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Research Paper

Vocabulary Development Across Three Languages and Students' Responses to Multilingual Teaching

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ABSTRACT: *The present study investigates the connection between vocabulary development in three languages and the students' responses to multilingual teaching. The sample consisted of 30 students from Classes VII and VIII at Kendriya Vidyalaya, Lamka, Northeast India. The study was conducted as a part of broader research initiative on multilingual education in alignment with the National Education Policy (NEP) 2020. It aimed to examine the impact of the different languages on the students' vocabulary acquisition, understanding, and overall language skills. By using descriptive-correlational methodology, the study evaluates vocabulary skills in their mother tongue, English, and Hindi, and the connection between the students' perceptions of multilingual teaching and their vocabulary knowledge. The results showed that there were differences in vocabulary proficiency among the three languages, with the students scoring highest in their mother tongue. Students' opinions about the multilingual approach were related to their vocabulary achievement in a significant and positive manner. Additionally, there were significant difference in the vocabulary performance within different levels of perception, implying that learner perceptions that are positive can be a facilitative factor in vocabulary learning in multilingual settings.*

KEYWORDS: *Vocabulary Acquisition, Language Learning, Multilingual Education, Multilingual Teaching.*

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I. INTRODUCTION

Vocabulary development is one of the most important parts of learning and literacy. It means the methodical and gradual building up and perfecting of words and their meanings in one or more languages. It is the backbone of language proficiency as it has a direct impact on reading comprehension, writing skills, and one's entire communication capability (Quines 2023; Salim et al., 2025; Zeng et al., 2025). A person can easily memorize, connect and even use the new words in different linguistic and academic contexts. To put it another way, since words are the smallest units of meaning, an adequate vocabulary provides the means to think, talk, read, write, and learn in the target language (Brooks et al., 2025). Also, a wide vocabulary gives learners the power to convey their subtle thoughts in a more precise and imaginative way. Regular reading of different kinds of texts also helps in the retention of words and also in their natural usage. The growth of vocabulary leads to more social and academic communication confidence, and thus, the learners are able to engage more with the language. New words are always fully incorporated into the personal vocabulary of the learner through continuous practice and active usage, and they support efficient understanding and making of inferences during reading. (Guerra & Kronmüller, 2024).

In settings where multiple languages are used, it a way of cross-linguistic transfer, as the knowledge of one language helps and also determines the learning of another to a great extent. The learners usually perceive many words more than they are able to actively apply and the merging of the languages in terms of word roots, meanings, or even sentence structures helps the process of acquiring new vocabulary in a more effective way

(Wealer et al., 2025). In India, for example, schools are very often multicultural, that is, students from different linguistic backgrounds are admitted. Each one of them representing a different language, dialect, and thought, creates a rich and colourful atmosphere in the classroom. In such a scenario, linguistic variety should be acknowledged as an asset and equipped with a sound strategy for its integration into the curriculum (Gupta & Jena, 2025). Hence, it is essential to treat multilingual education as just another natural and allowed part of schooling. When the ways of teaching genuinely mirror this diversity, the pupil gets the chance to not only learn but also to appreciate different languages.

Furthermore, multilingual classrooms are at the same time places where learning becomes a social practice and specially where the learning process is not only through formal teaching (Hamman-Ortiz et al., 2025). Student's peer learning through translating, code-switching, and explaining the ideas to each other in the languages they are familiar with is something that happens naturally (Asani & Saidah, 2025; Huang & Chalmers, 2023). Such collaborative interaction makes understanding stronger and cognitive processing deeper since the learners are capable of relating the new information to their existing linguistic knowledge (Mugambi, 2024). The teachers who notice and support these interactions are in a position to create activities designed for language comparison, discussion and reflection making the learning more enriching.

II. LITERATURE REVIEW

Frates et al., (2022) assessed an instructional package that included shared reading and was tasked with improving the decoding of English sight words among multilingual learners with substantial instructional support. The results indicated that vocabulary could be gained measurably if the instruction included the repeated and rich linguistic input through the shared reading, along with the explicit attention to the target word forms and meanings. Most importantly, the study pointed out the effective use of the learners' home languages as a support system to confirm meaning and help in comprehension. Two instructional frameworks were recognized as being particularly relevant to school-age learners: (a) the repeated and contextualized exposure to vocabulary, which was obtained through both incidental and intentional encounters, and (b) the strategic use of the first language (L1) that helped in quicker mapping of word forms to underlying concepts.

Abdulrahman (2023) study vocabulary growth done through the lens of multiple language acquisition and states that the learners of such environments come up with distinct methods that are not at all like those of monolingual ones. Besides, the study demonstrated that vocabulary learning is not confined to mnemonic repetition only but cultivated via the strategic use of languages across all known languages. It further shows that the mixing of languages, switching between codes, and borrowing of words are all natural means to learn new words and negotiate their meanings.

Elshafie & Zhang (2024) investigated preservice teachers' lesson plans and translanguaging techniques in different content areas, indicating that the use of pedagogical translanguaging, the intentional use of different languages for explanation, negotiating forms of the concept, and conducting formative tasks not only improve content understanding but also vocabulary mastery. Their qualitative and quantitative analysis revealed that the lesson plans which included first language (L1) explanations, cognate comparison, and multilingual group work, had higher task engagement and clearer conceptual uptake compared to monolingual plans. It also emphasizes teacher's intentionality as an important factor that translanguaging is most effective when teachers plan specific instances for the transfer of cross-language (e.g., providing difficult words in students' home language, prompting the search for cognates).

III. CONCEPTUAL FRAMEWORK

The process of learning a language not only includes learning isolated words but also requires the ability to create meaning through conceptual understanding. The conceptual framework of this research indicates how vocabulary knowledge, understanding of concepts, and acquiring a second or third language are interrelated. Learners with an advanced vocabulary knowledge will be able to access linguistic forms that express concepts and meanings through various languages. However, for effective language learning, it is necessary for learners to switch from surface-level recognition of words to a more profound understanding of how words are connected to ideas and experiences. The way vocabulary knowledge supports the development of conceptual understanding is through the learner being enabled to associate linguistic forms with cognitive representations and real-world contexts. Such grounding in the concept leads to new linguistic input processing and integration, as such, acquisition of additional languages is promoted. Learning through drawing prior knowledge , making cross-linguistic connections, and understanding the concept acts as a facilitator that lets the learners use the language in a deliberate and significant manner (Reynolds, 2025). This explains why the framework portrays language acquisition as a sequential and interdependent activity.

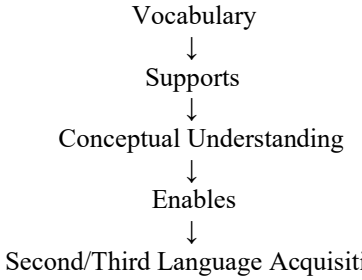

Fig1: Relationship between Vocabulary and Language Learning

IV. OBJECTIVES

1. To measure students' vocabulary knowledge in mother tongue, English and Hindi.
2. To explore students' perceptions of multilingual teaching.
3. To analyze the correlation between students' perceptions of multilingual teaching and their vocabulary achievement.

V. RESEARCH QUESTIONS

RQ1: What is the level of students' vocabulary knowledge in the mother tongue, English and Hindi ?
RQ2: What are the students' perceptions of multilingual teaching?
RQ3: Is there a significant relationship between students' perceptions of multilingual teaching and their vocabulary achievement ?

VI. HYPOTHESES

(H_0): There is no significant relationship between students' perceptions of multilingual teaching and their vocabulary achievement.
(H_1): There is a significant relationship between students' perceptions of multilingual teaching and their vocabulary achievement.

VII. METHODOLOGY

The research employed a descriptive-correlational design to characterize the vocabulary proficiency of learners in their mother tongue, English, and Hindi and to uncover the connections among perceptions and vocabulary gains.

7.1. Participants

A total of 30 students from class VII and VIII of Kendriya Vidyalaya School, Lamka, Northeast India, were selected using simple random sampling.

7.2. Data Collection Tools

The researcher inquired about the students' vocabulary knowledge and levels of language acquisition by creating vocabulary assessment tests in three languages. The researchers collected data from students through paper-based instruments, and to make sure that the students understood the instructions clearly, the researchers provided the students with very clear instructions. The vocabulary assessment was made up of three parts. In the first part section I, students' vocabulary knowledge in their mother tongue was evaluated. The students had to translate altogether ten words from English and Hindi into their mother tongue in this part. Section II comprised an English vocabulary test consisting of five multiple-choice items, in which students selected the correct synonyms and antonyms. Section III included a Hindi vocabulary test following the same format as Section II, requiring students to identify appropriate synonyms and antonyms in Hindi.In addition to the vocabulary tests, a 10-item, five-point Likert scale questionnaire (1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree)was administered to collect data on students' perceptions of multilingual teaching practices.

7.3. Validity and Reliability

The study employed researcher-designed vocabulary achievement tests in the mother tongue, English, and Hindi, developed in line with curricular objectives and reviewed by experts to ensure content validity. Reliability was maintained through objective scoring methods. In addition, students' perceptions were assessed

using a 10-item, five-point Likert-scale questionnaire adapted from the researcher's earlier validated thesis, with minor contextual refinements.

7.4. Data Collection and Scoring Procedure

Permission was sought from the school principal. The vocabulary tests in the three languages were first administered in paper format during school hours, followed by the distribution of the questionnaires to the same students.To ensure the accuracy of students' translations in their mother tongues, responses were evaluated using a predefined answer key developed with the support of subject experts and native speakers of the respective languages. Multiple acceptable equivalents were allowed to account for dialectal and lexical variation. In cases of ambiguity, translations were cross-checked by an independent language expert to enhance reliability. For interpretation, the total scores were classified into three levels of vocabulary knowledge: High (75–100), Moderate (50–74), and Low (below 50). These cut-off points constituted the scoring rubric used for data analysis. Responses to the 5-point Likert- scale questionnaire were analysed using descriptive statistics. For ease of interpretation, Agree (A) and Strongly Agree (SA) responses were combined when reporting frequencies and percentages to indicate overall positive endorsement.

VIII. DATA ANALYSIS AND PRESENTATION

Responses to the vocabulary achievement tests were scored objectively and analyzed using descriptive and inferential statistics, including mean, standard deviation, correlation, and analysis of variance (ANOVA) to assess vocabulary knowledge across languages.

Table 1: Vocabulary Knowledge Scores Across Three Languages

Language	N	Mean Score	SD	Level of Vocabulary Knowledge
Mother tongue	30	78.40	6.85	High
English	30	72.10	7.20	Moderate
Hindi	30	68.35	8.10	Moderate

Table 1 shows the vocabulary knowledge scores of students across three languages. The results indicate that students achieved the highest mean score in their mother tongue (M = 78.40, SD = 6.85), which falls under the high level of vocabulary knowledge.The English language recorded a moderate level of vocabulary knowledge with a mean score of 72.10 (SD = 7.20), while Hindi language identified the lowest mean score (M = 68.35, SD = 8.10), also classified as moderate.

Table 2: Students' Perceptions on Multilingual Teaching

Statement	Mean	SD	Frequency	Percentage
1. Learning through multiple languages improves my vocabulary.	4.12	0.68	24	80%
2. My teachers use different languages to explain lessons in ways that are easy for me to understand faster.	4.05	0.71	23	77%
3. Using multiple languages in teaching helps me understand difficult concepts faster.	4.18	0.65	25	83%
4. I feel more confident participating in class when my home language is used.	4.00	0.74	22	73%
5. Multilingual teaching makes the lesson more interesting and engaging.	4.20	0.60	26	87%
6. Using more than one language in the classroom helps me remember and use new vocabulary effectively.	4.10	0.69	24	80%
7. When teachers switch between languages, it helps clarify difficult words and concepts.	4.02	0.72	23	77%
8. Learning concepts through more than one language improves my overall comprehension of lessons.	4.15	0.66	25	83%
9. I prefer learning in only one language.	2.45	0.88	10	33%
10. Switching between languages confuses me.	2.60	0.82	11	37%

Table 2 presents students' perceptions of multilingual teaching. The mean scores for most positive statements range from 4.00 to 4.20, indicating a positive perception toward multilingual teaching. In contrast,

the negative statements preference for learning in only one language and confusion due to language switching recorded low mean scores (M = 2.45 and 2.60).

Table 3: Relationship Between Perceptions and Vocabulary Achievement

Perception Score Category	Mean Vocabulary Score	SD
High Perception	76.85	6.40
Moderate Perception	70.20	7.15
Low Perception	64.30	8.05

Table 3 indicates that students with high perception scores towards multilingual teaching achieved the highest vocabulary scores (M=76.85, SD=6.40). Students with moderate perceptions obtained lower mean vocabulary scores (M=70.20, SD= 7.15), while those with low perception scores recorded the lowest vocabulary achievement (M= 64.30, SD= 8.05).

8.1. Correlation Between Perceptions and Vocabulary Achievement

Table 4: Pearson's Correlation Between Perceptions and Vocabulary Achievement

Variables	Pearson's r	Sig. (p-value)
Perception of Multilingual Teaching & Vocabulary Achievement	0.62	.001

Table 4 shows the findings of Pearson's correlation analysis conducted to probe into the relationship between students' opinions regarding multilingual teaching and their vocabulary usage familiarity. The correlation of the two variables was found to be moderate to strong (r = 0.62) and also statistically significant (p = .001, p < .01). This means that student perceptions of multilingual teaching have a direct positive influence on vocabulary achievement; thus, the null hypothesis (H_0) which asserts that there is no significant relationship between perceptions and vocabulary achievement is rejected.

8.2. Differences in Vocabulary Achievement Across Languages

Table 5: One-Way Repeated Measures ANOVA of Vocabulary Scores Across Three Languages

Variation	Sum of Squares	df	Mean Square	F	Sig. (p-value)
Languages (Within-Subjects)	1320.50	2	660.25	11.45	< .001
Error (Languages)	3350.10	58	57.76		
Total	4670.60	59			

Table 5 illustrates findings of a one-way repeated measures ANOVA performed to see if there were any differences in students' vocabulary achievement across the mother tongue, English, and Hindi. The analysis showed a large and statistically significant effect of language on vocabulary scores, $F(2, 58) = 11.45$, $p < .001$.

8.3. Differences in Vocabulary Achievement Based on Perception Levels

Table 6: One-Way ANOVA of Vocabulary Achievement Based on Perception Levels

Variation	Sum of Squares	df	Mean Square	F	Sig. (p-value)
Between Groups	1185.40	2	592.70	9.85	.001
Within Groups	1625.40	27	60.20		
Total	2810.80	29			

Table 6 shows the results of a one-way ANOVA conducted to examine differences in vocabulary achievement based on students' perception levels toward multilingual teaching. The results have shown a significant statistical difference in the vocabulary development of students with high, moderate and low perceptions, $F(2, 27) = 9.85$, $p = .001$ ($p < .01$).

IX. DISCUSSION AND CONCLUSION

The students' vocabulary performance was significantly different based on the language of the assessment. The difference in language performance in terms of vocabulary shows how the ease of processing the information depends on the language. Vocabulary performance was best in the mother tongue, then came English and Hindi.The positive vocabulary results are closely related to the linguistic accessibility of the teaching and there is a distinct advantage of L1 over the other languages in the area of acquiring new words. This was in line with earlier studies that have claimed that learning a language with a lesser command is accompanied by less cognitive processing in working memory's executive functions, thus, allowing more efficient semantic integration and word recall (Flores-Salgado & Gutiérrez-Koyoc, 2024; Teng, 2025). This means new words can only be learned after the corresponding labels are established (Bularon, 2025).On the contrary, the lower scores in Hindi could be seen as an indication that the students have to invest more mental energy when learning through a less familiar medium, which may affect their vocabulary learning negatively as the attention resources available for it get limited (Ganuza & Hedman, 2019). Moreover, the findings reveal a strong and positive correlation between students' perceptions of multilingual teaching and their vocabulary achievement which is the crucial role of affective factors in academic performance. The students' agreement that multilingualism in teaching makes one more engaged and the very complex concepts easier to grasp mirrors the research that claims that the practices of translanguaging may lead to lower affective barriers and boost the learners' investment (Javaid et al., 2025; Qureshi & Al-Surmi, 2025).

In conclusion, the receptivity and the positive attitude of the students towards the multilingual teaching correspond to higher scores in vocabularies,indicating the dependence of the cognitive and emotional aspects of learning on each other as they are to a certain degree interlinked. The connection among the positive perception of students and their vocabulary growth has also been a point of view that has been theorised in association with cross-linguistic comparison and systematic multilingual exposure leading to the development of cognitive flexibility and lexical awareness (Alharbi, 2025; Zhang & Gao, 2024; Westheim et al., 2025).

X. LIMITATIONS

The research was limited in size since it only included 30 participants; therefore, the results cannot be generalised. It is possible that the outcomes do not adequately reflect students of various geographical locations, educational tiers, or language diversity. Consequently, future research with a greater number of students from more varied backgrounds would not only reach wider conclusions but also have stronger external validity. Another thing is that vocabulary learning was the primary indicator of language proficiency the research looked into. While mastering a language's vocabulary is a must for academic purposes, there still remain other skills like reading comprehension, writing, speaking, and listening that fall outside the scope of such a measurement. A student's success in a multilingual environment is dependent on all these skills being in balance. Hence, the research may have given only a partial view of the language proficiency of the students. Lastly, the absence of classroom observations or teacher interviews restricts a deeper understanding of how multilingual teaching was actually implemented.

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