

ENHANCING VOCABULARY ACQUISITION THROUGH HYPERMEDIA-BASED LISTENING: EVIDENCE FROM SRI LANKAN HIGHER EDUCATION

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ABSTRACT

Hypermedia-based listening plays a crucial role in the success of students learning English as a second language. The study aimed to assess the effectiveness of hypermedia-based instruction on listening skills in English as a second language. Strategies involving display boards and video-based methods were employed for vocabulary development. This research involved students enrolled in the Higher National Diploma in English at the Advanced Technological Institute of the Sri Lanka Institute of Advanced Technological Education (SLIATE). An experimental group comprised ninety students from class - A, while an equal number of students from class - B served as the control group. Both groups underwent a pre-test to evaluate their vocabulary development prior to the intervention, revealing negligible mean differences between them. Subsequently, the experimental group participated in hypermedia-based listening for six months, totalling sixty hours of learning, whereas the control group received instruction without hypermedia-based methods. After six months, a post-test was administered to both groups. In the post-test results, the mean for group - B (-0.090) showed a slight development compared to the pre-test, while group - A exhibited a significant development in their mean (-2.761). Consequently, a positive correlation was established between hypermedia-based listening and the vocabulary development.

KEYWORDS: *Hypermedia, Display board, Listening learning strategies, Video-based method, Vocabulary development*

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1. INTRODUCTION

The academic performance of students in developing vocabulary through hypermedia-assisted listening is a widely discussed issue in higher education today. Hypermedia combines different types of media elements within the learning process and offers creative methods for presenting information in both listening and writing activities. It helps learners connect new knowledge with what they already know, enabling them to manage and apply course-related information more effectively.

It has been noted that students' low engagement in hypermedia-based listening activities is considered a key factor behind their limited progress in vocabulary development within academic programmes. Over the past decade, numerous studies have examined the connection between hypermedia-supported listening and vocabulary growth, revealing a positive link between the two (Al-Harbi & Mirza, 2024). However, research in the context of higher education in Sri Lanka—especially within SLIATE—remains scarce. Therefore, this study seeks to explore the impact of hypermedia-based listening, in combination with specific learning strategies, on students' vocabulary development. The research utilises data collected from the HNDE programme at the Advanced Technological Institute (ATI) under SLIATE, which functions under the Ministry of Education in Sri Lanka.

Hypermedia-based listening has become one of the most important tools for communication in today's world, especially with the rise of the internet. For learners of English as a Second Language, it offers valuable opportunities to acquire new vocabulary, useful sentence structures, creative ideas, and guidance on writing everyday paragraphs (Sharif et al., 2024). This approach not only helps learners improve their listening abilities but also deepens their understanding of their environment and community. Furthermore, hypermedia-based listening gives access to a wide range of informative materials, research, and reputable articles on global issues. Studies suggest that, without the aid of hypermedia-based listening, learners often

face difficulties in understanding various experiences, situations, and ideas related to concepts like happiness, mainly due to their limited language proficiency (Siegel & Siegel, 2015).

2. LITERATURE REVIEW

Recent studies underscore the pivotal role of hypermedia-based listening in enhancing vocabulary acquisition among English as Second Language (ESL) learners, particularly in higher education contexts. (Sharif et al., 2024) experimentally demonstrated that incorporating hypermedia-based listening into the curriculum significantly improved college students' vocabulary proficiency compared to conventional teaching methods. This finding highlights the value of providing contextualized and meaningful learning experiences where learners can retain and apply new vocabulary effectively. Similarly, (Pathan et al., 2024) emphasize that listening facilitates learners' comprehension and appropriate application of new words by providing exposure to language in authentic contexts, thus enhancing both vocabulary breadth and depth.

Hypermedia-based listening, as defined by (Hien, 2015), integrates audio with rhythm, musicality, and aesthetic linguistic features to convey emotions, experiences, and ideas vividly. Such an approach stimulates imagination, fosters engagement, and promotes deeper understanding. However, divergent perceptions exist regarding its difficulty: educators often perceive it as complex to teach, while students find it challenging due to advanced vocabulary and stylistic expressions (Pathan et al., 2024). This tension underscores the need for instructional scaffolding to mediate learners' engagement with hypermedia content.

The pedagogical integration of technology-mediated listening tools—including hypermedia, blogs, interactive videos, and display boards—offers an immersive learning environment that facilitates active engagement with language, syntactic structures, and stylistic features (Richards, 2008). Empirical studies further support that dual-coded hypermedia (audio combined with visuals or keywords) enhances learners'

perceptions of learning and promotes deeper processing, while captioned/subtitled videos improve vocabulary acquisition through multimodal input (Richards, 2008; 2023 corpus study). These findings indicate that strategic instructional support, combined with rich linguistic input, is essential for optimizing vocabulary development in hypermedia environments.

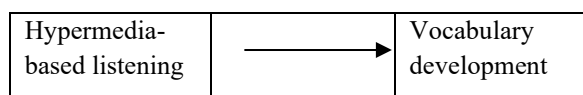
Despite these advances, persistent challenges remain. Learners often struggle with words in professional and organizational contexts due to insufficient engagement with authentic situations, lack of scaffolding, and unmotivating content (Webb, Uchihara & Yanagisawa, 2023). Repetitive vocabulary exercises and abstract presentations exacerbate learner fatigue and negative attitudes, hindering the internalization of new lexical items. This highlights the critical need for context-rich, engaging, and learner-centred approaches that promote meaningful interaction with vocabulary (Rost, 2001).

Songs and video-supported media have also emerged as effective hypermedia tools. Paudel (2025) and Schander, Balma & Massa (2014) conceptualize songs as structured listening scripts that communicate emotions and ideas while engaging multiple senses. Such materials facilitate emotional engagement, empathy, and reflective listening, fostering vocabulary retention and comprehension (Liu, 2024; Pradini & Adnyayanti, 2022). This aligns with the broader perspective that hypermedia, by integrating audio, visual, and textual input, creates enriched learning environments conducive to active and strategic vocabulary acquisition.

Structured listening exercises, including dialogue-based and directive listening activities, further enhance comprehension when paired with technology-mediated materials (Tabiri, 2016; Flowerdew & Miller, 2010). These approaches cater to diverse cognitive styles, highlight auditory features (pronunciation, stress, intonation), and allow repeated practice—thus supporting vocabulary acquisition and fluency (Hien, 2015). The combination of hypermedia with such pedagogical strategies promotes active engagement, learner autonomy, and deeper cognitive processing,

reinforcing the potential of multimedia instruction for language development.

Overall, the literature demonstrates a consistent link between hypermedia-based listening and improved vocabulary acquisition. Hypermedia environments, especially those integrating audio, video, and interactive features, provide repeated, context-rich exposure that enhances comprehension and retention. . However, there is a clear need for research that systematically examines to assess the effectiveness of hypermedia-based instruction on listening skills for vocabulary acquisition with strategies involving display boards and video-based methods among students enrolled in the Higher National Diploma in English at the Advanced Technological Institute of the Sri Lanka Institute of Advanced Technological Education (SLIATE) as there is no previous attempts.



2.1 Research questions

Does hyper-media listening have any effect on the development of vocabulary?

3. METHODOLOGY

The study aimed to investigate the relationship between hypermedia-based listening and students' vocabulary development. Two groups of students were randomly selected from the HNDE course, which included a focus on listening skills, at the Advanced Technological Institute - Sammanthurai, part of SLIATE. The experimental group consisted of 90 first-year students from the Higher National Diploma in English - class A, while an equal number of students from the Higher National Diploma in English - class B served as the control group.

A pre-test with questions based on listening (gap filling with words, underlining the correct answers and circling the suitable phrases) was administered to both groups in the area of vocabulary development, and the

differences in their means were analyzed statistically. Following the pre-test, the experimental group engaged in hypermedia-based listening, utilizing learning strategies such as the Display Board, a digital platform for showcasing parts of speech from the listening activities, and the Video-based Method, where a digital screen was used to pronounce words in sentences with rhythm. This instruction lasted for six months, with participants completing sixty or more hours of learning activities, while the controlled group continued with traditional teaching methods. After six months, a post-test was conducted for both groups, featuring word-related questions of similar difficulty levels focussed on vocabulary development, and the results were analysed statistically to compare any changes resulting from the integration of hypermedia into the teaching and learning process.

3.1. Hypothesis

In order to accomplish the aim of this research the following hypotheses were developed.

H 0: There is no impact of hypermedia based listening on vocabulary development.

H 1: There is an impact of hypermedia based listening on vocabulary development.

4. RESULTS AND DISCUSSION

The analysis of the data and results highlights the representation of information gathered from pre and post-tests for both groups. In this evaluation, the primary focus was on the significant p-value and the difference in means, with assistance from the Statistic Package for Social Science – version 23.

Based on the results from the pre-test, Table 1 demonstrates that the mean score for group A was 10.1713 with a standard deviation of 2.02610, while group B had a mean score of 11.2221 with a standard deviation of 3.22034. The mean difference observed between Group A and Group B is -0.844 in the independent samples test. The calculated t statistic is -

1.122, and the corresponding p-value is 0.064. This

Table 1: Group Statistics

	Group	N	Mean	Std. Deviation	Std. Error Mean				
Pre-test	A	90	10.1713	2.02610	.21706				
	B	90	11.2221	3.22034	.32996				
Independent Samples Test (Pre-Test)									
	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	13.28	.000	-1.122	78	.064	-.844	.3949	-1.6238	-.0650
Equal variances not assumed			-1.135	54	.064	-.844	.3949	-1.6246	-.0642

indicates that the value exceeds 0.05, leading to the conclusion that the null hypothesis H₀ cannot be rejected, suggesting that the mean difference (-0.84444) is considered insignificant between the two groups.

Table 2 below presents the results of the paired sample t-test for group B, comparing pre-test and post-test scores. The post-test has a mean score of 11.3141 and a standard deviation of 3.13862. In the pre-test, the mean score is 11.2233 with a standard deviation of 3.13133. The difference in means between the pre-test and post-test for group B is -0.0908, and the standard deviation of this difference is 3.6338 based on the paired sample t-test. The t-statistic calculated is -0.203, and the corresponding p-value is 0.840. This value exceeds 0.05, indicating that the null hypothesis cannot be rejected and suggesting that the differences in means are minimal, demonstrating no significant improvement in performance between the two tests.

Table 2: Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean			
group — B	PreTest	11.2233	90	3.13133	.32996			
	PostTest	11.3141	90	3.13862	.33094			
Paired Samples Test								
	Paired Differences				T	df	Sig. (2-tailed)	
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower				Upper
PreTest — PostTest	-.090	3.638	.3835	-.8399	.6843	-.203	89	.840

The paired sample t-test results for group A (pre and post) are shown in Table 3 below. In the pre-test, the mean score was 11.4768, with a standard deviation of 2.0583. In the post-test, the mean score rose to 14.2376, accompanied by a standard deviation of 1.9187. The mean difference between the pre and post-tests for group A is -2.761, with a standard deviation of 1.8733 in the paired sample t-test. The t-statistic calculated is -14.585, and the corresponding p-value is 0.000. This p-value is less than the critical alpha level of 0.05 at a 95% confidence interval. Hence, we reject the null hypothesis (H0) and accept the alternative hypothesis (H1). This indicates that hypermedia-based listening combined with learning strategies significantly influences vocabulary development.

Table 3: Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
group - A	PreTest	11.4768	90	2.05830	.21706
	PostTest	14.2376	90	1.91877	.20223
Paired Samples Test					
Paired Differences					
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference	
				Lower	Upper
PreTest - PostTest	-2.761	1.873	.1972	-3.269	-2.4858
t				-14.585	
				8	9
					.000

4.1. Limitations

Although this study provides valuable insights into the impact of hypermedia-based listening on vocabulary development among students learning English as a second language, several limitations should be acknowledged. First, the research was confined to students enrolled in the Higher National Diploma in English at the Advanced Technological Institute of SLIATE, which may limit the generalizability of the findings to other institutions or learner populations. Second, the study primarily relied on quantitative data from pre- and post-tests, without incorporating qualitative measures such as learner feedback or classroom observations that could have offered deeper insights into learner engagement and attitudes toward hypermedia use. Third, the intervention period of six

months, though adequate for measuring short-term gains, may not fully capture the long-term retention and transfer of vocabulary knowledge. Additionally, factors such as students' prior exposure to digital learning tools, differences in motivation, and instructor variability were not controlled, which may have influenced the outcomes. Future research should consider employing a mixed-methods approach, expanding the participant pool, and exploring longitudinal effects to provide a more comprehensive understanding of hypermedia-based listening instruction.

5. CONCLUSION

The findings indicate that learners, who engaged in hypermedia-based listening activities, while simultaneously employing effective learning strategies as delineated in the methodology, achieved meaningful gains in vocabulary development. In the hypermedia context, learners were provided with multimodal input — audio, video and/or textual cues presented in an integrated environment — which supports vocabulary uptake by offering varied contextual and perceptual anchors. Research in foreign-language listening contexts has found that multimedia input combining auditory and visual channels aids vocabulary and listening comprehension by facilitating dual coding and reducing cognitive load (e.g., Learners' Perceptions Towards Dual-Coding in Adaptive Hypermedia Environments: Listening Texts, Keywords and Visuals, 2023).

Crucially, the benefit of the hypermedia-based listening was amplified when learners used explicit strategy instruction. Learning strategies — especially metacognitive ones such as planning, monitoring, evaluating, along with cognitive strategies like prediction, clarifying unknown vocabulary — help learners to actively engage with input, notice lexical items, and consolidate them into long-term memory. For example, Second Language Listening Instruction and Learners' Vocabulary Knowledge (Yeldham, 2021) found that strategy training in listening instruction significantly interacted with learners'

vocabulary knowledge to enhance self-efficacy and listening outcomes.

In contrast, the cohort of students who adhered to traditional learning methods — characterised by passive listening exposures, minimal strategic processing, and lower interactivity — did not register significant vocabulary growth. Traditional approaches may rely largely on input without sufficient scaffolding for noticing, processing or using new vocabulary. As such, the mere exposure to listening texts, without the strategic mediation and contextual richness afforded by hypermedia environments, may be insufficient for robust vocabulary development. This aligns with research that highlights the importance of strategic processing in listening and vocabulary tasks: metacognitive strategy instruction was shown to improve listening comprehension (see Meta-Cognitive Strategies in Teaching Listening in Higher Education, 2023).

Therefore, this contrast underscores that effective vocabulary development in listening contexts is not simply a function of exposure, but rather the interaction of richly-designed multimodal input with strategic learning processes. Hypermedia gives learners multiple channels to perceive, map and interpret new lexical items; when combined with strategy instruction, this leads to deeper encoding, better retrieval and more meaningful vocabulary growth. Educators should thus prioritise pedagogical designs that integrate hypermedia tools with explicit strategy instruction — guiding learners not just to listen, but to process, monitor and internalise new vocabulary consciously. Without such scaffolding, traditional passive methods may yield marginal vocabulary gains even if input is frequent.

5.1. Significance of the Study

This study provides experimental evidence regarding the connection between hypermedia-based listening and vocabulary development, adding further support to the existing literature. Additionally, the findings of this research will encourage learners to carefully consider how hypermedia-based listening can be integrated into classroom activities, as it enhances their thought

processes and brings real-life experiences into their learning. When learners recognise the benefits of hypermedia-based listening, their receptive and productive skills are likely to improve through higher levels of engagement, accepted levels of interpretation, established communication skills, and recognised writing abilities.

In addition to the direct investigation, establishing a link between hypermedia-based listening and vocabulary development would help inform various policies regarding English language education in Sri Lanka, potentially leading to a significant influence on educational policymakers.

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