthened because both cognitive systems are activated simultaneously. Furthermore, constructivist theories of learning emphasise that learners actively construct knowledge by connecting new information with prior experiences and existing cognitive schemas.

In ESL contexts, listening comprehension involves more than merely recognising words and sentences. Learners must interpret meaning, establish relationships among ideas, infer intentions, and connect information with their prior knowledge. Mental modelling offers a means through which these cognitive processes can become visible and measurable. By representing their understanding through drawings and diagrams, learners externalise their internal cognitive processes, allowing educators to gain deeper insights into comprehension that may not be evident through conventional written responses alone.

Although mental modelling has been widely investigated in fields such as science education, reading comprehension, and problem-solving, relatively little research has explored its role in listening comprehension among ESL learners. This gap is particularly evident within Indian school contexts and among socio-economically disadvantaged learners. Therefore, the present study examines the effectiveness of mental modelling as a cognitive strategy for enhancing listening comprehension among ESL learners and evaluates its potential as an alternative formative assessment approach.

LITERATURE REVIEW

Cognitive Foundations & Mental Modelling

Mental modelling is a term in cognitive psychology that refers to how individuals build mental images of information to make sense and interpret the world around them. Craik (1943) was the first to suggest that people construct internal models of

reality, and Johnson-Laird (1983) formalised the Mental Model Theory, which holds that understanding involves constructing cognitive representations that simulate events, situations, and relationships described in language.

In educational contexts, mental models serve to structure information, infer conclusions, and connect new knowledge to previous experiences (Gentner & Stevens, 1983). Learners actively build meaningful representations that promote deeper learning and retention, rather than processing information as isolated facts.

Listening Comprehension and Cognitive Involvement

Listening comprehension is a complex cognitive process that requires the interpretation and integration of linguistic and contextual information. According to Kintsch's (1998) Construction-Integration Model, comprehension is the process by which learners integrate new information with existing knowledge structures to develop meaningful mental representations. Similarly, Vandergrift (2007) states that good listening involves cognitive processes such as prediction, inferencing, monitoring, and evaluation.

Constructivist theories also state that learners actively construct meaning by connecting new information to previous experiences (Piaget, 1952; Vygotsky, 1978). This active involvement is a sign of cognitive engagement, the mental effort learners put into understanding and processing information (Fredricks et al., 2004). This engagement is facilitated by mental modelling that encourages the transformation of auditory input into meaningful representations.

Visual Representation and Dual Coding

Paivio's (1990) Dual Coding Theory explains the relationship between visual representation and learning by suggesting that information is processed through both verbal and visual systems. When learners use drawings or diagrams to represent spoken information, both systems are activated, resulting in a better understanding and retention of what they learn.

Research has found that visual representations encourage learners to organise, interpret, and reconstruct information, which leads to deeper cognitive processing (Mayer, 2005). Visual mental models allow learners to represent characters,

settings, and events within narrative contexts, thereby facilitating a deeper understanding of the story (Bower & Morrow, 1990).

Mental Modelling in ESL Learning

Studies have shown the usefulness of mental modelling in reading comprehension, science education, and problem-solving (Zwaan & Radvansky, 1998). Visual representation activities have been shown to reveal dimensions of understanding not captured by traditional written responses in the language classroom (Sharma, 2015). Haven (2007) further contends that storytelling promotes learners' creation of vivid mental representations that help narrative understanding and engagement.

However, relatively little research has examined the role of mental modelling in the listening comprehension of ESL learners, particularly in school settings and among socio-economically disadvantaged groups. This gap underscores the need for more research on the potential of mental modelling as both a learning and assessment strategy in ESL classrooms.

Research Gap

Although mental modelling has been widely studied in the contexts of science education, mathematics problem-solving, and reading comprehension, its application to listening comprehension among ESL learners remains underexplored. This gap is particularly critical in the context of Indian government schools, where listening is a vital yet often neglected skill. The lack of research in visual versus verbal responses to auditory materials among SEDGs also creates a blind spot in the development of inclusive and effective pedagogical strategies. Additionally, there is limited empirical work that directly links mental modelling practices to NEP 2020's vision for experiential and self-directed learning.

Significance of the Study

This study is significant in several respects. First, it addresses a critical skill, listening comprehension, that is foundational to language acquisition yet often underprioritized in ESL contexts. Second, it contributes to equity in education by focusing on SEDGs, a demographic that faces structural disadvantages in language learning. Third, it offers a novel methodological lens by comparing mental modelling (visual/diagrammatic responses) to conventional verbal/written responses, thereby opening new pathways for both instruction and

assessment. Finally, it aligns with national educational goals by providing data-driven insights that support NEP 2020's focus on holistic and inclusive education.

RESEARCH OBJECTIVES

- To explore the role of mental modelling in enhancing listening comprehension among ESL learners.
- To compare the cognitive and emotional impacts of diagrammatic versus verbal/written response formats.
- To examine the applicability of mental modelling as an assessment method in language learning.

METHODS

Research Design

The current research employed a mixed-methods design, using qualitative and quantitative approaches, to investigate the effectiveness of mental modelling in improving ESL learners' listening comprehension. The study used a comparative design to explore differences between learners who used visual representations to respond to a listening task and those who used traditional verbal or written means. The quantitative component employed rubric-based scoring of student responses, and the qualitative component involved thematic analysis of drawings, written responses, and interview data. The mixed-methods approach enabled a more holistic understanding of how learners processed and represented information gained through listening.

Participants

The study involved 40 ESL learners aged 14 to 15 years who attended government schools in Karaikal and Puducherry. The participants predominantly belonged to socio-economically disadvantaged groups (SEDGs) and had similar exposure to English-language instruction within the school curriculum. Participants were randomly divided into two equal groups:

1. Set 1 (Mental Modelling Group): 20 students
2. Set 2 (Verbal Response Group): 20 students

The two groups participated in the same listening activity but responded using different modes of representation. The findings cannot be generalised beyond the present sample without further large-scale studies.

Participation was voluntary. Students' identities were anonymised, and data were used solely for

academic research purposes. Permission was obtained from school authorities before conducting the study.

Research Material

The listening text selected for the study was *The Fun They Had* by Isaac Asimov, prescribed in the NCERT Class IX English textbook. Isaac Asimov's "The Fun They Had" is a futuristic short story set in the year 2157, in which robotic teachers and individualised learning modules have replaced traditional schooling. The story was selected for three reasons:

1. It is linguistically appropriate for secondary-level ESL learners.
2. It contains a clear narrative structure with identifiable characters, settings, and events.
3. Its futuristic theme encourages imagination and visualisation, making it well-suited to mental model construction.

The story was narrated orally by the researcher in a classroom setting to ensure uniform exposure among participants.

Procedure

The study was conducted in seven stages.

- **Stage 1 – Orientation:** Participants were informed about the activity and instructed to listen carefully to the story. No prior explanation regarding mental modelling was provided to avoid influencing their responses.
- **Stage 2 - Listening Task:** The story "*The Fun They Had*" was narrated to both groups in a classroom setting. The narrative was presented twice to ensure adequate comprehension.
- **Stage 3 - Mental Modelling Activity (Set 1):** After listening to the story, participants in Set 1 were asked to create drawings, diagrams, or other visual representations that reflected their understanding of the narrative. Students were encouraged to depict characters, settings, events, or ideas that they considered important.
- **Stage 4 - Verbal Response Activity (Set 2):** Participants in Set 2 responded to the story through written and verbal descriptions. They answered a set of structured interview questions designed to explore their understanding of the narrative, character preferences, and interpretation of events.
- **Stage 5 - Collection of Responses:** All drawings, written responses, and interview records were collected and organised for analysis.

- **Stage 6 - Evaluation:** Responses from both groups were evaluated using a common assessment rubric developed for the study. The rubric focused on comprehension and representation of narrative content rather than artistic ability or language accuracy.

- **Stage 7 - Comparative Analysis:** Scores and qualitative findings from both groups were compared to identify similarities and differences in listening comprehension and narrative interpretation.

Data Collection Instruments

Three instruments were used for data collection:

- **Listening Task:** The story served as the primary listening-comprehension stimulus.
- **Interview Schedule:** A semi-structured interview schedule consisting of seven questions was administered to Set 2 participants. The questions explored learners' understanding of the story, character preferences, emotional reactions, and interpretation of the narrative.
- **Mental Model Drawings:** Visual representations created by Set 1 participants served as qualitative data reflecting learners' comprehension and interpretation of the listening text.

Assessment Rubric

To ensure consistency in evaluation, responses from both groups were assessed using a rubric with a maximum score of ten marks. Responses were evaluated by the researcher using a common rubric to ensure consistency.

Table 4. Assessment Rubric

Criterion	Marks
Accuracy of Story Understanding	0–2
Representation of Major Themes	0–2
Interpretation of Characters and Events	0–2
Creativity and Originality	0–2
Overall Coherence and Relevance	0–2
Total	10

The rubric was used only to compare response quality and was not intended as a standardised psychological measurement instrument.

Data Analysis

The study employed both quantitative and qualitative techniques. Scores obtained through the assessment rubric were tabulated and converted into percentages for comparison between the two groups. Descriptive statistics were used to identify performance trends.

Drawings, written responses, and interview data were analysed using thematic analysis. Recurring themes such as representations of robotic teachers, futuristic classrooms, traditional schooling, technology-enhanced learning, and character interpretation were identified and categorised. The analysis focused on how learners represented and interpreted narrative elements after listening to the story. Interpretations were derived from observable features in participant responses and supported by examples from the collected data.

FINDINGS AND ANALYSIS

The study examined the responses of two groups of ESL learners who completed the same listening task based on “The Fun They Had.” The participants in Set 1 demonstrated their understanding with drawings and diagrams; the participants in Set 2 demonstrated their

understanding with written and verbal descriptions. The analysis concentrated on identifying recurring themes, representations of story elements, and differences between visual and verbal modes of response.

Findings Based on Models Created

Following the collection, the first set of participants’ drawings were categorised based on what was readily visible, such as humans, machines, and the environment. Furthermore, the drawings were thoroughly examined, and the following observations were noted across them.

Analysis of the Models

All the information gathered from the set 1 participants via the images they drew was analysed. The data was tabulated, and the percentages for each statement are shown in Table 1 above; the same has been drafted as a graph.

Table 1: Analysis of drawings done by set 1 participants after listening to the story

S.No	Theme of Drawing by Participants	No. of Students	Percentage
1	Students drew robots in their pictures	16	80%
2	Robotic teacher, specifically in a traditional class	6	30%
3	Specific detailing	10	50%
4	An interactive Hologram room	1	5%
5	Knowledge Wheel	1	5%
6	Irritated the human teacher with the mechanical teacher	1	5%
7	Desired hairstyles and dress codes	1	5%
8	A child dreaming of a conventional class	1	5%
9	Imaginative symbolic drawings (away from the story)	4	20%
10	One-to-one computer-based classroom	4	20%

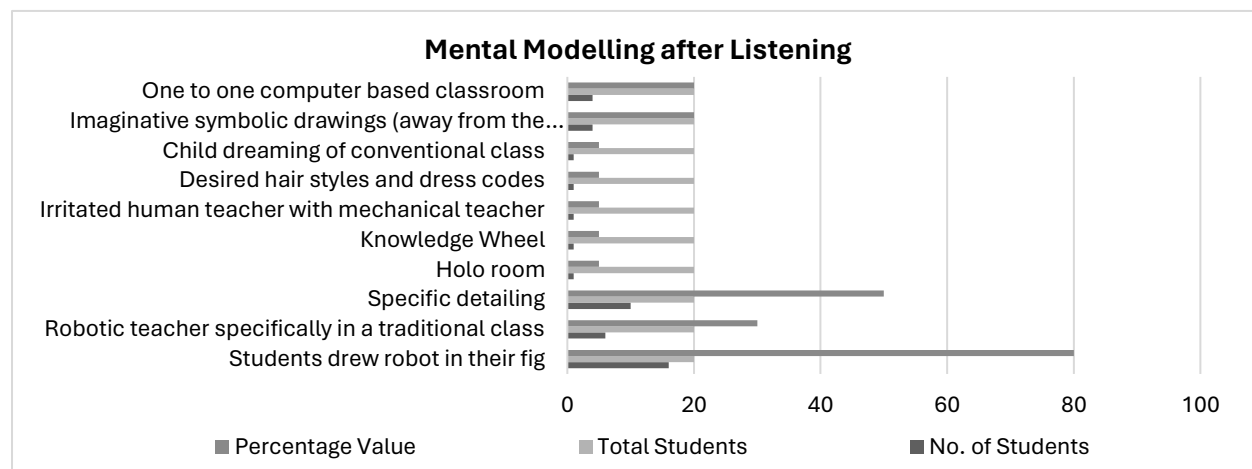


Figure 1. Analysis of Drawings done by participants after listening to the story

Human Figures in Drawings

The most frequently occurring element was the robotic teacher, appearing in sixteen of the twenty drawings. This finding suggests that participants identified the mechanical teacher as a central

feature of the narrative. Detailed classroom settings were also commonly depicted, indicating that learners paid attention to the story’s environmental aspects (Fig 2).

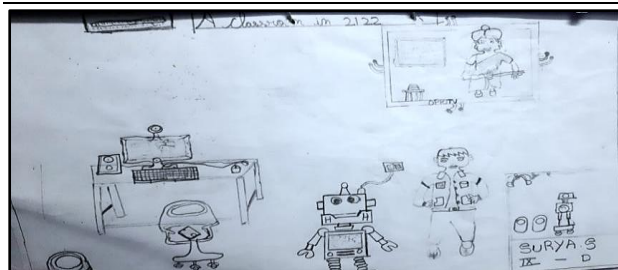


Figure 2. A Future Classroom with a Robotic Teacher and a Student.

A Robot Instructor in a Traditional Classroom

Several participants sketched robotic teachers instructing students, with varying sizes, positions, and levels of detail. In one drawing (Fig.3), the participant contrasted a human teacher with a robotic teacher, highlighting two educational systems discussed in the narrative. Others (Figs. 4 & 5) illustrated robotic teachers in traditional classrooms, reflecting participants' futuristic visions.

Figure 6 depicts a participant's detailed illustration that includes social distancing, dress codes, hairstyles, and classroom elements, reflecting the psychological impact of the pandemic. Their mindset is often expressed through creative outlets like drawing.

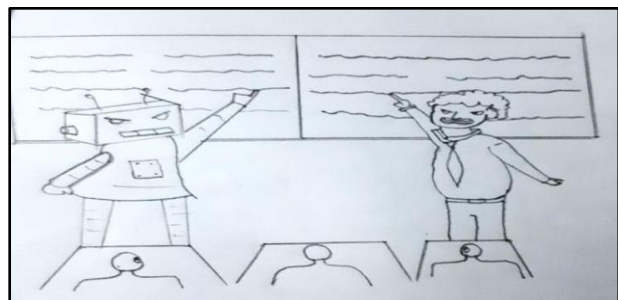


Figure 3. Robot versus human teacher

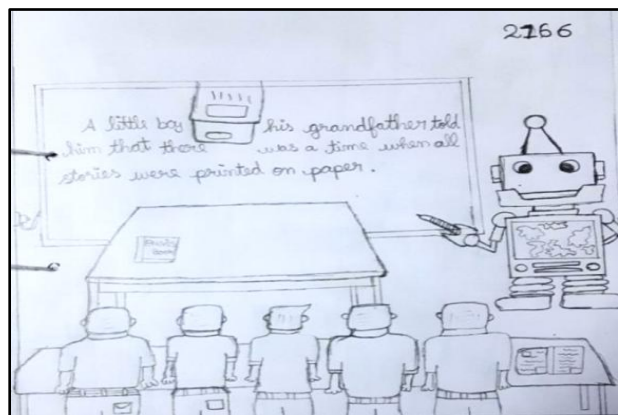


Figure 4. Robotic Teacher in a Traditional Classroom.

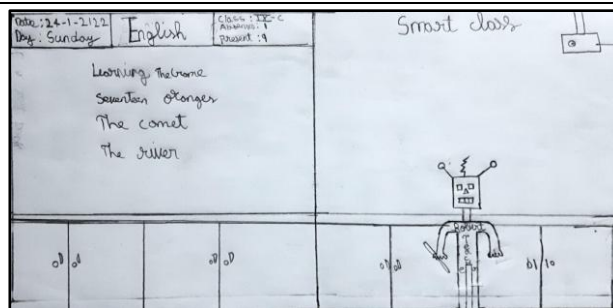


Figure 5. Robotic Teacher in a Traditional Classroom.

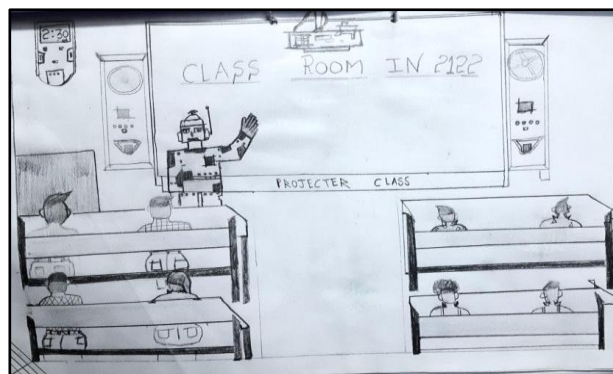


Figure 6. A Classroom with a Robotic Teacher

Indirect Allusions to the Story

Some illustrations depict the story's setting and characters. Figure 7 focuses on the robotic teacher, referencing Sophia, the humanoid robot. Figure 8 shows home-schooled students longing for traditional schooling. Mental modelling improves comprehension (Held et al., 2006; Waechter & Goel, 2006). These drawings reflect participants' futuristic views on education, aligning with the rise of AI and robotics in learning (Selwyn, 2019).

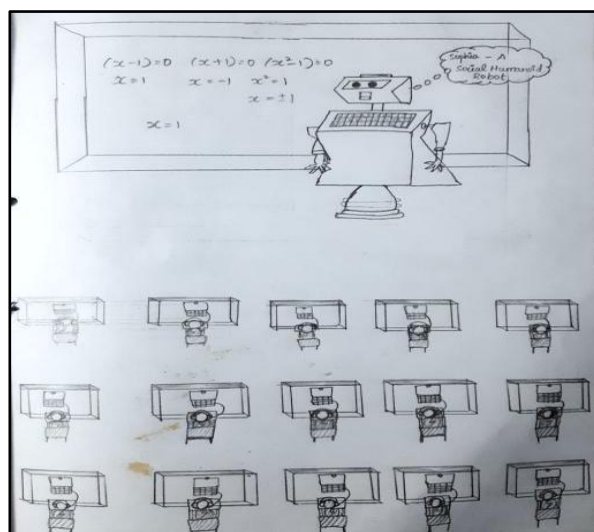


Figure 7. Humanoid Robot Teacher

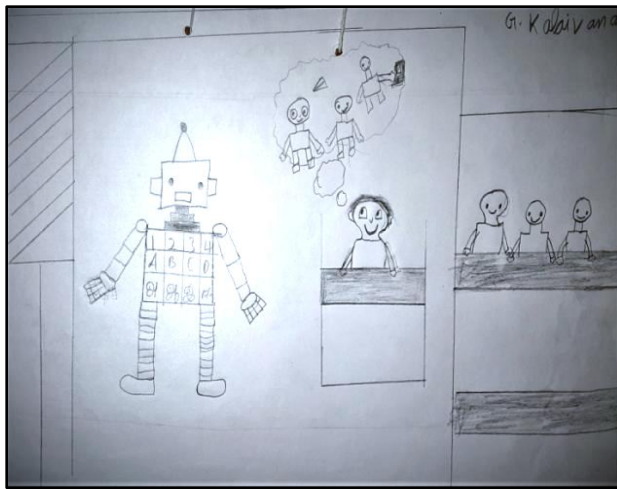


Figure 8. A future child dreams of attending a traditional school

Labelling with a Verbal Description

After hearing the story, ten participants labelled their drawings, with some adding short descriptions. These labels included story elements like robotic teachers, gadgets, and settings, reinforcing comprehension through visual learning. Paivio's Dual Coding Theory suggests that combining visuals with text enhances memory (Paivio, 1990).

This participant (Fig.9) extended the narrative by depicting a holographic learning environment. Although not explicitly described in the story, the illustration reflects the learner's interpretation of future educational technologies.

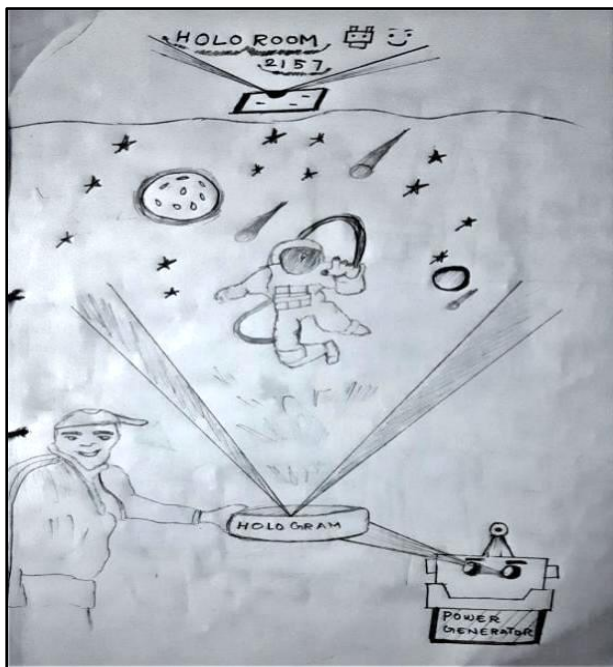


Figure 9. Holographic Lessons in the Future

Symbolic and Abstract Drawings

Figures 10 and 11 illustrate a student-centred learning environment in which participants use smartphones as teaching aids for abstract projection displays, fostering critical thinking and collaboration. Figure 12 highlights the rise of online learning during the pandemic, emphasising mobile devices as essential educational tools. By integrating personal experiences into their drawings, participants made learning more meaningful. These innovative approaches enhance engagement, inclusivity, and effectiveness in education.

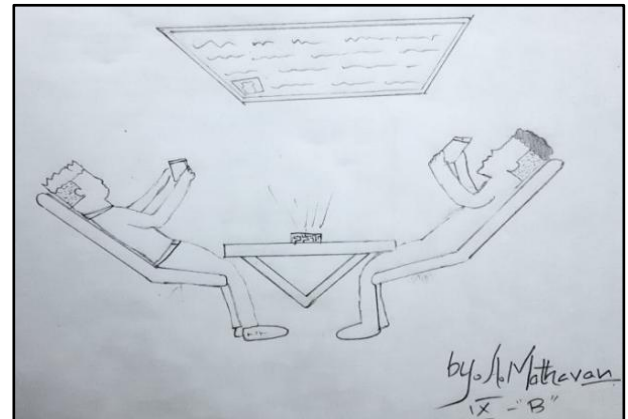


Figure 10. A Smart Learning Ambience

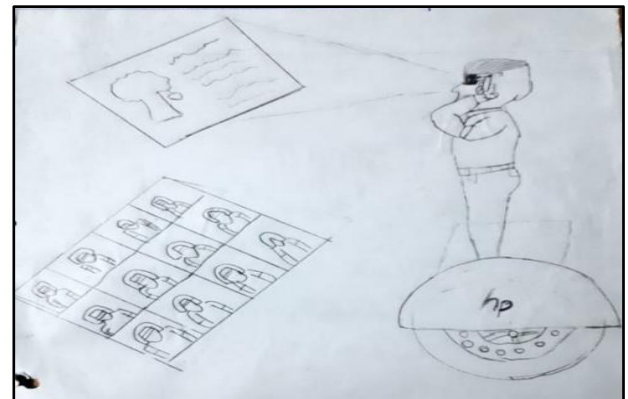


Figure 11. A Smart Learning Ambience

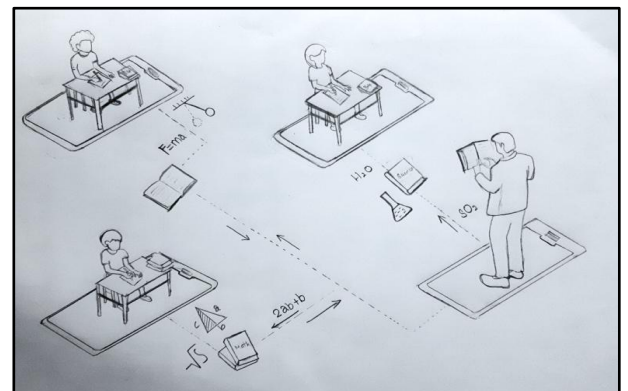


Figure 12. Smartphone-Based Online Classes

The Theme of Individualised Learning

Figures 13 and 14 illustrate a self-paced learning approach in which learners independently engage with study aids such as books, notebooks, and personal computers. A robotic teacher provides adaptive guidance, feedback, and support, making learning more personalised and flexible.

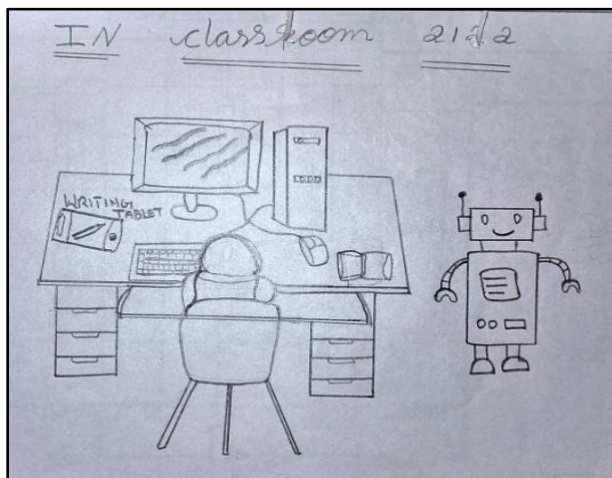


Figure 13. Individualised Learning

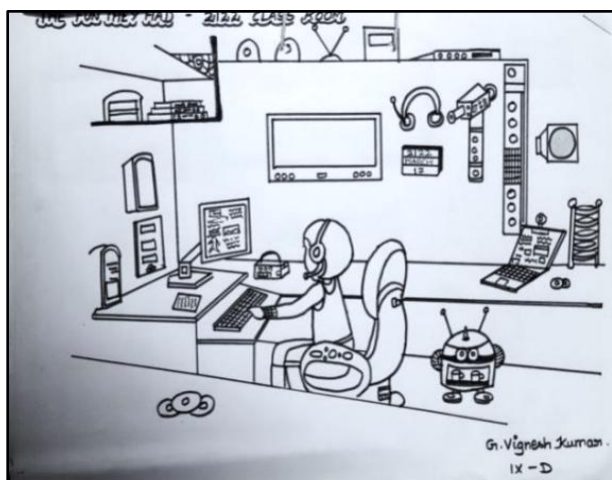


Figure 14. Individualised Learning



Figure 15. Future classrooms.

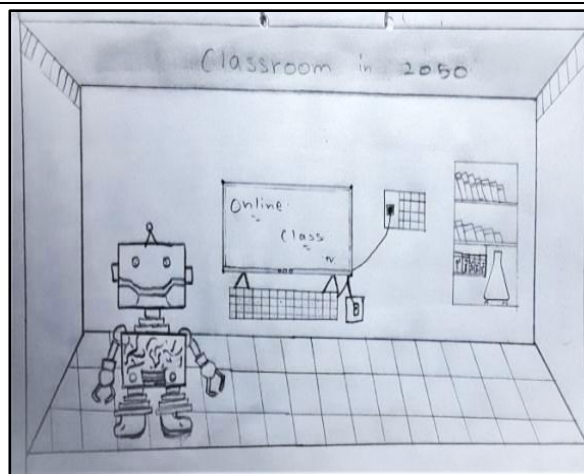


Figure 16. Future classrooms.

Concerning the Current State of Society

Figure 15 envisions a future dominated by online learning, featuring a robotic educator conducting virtual classes and emphasising technology's role in education. Fig.16 warns of a hypothetical future virus strain, underscoring the need for ongoing vigilance.

Thematic Patterns Emerging from the Drawings

Analysis of the mental models revealed four recurring themes: technology-based education, traditional schooling, individualised learning, and creative extensions of the narrative. The most dominant theme was technology-based education, represented through robotic teachers, digital learning tools, and futuristic classrooms. Several participants also depicted traditional classroom settings, highlighting the contrast between conventional and future educational systems presented in the story.

Another recurring theme was individualised learning, with learners illustrating home-based and technology-assisted instruction. A few participants extended the narrative by incorporating imaginative elements such as holographic classrooms and advanced educational technologies. Overall, the drawings demonstrated participants' ability to identify and visually represent key aspects of the listening text.

Analysis of Verbal Responses (Set 2)

The verbal responses indicated that most participants understood the story's central theme, characters, and setting. Learners frequently discussed the role of the mechanical teacher and the differences between traditional and technology-driven education.

While the responses reflected accurate comprehension of the narrative, they primarily focused on retelling events and expressing opinions. Compared to the mental models, the verbal responses contained fewer contextual and symbolic details.

Comparative Analysis of Visual and Verbal Responses

Both groups demonstrated an understanding of the listening text; however, differences were observed in the mode of representation. Set 1 participants expressed their understanding through drawings that included characters, settings, and technological elements, whereas Set 2 participants relied mainly on narrative explanations and summaries.

The visual responses displayed a wider range of representations and contextual details, suggesting that mental modelling provided learners with an additional means of expressing comprehension.

Rubric-Based Evaluation

Responses from both groups were evaluated using the assessment rubric described in the methodology section. Comparative scoring showed that Set 1 participants achieved higher average scores than Set 2 participants across the assessment criteria.

The mental models demonstrated detailed representation of story elements and themes, while the verbal responses focused primarily on narrative recall. These findings suggest that mental modelling supported learners in communicating their understanding of the listening text.

Comparative Analysis of Findings

Student responses were assessed through verbal narratives (Set 2) and diagrammatic representations (Set 1). Performance was evaluated on a 10-point scale, and scores were compared for final analysis, with results presented graphically for clarity.

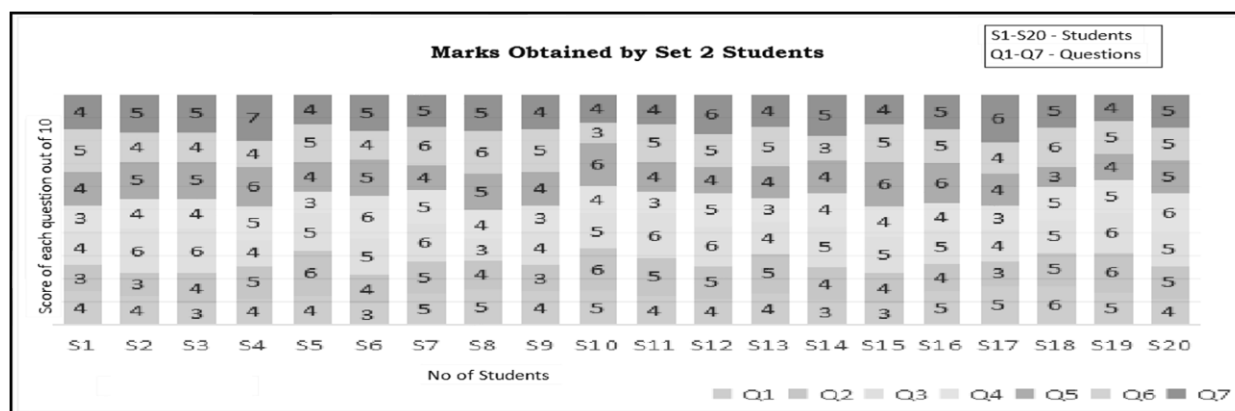


Figure 17. Evaluation of Set 2 Students

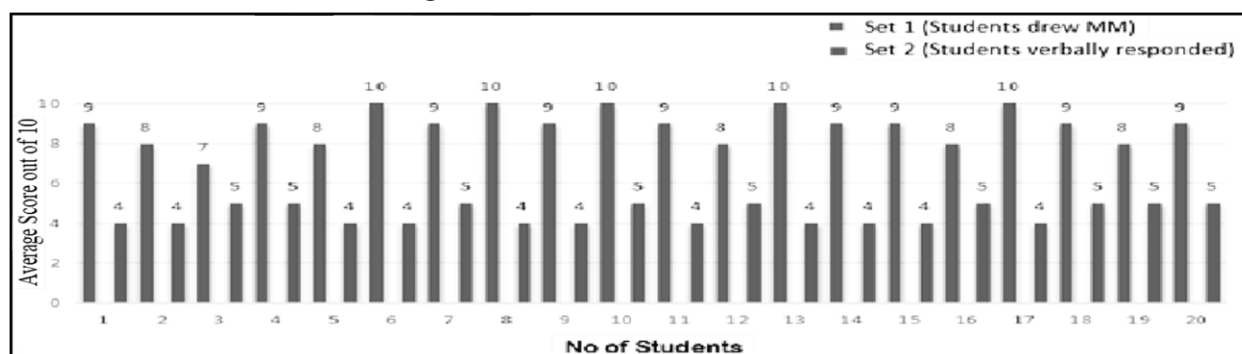


Figure 18. Comparison of the average scores of Set 1 and Set 2 students

The graph presents the evaluation outcomes for Set 2 pupils based on their verbal or written responses to seven questions (Q1–Q7). Scores were assigned based on relevance, creativity, comprehension, task correlation, and relatability. Individual scores were recorded, aggregated, and

compared with Set 1 for analysis. Set 1 participants, who used mental modelling, outperformed Set 2 participants, who scored no higher than five out of ten. Mental modelling enhanced expressiveness and creativity, whereas Set 2 primarily focused on verbal details.

SUMMARY OF FINDINGS

The study produced four major findings:

- Learners successfully transformed auditory information into visual representations of the narrative.
- Technology-based education emerged as the most prominent theme across the drawings.
- Visual responses demonstrated greater contextual and symbolic representation than verbal responses.
- Mental modelling provided an effective alternative means for learners to demonstrate listening comprehension.

These findings indicate that visual representation can serve as a valuable complementary strategy for listening activities in ESL classrooms.

DISCUSSION

Mental Modelling and Listening Comprehension

Results indicate that participants could translate auditory information into meaningful visual representations of the narrative. The recurring depiction of robotic teachers, futuristic classrooms, individualised learning environments, and traditional schooling indicates that learners were able to identify and organise key elements of the listening text. These visualisations provide evidence that the learners understood the story and were able to transduce the auditory input into structured representations.

This result is consistent with Mental Model Theory (Johnson-Laird, 1983), which assumes that comprehension proceeds by the construction of internal representations of events, situations, and relationships described in language. The drawings made by the participants can be seen as external representations of these mental models, showing how the learners interpreted and organised information learned through listening. The findings suggest that mental modelling can aid listening comprehension by enabling learners to articulate their understanding through means besides the usual verbal or written modes.

Making Meaning through Visual Representation

The mental models showed that learners did not simply reproduce information from the story but actively interpreted its content. Most of the drawings depicted important story elements, although a few participants added extra details and futuristic educational ideas not explicitly included in the text.

These visualisations indicate that learners were making connections to the narrative, relating story events to their own perceptions of technology and future education. Similar observations have been reported by Haven (2007) and McKee (1997), who argue that narratives enhance comprehension through structured meaning-making. Examples of learners constructing meaning from both the listening text and their own prior knowledge include the incorporation of holographic classrooms, cutting-edge learning technologies, and novel educational spaces. This is consistent with constructivist views of learning, in which learners construct knowledge by linking new information to existing experience and knowledge structures (Piaget, 1952; Vygotsky, 1978). Hence, the visual representations served as evidence of understanding and as indicators of the learners' interpretations of the narrative.

Dual Coding and Narrative Comprehension

The results also support Dual Coding Theory (Paivio, 1990), which proposes that the verbal and visual processing of information may enhance understanding. In the present study, participants listened to the story first and then represented their understanding in drawings. This process involved the learners transforming auditory information into visual form, using several modes of representation.

The drawings frequently contained more contextual details about characters, settings, and the educational environment than the verbal answers did. The visual mode allowed learners to express aspects of understanding that were not always apparent in written or oral descriptions. Visual representation aided memory and understanding. This observation is supported by Paivio's Dual Coding Theory (1990) and by Mayer's Cognitive Theory of Multimedia Learning (2005). The findings suggest that integrating listening activities with visual representations is an effective way to provide learners with additional opportunities to demonstrate and communicate their understanding of narrative texts.

Implications

The comparison between visual and verbal responses indicates that mental modelling might be a useful additional strategy in ESL classrooms. Both groups comprehended the listening text, but the mental modelling group generated more varied

representations that reflected learners' interpretations of the narrative content.

The results suggest that visual representations complement traditional listening tasks by providing learners with alternative means of demonstrating understanding. This approach is especially helpful in classrooms in which learners find it difficult to communicate their ideas through conventional written responses alone.

Mental modelling can be used as a formative assessment strategy and to support instruction, as it provides teachers with insights into how students interpret characters, settings, events, and themes in a listening text. This approach provides practical possibilities to improve both listening instruction and comprehension assessment in ESL settings.

The results of the study show that mental modelling can be integrated into the ESL classrooms as an extra technique for listening instruction. When teachers ask learners to represent their understanding through drawing and other visual representations, they can gain a sense of how learners interpret characters, settings, events, and themes that are not always apparent in traditional written responses.

The method may be especially useful for learners who have difficulty articulating their understanding using only language. Visual representations offer an alternative mode of response and can provide teachers with a more accessible way to identify learners' understanding of narrative content.

Mental modelling is also in consonance with the learner-centred approaches advocated in contemporary educational frameworks, including the National Education Policy (NEP) 2020, which emphasises creativity, experiential learning, and multiple forms of expression. The strategy promotes active learner participation and enables students to work with listening texts beyond mere recall of information.

From an assessment perspective, mental modelling can serve as a formative assessment tool to supplement traditional listening comprehension activities. It can be used alongside verbal and written responses to provide a more holistic view of the learners' understanding and interpretation of listening texts. It is not a substitute for existing methods of assessment.

In summary, the results suggest that mental modelling can make ESL listening activities more

interactive, reflective, and learner-centred, while also offering teachers another means of assessing comprehension.

CONCLUSION

The current study examined the effectiveness of mental modelling as a strategy to improve listening comprehension among ESL learners. The study explored how learners represented and interpreted narrative content through various modes of expression by comparing visual and verbal responses to a listening task based on "The Fun They Had." The findings revealed that participants who engaged in mental modelling were able to transform auditory information into meaningful visual representations of characters, settings, events, and educational systems presented in the story.

The comparison between visual and verbal responses indicated that both groups understood the listening text; however, the mental modelling group produced a broader range of contextual and symbolic representations. These findings suggest that visual representation complements traditional response formats by providing learners with additional opportunities to express their comprehension and interpretation of narrative texts.

The study further highlights the potential of mental modelling as a learner-centred instructional and formative assessment strategy in ESL classrooms. By enabling learners to externalise their understanding through drawings, the approach offers teachers an alternative way to observe and evaluate listening comprehension. Mental modelling contributes to more interactive and inclusive language learning environments.

While the study was limited to a small sample of secondary-level ESL learners and a single listening text, the findings indicate that mental modelling is a promising approach for supporting listening comprehension and narrative understanding. Future research may explore its application across different age groups, language proficiency levels, text types, and educational contexts to further examine its effectiveness in ESL and EFL learning environments.

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Annexure 1

Guide for Interviews

- Once the little narrative has been heard, with whom did you feel the most potent emotions? Do you have a favourite place?
- Which topic serves as the story's primary focus?
- Which characters did you relate to the most?
- Does each character make you feel a different way?
- Which character in the story do you find most appealing and why?
- Can you provide more details about the emotions you experienced towards the character?
- If you have any memories of getting lost in the story or going on a plot-related adventure, please share them.