

CONSTRUCTION AND VALIDATION OF A VOCABULARY TEST FOR HIGHER SECONDARY SCHOOL STUDENTS

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ABSTRACT

The present study aimed to construct and validate a standardized Vocabulary Test for Higher Secondary School students. Vocabulary plays a crucial role in language proficiency, reading comprehension, writing skills, oral communication, and academic achievement. Since no standardized vocabulary assessment tool was available for Gujarati-medium students, a reliable and valid instrument was developed. The test construction followed a systematic procedure involving identification of eight vocabulary dimensions, item writing, expert validation, pilot testing, item analysis, and reliability and validity estimation. Initially, 32 multiple-choice items were prepared and reviewed by six subject experts. The test was administered to 403 Higher Secondary School students of Dahod District during the academic year 2020–2021. Item analysis using the NRTVB-2000 program resulted in a final test comprising 29 items. The instrument demonstrated satisfactory reliability (Cronbach's Alpha = 0.82; Split-Half = 0.67; Spearman-Brown = 0.80) and acceptable validity (Cliffs Consistency Index = 0.36), making it suitable for educational assessment and research.

KEYWORDS: Vocabulary Test, Test Construction, Test Validation, Reliability, Higher Secondary School Students, Language Assessment.

1. INTRODUCTION

Language is the most powerful medium through which human beings communicate their thoughts, emotions, ideas, and experiences. It enables individuals to exchange knowledge, establish social relationships, and participate effectively in educational as well as professional

activities. The four fundamental language skills are listening, speaking, reading, and writing. Among these, listening and reading are receptive skills because they enable learners to receive and understand information, whereas speaking and writing are productive skills that facilitate the expression of ideas and experiences.

Vocabulary serves as the foundation of all four language skills. A learner with an adequate vocabulary can understand spoken and written language more effectively and express ideas with greater clarity and precision. Conversely, limited vocabulary restricts comprehension, communication, and academic performance. Therefore, vocabulary development is regarded as one of the essential objectives of language education.

According to Yorio (1971), vocabulary knowledge is one of the most influential factors affecting language learning and language use. Numerous studies have demonstrated that vocabulary knowledge significantly contributes to reading comprehension and language proficiency. Snow (2002) reported that vocabulary acquisition forms the basis of reading comprehension and cognitive development. Similarly, Kaivanpanah and Zandi (2009) found a significant positive relationship between vocabulary depth and reading comprehension among language learners.

Cooper (1984) emphasized that vocabulary is indispensable for both first-language and second-language learning because comprehension cannot occur without sufficient lexical knowledge. Bernhardt (2005) further argued that vocabulary knowledge is among the strongest predictors of language proficiency and academic success. Likewise, Shiotsu and Weir (2007) established that vocabulary breadth significantly predicts reading comprehension performance.

Research has also demonstrated a meaningful positive relationship between vocabulary knowledge and academic achievement. Students possessing richer vocabulary generally perform better in reading, writing, comprehension, and classroom learning than students with limited vocabulary. Schuth, Köhne, and Weinert (2017) confirmed that vocabulary knowledge substantially influences school achievement and learning outcomes.

During school education, students' academic achievement is largely assessed through written and oral expression. Consequently, an objective and standardized measure of vocabulary becomes essential for evaluating students' language proficiency. Despite the importance of vocabulary assessment, standardized vocabulary tests suitable for Gujarati-speaking higher secondary students are scarce. This gap motivated the researchers to develop and validate a standardized Vocabulary Test specifically designed for Higher Secondary School students.

2. Need and Significance of the Study

Vocabulary represents one of the fundamental components of language competence and directly influences students' academic achievement, reading comprehension, writing skills, and communication ability. Teachers require reliable assessment tools to identify students' vocabulary levels so that appropriate instructional interventions can be designed.

The present study is significant because it provides a scientifically developed and standardized Vocabulary Test specifically designed for Gujarati-medium Higher Secondary School students. The instrument can be utilized by teachers for classroom assessment, researchers for educational investigations, curriculum planners for language development programmes, and educational psychologists for evaluating language proficiency.

Furthermore, the test offers a dependable means of predicting students' writing achievement, reading comprehension, and overall academic performance based on their vocabulary proficiency.

3. Objectives of the Study

The study was conducted with the following objectives:

- 1) To construct a standardized Vocabulary Test for Higher Secondary School students.
- 2) To establish the content validity of the Vocabulary Test through expert judgment.
- 3) To conduct item analysis of the test items using difficulty and discrimination indices.
- 4) To determine the reliability of the Vocabulary Test using appropriate statistical techniques.
- 5) To establish the validity of the standardized Vocabulary Test.

4. Research Methodology

The present study adopted the test construction and validation method to develop a standardized Vocabulary Test for Higher Secondary School students. A systematic procedure was followed, beginning with the identification of vocabulary dimensions and ending with the establishment of reliability and validity of the final instrument.

The entire process of test development consisted of the following stages:

- 1) Identification of vocabulary components
- 2) Construction of test items
- 3) Editing and refinement of items
- 4) Preparation of the first draft of the test
- 5) Expert validation

- 6) Pilot administration
- 7) Item analysis
- 8) Construction of the final form of the test
- 9) Estimation of reliability and validity

4.1 Identification of Vocabulary Components

The first stage of the study involved identifying the major components of vocabulary appropriate for Higher Secondary School students. For this purpose, the researchers conducted a comprehensive review of the Gujarati language textbooks prescribed by the Gujarat State School Textbook Board for Standards I to XII. Relevant literature on vocabulary assessment, language learning, and standardized testing was also reviewed.

Based on this review, eight important vocabulary components were identified. These components represent various dimensions of vocabulary knowledge and language proficiency.

Table 1: Components Included in the Vocabulary Test.

Sr. No.	Component
1	Meaning of Words
2	Synonyms
3	Antonyms
4	Incorrect Meaning of Words
5	One Word Substitution
6	Meaning of Idioms
7	Meaning of Indigenous (Talpada) Words
8	Words with Similar Spellings

The above components collectively represent the vocabulary knowledge expected from Higher Secondary School students studying Gujarati language.

4.2 Construction of Test Items

After identifying the vocabulary components, the researchers prepared multiple-choice test items to measure each component.

For item construction, the researchers referred to:

- Standard Gujarati grammar books
- School textbooks
- Previously developed vocabulary tests
- Research literature
- Expert suggestions in language education

Care was taken to ensure that each item measured only one vocabulary component and was free from ambiguity.

Each question consisted of four response alternatives, with only one correct answer.

Table 2: Distribution of Test Items Across Vocabulary Components.

Sr. No.	Vocabulary Component	Number of Items
1	Meaning of Words	4
2	Synonyms	4
3	Antonyms	4
4	Incorrect Meaning of Words	4
5	One Word Substitution	4
6	Meaning of Idioms	4
7	Meaning of Indigenous Words	4
8	Words with Similar Spellings	4
Total		32

Thus, a total of 32 multiple-choice items were initially prepared for the Vocabulary Test.

4.3 Editing and Refinement of Test Items

Following the preparation of the initial items, the researchers conducted an item editing process to improve clarity, accuracy, and suitability.

The preliminary version of the test was administered to 40 respondents for linguistic review. The respondents were requested to identify unclear words, ambiguous statements, grammatical errors, and difficult sentence structures.

Based on their responses, necessary modifications were made to improve the quality of the items.

While editing the items, the researchers considered the following criteria:

- Whether the item adequately represented the intended vocabulary component.
- Whether the wording was simple, clear, and grammatically correct.
- Whether only one option represented the correct answer.
- Whether the distractors were plausible.
- Whether the language was suitable for Higher Secondary School students.

After incorporating the suggested revisions, all 32 items were retained for the first draft of the test.

4.4 Preparation of the First Draft of the Vocabulary Test

The edited items were assembled into the first draft of the Vocabulary Test.

The front page of the test included:

- Title of the Test
- Name of the Researchers
- Instructions for Respondents
- Personal Information Sheet

The demographic information collected included:

- Gender
- Residential Area
- Educational Status of Parents
- Social Category
- Academic Stream

The 32 multiple-choice questions were arranged in random order to minimize response bias.

Each question consisted of four response alternatives.

Students were instructed to place a tick mark (✓) against the correct answer.

Each correct response carried one mark, whereas incorrect responses received zero marks.

4.5 Expert Validation of the First Draft

To establish content validity, the first draft of the Vocabulary Test was submitted to six experts specializing in Gujarati language education and educational measurement.

The experts were requested to examine each item and indicate whether:

- the item appropriately represented the intended vocabulary component (+),
- the item did not represent the component (−), or
- they were uncertain (0).

They were also invited to suggest improvements regarding:

- wording,
- grammar,
- clarity,
- appropriateness,
- and content relevance.

The researchers decided to retain only those items that received positive agreement from at least three experts.

After reviewing the experts' opinions, it was found that all 32 items satisfied the prescribed criterion and were therefore retained for pilot testing.

4.6 Pilot Administration of the Vocabulary Test

The first draft of the Vocabulary Test was administered during the 2025–2026 academic session.

The pilot study was conducted among Higher Secondary School students studying in Dahod District, Gujarat.

A total of 403 students participated in the pilot testing.

The objectives of the pilot study were:

- to examine the quality of the items,
- to calculate item difficulty,
- to estimate item discrimination,
- and to identify weak items for elimination.

The response sheets were scored using the following scoring procedure:

- Correct Answer = **1 Mark**
- Incorrect Answer = **0 Mark**

The obtained data were entered into the NRTVB–2000 computer program for statistical analysis.

4.7 Item Analysis of the Vocabulary Test

Following the pilot administration, the responses of the 403 Higher Secondary School students were analysed to evaluate the quality of the test items. Item analysis was performed using the NRTVB–2000 computer program developed by Rathod (2000). Two important indices were computed for each item:

1) Item Difficulty Index (Facility Value)

2) Item Discrimination Index

The researchers decided to retain only those items that satisfied the following criteria:

- **Item Difficulty Value:** Between **0.20** and **0.80**
- **Item Discrimination Value:** Greater than **0.20**

Items failing to satisfy these criteria were discarded from the final version of the test.

Table 3: Item Analysis of the Vocabulary Test.

Item No.	Component	Difficulty Value	Discrimination Value	Decision
1	Meaning of Words	0.60	0.40	Selected
2	Meaning of Words	0.50	0.30	Selected
3	Meaning of Words	0.60	0.30	Selected
4	Meaning of Words	0.60	0.50	Selected
5	Synonyms	0.40	0.30	Selected
6	Synonyms	0.70	0.30	Selected
7	Synonyms	0.70	0.40	Selected
8	Synonyms	0.60	0.40	Selected
9	Antonyms	0.60	0.40	Selected
10	Antonyms	0.70	0.40	Selected
11	Antonyms	0.70	0.40	Selected
12	Antonyms	0.30	0.10	Rejected
13	Incorrect Meaning	0.60	0.60	Selected
14	Incorrect Meaning	0.70	0.40	Selected
15	Incorrect Meaning	0.70	0.30	Selected
16	Incorrect Meaning	0.60	0.40	Selected
17	One Word Substitution	0.70	0.20	Selected
18	One Word Substitution	0.60	0.40	Selected
19	One Word Substitution	0.50	0.40	Selected
20	One Word Substitution	0.60	0.40	Selected
21	Meaning of Idioms	0.50	0.20	Selected
22	Meaning of Idioms	0.50	0.30	Selected
23	Meaning of Idioms	0.60	0.40	Selected
24	Meaning of Idioms	0.60	0.50	Selected
25	Indigenous Words	0.60	0.40	Selected
26	Indigenous Words	0.60	0.40	Selected
27	Indigenous Words	0.70	0.30	Selected
28	Indigenous Words	0.30	0.00	Rejected
29	Similar Spelling Words	0.60	0.30	Selected
30	Similar Spelling Words	0.60	0.40	Selected
31	Similar Spelling Words	0.50	0.40	Selected
32	Similar Spelling Words	0.60	0.10	Rejected

4.7.1 Interpretation of Item Analysis

The analysis revealed that Items 12, 28, and 32 had discrimination values below the prescribed criterion of 0.20. These items were therefore excluded from the final version of the Vocabulary Test.

Consequently, 29 items were retained, demonstrating satisfactory difficulty levels and discrimination power. These items effectively differentiated students with high vocabulary proficiency from those with lower proficiency.

4.8 Construction of the Final Form of the Vocabulary Test

Based on the results of item analysis, the final version of the Vocabulary Test was prepared. The final test consisted of 29 multiple-choice questions distributed across eight vocabulary components. Each item contained four response alternatives, of which only one represented the correct answer.

The cover page of the test included:

- Title of the Test
- Name and affiliation of the researchers
- Instructions for respondents
- Personal information schedule

Students were instructed to select the correct alternative by placing a tick mark (✓).

The scoring procedure remained unchanged:

- Correct response = **1 mark**
- Incorrect response = **0 mark**

Table 4: Distribution of Items in the Final Vocabulary Test.

Sr. No.	Vocabulary Component	Number of Items
1	Meaning of Words	4
2	Synonyms	4
3	Antonyms	3
4	Incorrect Meaning of Words	4
5	One Word Substitution	4
6	Meaning of Idioms	4
7	Meaning of Indigenous Words	3
8	Words with Similar Spellings	3
Total		29

Thus, the final standardized Vocabulary Test comprised 29 well-performing items covering the major dimensions of vocabulary knowledge.

4.9 Reliability of the Vocabulary Test

Reliability refers to the degree of consistency with which a measuring instrument yields stable and dependable results. To establish the reliability of the Vocabulary Test, the researchers employed three statistical techniques using SPSS.

The reliability coefficients obtained are presented below.

Table 5: Reliability Coefficients of the Vocabulary Test.

Technique	Reliability Coefficient
Cronbach's Alpha	0.82
Split-Half Reliability	0.67
Spearman-Brown Formula	0.80

4.9.1 Interpretation

The obtained Cronbach's Alpha coefficient of 0.82 indicates a high level of internal consistency among the items.

The Split-Half Reliability coefficient (0.67) also demonstrates acceptable reliability.

Similarly, the Spearman-Brown corrected reliability coefficient (0.80) confirms that the test possesses satisfactory consistency and stability.

These findings indicate that the Vocabulary Test is a reliable instrument for assessing vocabulary proficiency among Higher Secondary School students.

4.10 Validity of the Vocabulary Test

Validity refers to the extent to which an instrument measures what it is intended to measure.

The validity of the Vocabulary Test was examined using:

- **Cliffs Consistency Index (C)**
- **External Validity**

The analysis was performed using the NRTVB–2000 computer program.

Table 6: Validity of the Vocabulary Test.

Type of Validity	Result
Cliffs Consistency Index (C)	0.36
External Validity	Established

4.10.1 Interpretation

The obtained Cliffs Consistency Index ($C = 0.36$) indicates satisfactory construct validity.

The Vocabulary Test also demonstrated adequate external validity, confirming that it effectively measures vocabulary proficiency among Higher Secondary School students.

The overall findings suggest that the developed instrument possesses both acceptable reliability and validity and can therefore be used confidently for educational assessment and research purposes.

5 DISCUSSION

Vocabulary is one of the fundamental determinants of language proficiency and academic success. The present study systematically developed and validated a standardized Vocabulary Test for Higher Secondary School students by following scientifically accepted procedures of educational measurement. The development process included identification of vocabulary components, item construction, expert validation, pilot testing, item analysis, reliability estimation, and validity verification.

The results indicate that the developed instrument possesses satisfactory psychometric properties. The reliability coefficients obtained through Cronbach's Alpha (0.82), Split-Half Reliability (0.67), and Spearman-Brown Formula (0.80) confirm that the instrument yields consistent and dependable results. Furthermore, the Cliffs Consistency Index (0.36) and external validation procedures establish the validity of the instrument.

The findings are consistent with previous studies emphasizing the importance of vocabulary in language acquisition and academic achievement. Researchers such as Snow (2002), Bernhardt (2005), Shiotsu and Weir (2007), and Schuth et al. (2017) have reported that vocabulary knowledge significantly influences reading comprehension, writing ability, language proficiency, and overall academic performance.

The developed Vocabulary Test fills an important gap by providing a standardized assessment tool specifically designed for Gujarati-medium Higher Secondary School students. The instrument can be effectively utilized by teachers, researchers, educational psychologists, curriculum developers, and educational institutions for measuring students' vocabulary proficiency.

6 Major Findings

The major findings of the study are summarized below:

- 1) Eight major components of vocabulary were identified through an extensive review of Gujarati language textbooks and related literature.
- 2) Initially, 32 multiple-choice items were developed to measure vocabulary proficiency.
- 3) Expert validation conducted by six specialists confirmed the content validity of all items.
- 4) The pilot administration was conducted on 403 Higher Secondary School students studying in Dahod District during the academic year 2025–2026.
- 5) Item analysis revealed that three items did not satisfy the prescribed discrimination criteria and were therefore eliminated.
- 6) The final Vocabulary Test consisted of 29 standardized items.

- 7) The reliability coefficients indicated satisfactory internal consistency:
 - Cronbach's Alpha = **0.82**
 - Split-Half Reliability = **0.67**
 - Spearman-Brown Reliability = **0.80**
- 8) The validity analysis showed:
 - Cliffs Consistency Index (C) = **0.36**
 - External validity was satisfactorily established.
- 9) The developed Vocabulary Test is a scientifically standardized instrument suitable for assessing vocabulary proficiency among Higher Secondary School students.

7 Educational Implications

The present Vocabulary Test has significant implications for language education and educational research.

The standardized instrument can assist language teachers in objectively assessing students' vocabulary levels and identifying areas requiring improvement. The test may also be employed for diagnostic, formative, and summative assessment purposes.

Researchers may utilize the instrument while investigating relationships between vocabulary knowledge and variables such as reading comprehension, academic achievement, language proficiency, creativity, critical thinking, and writing skills.

Curriculum developers may use the findings of this study to revise Gujarati language curricula and develop vocabulary enrichment programmes for school students.

Educational psychologists may employ the test for evaluating students' linguistic development and identifying learners requiring additional instructional support.

Furthermore, educational administrators can use the results for planning language improvement programmes at school and district levels.

8 CONCLUSION

Vocabulary constitutes the foundation of language learning and effective communication. A rich vocabulary enhances students' ability to comprehend reading materials, express ideas clearly, and achieve higher academic performance.

The present study successfully developed and standardized a Vocabulary Test for Higher Secondary School students through a rigorous scientific process involving expert review, pilot testing, item analysis, reliability estimation, and validation.

The final instrument comprises 29 multiple-choice items representing eight important dimensions of vocabulary knowledge. Statistical analyses demonstrated satisfactory reliability and validity, confirming that the instrument is suitable for educational assessment and research purposes.

The standardized Vocabulary Test provides teachers, researchers, and educational institutions with a dependable tool for assessing vocabulary proficiency among Higher Secondary School students. The instrument may also serve as a predictor of students' reading comprehension, writing ability, language achievement, and overall academic performance.

9 Limitations of the Study

The study was subject to the following limitations:

- 1) The study was confined to Higher Secondary School students studying in Dahod District of Gujarat.
- 2) The Vocabulary Test was developed only for Gujarati-medium students.
- 3) The pilot study was conducted during the academic year 2025–2026.
- 4) The instrument measures vocabulary knowledge only and does not assess other language skills such as listening, speaking, reading comprehension, or writing.
- 5) The test includes only multiple-choice items and does not incorporate descriptive or performance-based assessments.

10 Suggestions for Future Research

Based on the findings of the present investigation, the following suggestions are offered:

- 1) Similar standardized vocabulary tests may be developed for students studying in primary, upper primary, secondary, undergraduate, and postgraduate levels.
- 2) Vocabulary assessment tools may be developed for other Indian languages and English.
- 3) Future studies may investigate the relationship between vocabulary knowledge and academic achievement, reading comprehension, creativity, communication skills, and language proficiency.
- 4) Computer-based and online vocabulary assessment tools may be developed using digital technologies.
- 5) Comparative studies may be undertaken between rural and urban students, government and private schools, and Gujarati-medium and English-medium schools.
- 6) Future researchers may establish national norms for vocabulary assessment using larger and more representative samples.

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