

The Correlation Between Students' Learning Styles and English Vocabulary Acquisition (Correlation Study on Tenth Grade Students at MAN 1 Kab. Gorontalo)

(Korelasi antara Gaya Belajar Siswa dan Penguasaan Kosakata Bahasa Inggris (Studi Korelasional pada Siswa Kelas X MAN 1 Kabupaten Gorontalo))

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Article Info	Abstract
Article history: Received: 19 Agustus 2026 Revised: 18 September 2026 Accepted: 22 September 2026 Keywords: Learning Styles English Vocabulary Vocabulary Acquisition Kata Kunci: Gaya Belajar Kosakata Bahasa Inggris Penguasaan Kosakata	This study was conducted to examine the correlation between students' learning styles and their English vocabulary acquisition among tenth-grade students at MAN 1 Kab. Gorontalo. This study employed a quantitative correlational method. The study population consisted of tenth-grade students, with a sample of 40 students selected using purposive sampling. The data collection instruments used the VAK learning style questionnaire adapted from Fleming (2001), consisting of 22 items on a 1–5 Likert scale, and a vocabulary test comprising 40 questions measuring meaning, synonyms, antonyms, and usage. Data analysis used the Spearman Rank correlation test. The results showed that the visual learning style had no significant correlation with meaning, synonyms, antonyms, and usage, with a p-value > 0.05. The auditory learning style also had no significant correlation with the four aspects of vocabulary, with a p-value > 0.05. The kinesthetic learning style did not have a significant correlation with meaning, synonyms, and antonyms, but it had a significant correlation with usage, with a value of $r = -0.333$ and $\text{Sig} = 0.036 < 0.05$. The strength of the correlation falls into the weak category with a negative direction. Based on these findings, it can be concluded that the VAK learning style is not a major factor correlation students' vocabulary acquisition. Abstrak Penelitian ini dilakukan untuk mengkaji hubungan antara gaya belajar siswa dan pemerolehan kosakata bahasa Inggris pada siswa kelas X di MAN 1 Kabupaten Gorontalo. Penelitian ini menggunakan metode kuantitatif korelasional. Populasi penelitian terdiri atas siswa kelas X, dengan sampel sebanyak 40 siswa yang dipilih menggunakan teknik purposive sampling. Instrumen pengumpulan data menggunakan angket gaya belajar VAK yang diadaptasi dari Fleming (2001), yang terdiri atas 22 butir pernyataan dengan skala Likert 1-5, serta tes kosakata yang terdiri atas 40 soal untuk mengukur aspek makna, sinonim, antonim, dan penggunaan. Analisis data menggunakan uji korelasi Spearman rank. Hasil penelitian menunjukkan bahwa gaya belajar visual tidak memiliki hubungan yang signifikan dengan aspek makna, sinonim, antonim, dan penggunaan, dengan nilai $p > 0,05$. Gaya belajar auditori juga tidak memiliki hubungan yang signifikan dengan keempat aspek kosakata tersebut, dengan nilai $p > 0,05$. Gaya belajar kinestetik tidak memiliki hubungan yang signifikan dengan aspek makna, sinonim, dan antonim, namun memiliki hubungan yang signifikan dengan

aspek penggunaan, dengan nilai $r = -0,333$ dan $Sig = 0,036 < 0,05$. Kekuatan kaunga) Itersebut termasuk dalam kategori lemah dengan arah hubungan negati/ger Marejan tersebut, dapat disimpulkan bahwa gaya belajar VAK bu utama yang memengaruhi pemerolehan kosakata siswa.

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1. INTRODUCTION

Vocabulary is one of the key components of English language learning because it supports the development of listening, speaking, reading, and writing skills (Ali, 2022; Chiriatic, 2025). Hatch and Brown (1995) define vocabulary as a list of words in a language or a collection of words used by a particular language user. Adequate vocabulary acquisition enables students to understand texts, express ideas accurately, and communicate effectively. Nation (2022) emphasizes that vocabulary knowledge is essential for understanding and using language. Similarly, Ntuiyo et al. (2025) state that students cannot adequately develop speaking, reading, writing, and listening skills without sufficient vocabulary. Hiebert and Kamil (2005) describe vocabulary as knowledge of word meanings. Thus, vocabulary acquisition is an essential component of successful English language learning (Kovalenko, 2024; Wen & Naim, 2023).

Based on an interview with an English teacher of tenth-grade students at MAN 1 Kabupaten Gorontalo, many students still experience difficulties in acquiring English vocabulary. These difficulties include limited ability to remember new words and problems understanding their meanings and appropriate usage. Students also differ in the ways they receive, process, and understand information, which may influence their ability to acquire learning materials, including vocabulary. One factor that may be related to these differences is learning style.

DePorter and Hernacki (2007) describe learning styles as the ways students absorb, organize, and interpret information. Fleming (2001) classifies learning styles into three main types: visual, auditory, and kinesthetic. Visual learners tend to understand information through written materials, images, and diagrams. Auditory learners learn through verbal explanations, discussions, and listening activities, whereas kinesthetic learners tend to understand material through physical activities, hands-on practice, and direct experiences. These differences may influence how students understand, remember, and use English vocabulary.

Learning style may therefore be associated with vocabulary acquisition in second or foreign language learning. According to Nation (2022), vocabulary acquisition involves understanding word form, meaning, and use. The ways students process information may influence how effectively these aspects are understood and retained. Therefore, students with different learning styles may demonstrate different ways of learning and remembering vocabulary. Examining this relationship can provide a better understanding of factors associated with students' vocabulary acquisition.

Previous studies have examined the relationship between learning styles and vocabulary proficiency. Pratiwi et al. (2025) found a strong positive correlation between visual, auditory, and kinesthetic learning styles and vocabulary proficiency among students at SMP Negeri 6 Buton Tengah. However, the study focused primarily on the overall relationship and did not comprehensively examine the contribution of each learning style. Meanwhile, Rawung et al. (2025) reported a relationship between learning strategies and vocabulary knowledge among students at SMP Negeri 11 Palembang, although the correlation was relatively low. These findings suggest that previous results remain varied and require further investigation.

Several research gaps can therefore be identified. Previous studies have not consistently examined vocabulary through comprehensive dimensions such as *form*, *meaning*, and *use*. Research focusing specifically on tenth-grade students in a madrasah context, particularly at MAN 1 Kabupaten Gorontalo, is also limited. In addition, some studies have emphasized the influence of learning styles rather than examining their correlation with vocabulary acquisition. Therefore, further research is needed to provide empirical evidence in this educational context.

This study aims to determine whether there is a significant relationship between visual, auditory, and kinesthetic learning styles and English vocabulary acquisition among tenth-grade students at MAN 1 Kabupaten Gorontalo. The study is expected to contribute to a better understanding of the relationship between learning styles and vocabulary acquisition and provide insights for English vocabulary learning that considers students' different learning preferences.

2. RESEARCH METHODOLOGY

This study employed a quantitative correlational research design (Thomas & Zubkov, 2023) to examine the relationship between students' learning styles and English vocabulary acquisition. The population consisted of 160 tenth-grade students of MAN 1 Kabupaten Gorontalo in the 2025/2026 academic year, distributed across six classes. The sample comprised 40 students from classes E and F, selected using purposive sampling based on accessibility and their representation of the tenth-grade population.

The study involved two variables: students' learning styles as the independent variable (X) and English vocabulary acquisition as the dependent variable (Y). Data were collected using a learning style questionnaire and a vocabulary acquisition test. The learning style questionnaire consisted of 22 items based on the visual, auditory, and kinesthetic (VAK) dimensions proposed by Fleming, comprising six visual, eight auditory, and eight kinesthetic items. The questionnaire employed a five-point Likert scale (Brysbaert, 2025). Vocabulary acquisition was measured using a 23-item test developed based on the vocabulary dimensions of meaning in context, synonym, antonym, and use proposed by Nation (2022). The test was designed according to the English learning materials and curriculum for tenth-grade students.

Before data analysis, the research instruments were tested for validity and reliability. Item validity was assessed using the Pearson Product-Moment correlation, while reliability was evaluated using Cronbach's Alpha. The collected data were initially examined using the Shapiro–Wilk normality test. Since the data did not meet the assumption of normality, the relationship between learning styles and vocabulary acquisition was analyzed using Spearman Rank Correlation, a nonparametric technique suitable for non-normally distributed data. The correlation coefficient was interpreted based on the magnitude of the obtained coefficient to determine the strength of the relationship between students' learning styles and English vocabulary acquisition.

3. RESULTS AND DISCUSSION

3.1 Result of validity test

The results of the validity test for vocabulary acquisition in the pilot test were calculated using the product-moment correlation formula. The researcher administered 40 pilot test items and found that, during the pilot phase, 23 items were valid and 17 were invalid. The 17 invalid items will be discarded, and the final test will consist of 23 items.

Table 1. Validity of Vocabulary Acquisition Test Instrument Try Out

Number of item Question	Correlation Coefficient (r value)	sig.	Comparison r table (0,361)	Comparison Sig. (0,05)	Criteria
Item 1	0,62	<0,001	0,62>0,361	<0,001<0,05	Valid
Item 2	0,203	0,283	0,203<0,361	0,283>0,05	Invalid
Item 3	0,547	0,002	0,547>0,361	0,002<0,05	Valid
Item 4	0,423	0,02	0,423>0,361	0,02<0,05	Valid
Item 5	0,503	0,005	0,503>0,361	0,005<0,05	Valid
Item 6	0,41	0,024	0,41>0,361	0,024<0,05	Valid
Item 7	0,23	0,222	0,23<0,361	0,222>0,05	Invalid
Item 8	0,565	0,001	0,565>0,361	0,001<0,05	Valid
Item 9	0,227	0,228	0,227<0,361	0,228>0,05	Invalid
Item 10	0,656	<0,001	0,656>0,361	<0,001<0,05	Valid
Item 11	0,329	0,076	0,329<0,361	0,076>0,05	Invalid
Item 12	0,125	0,51	0,125<0,361	0,51>0,05	Invalid
Item 13	0,252	0,18	0,252<0,361	0,18>0,05	Invalid
Item 14	0,178	0,347	0,178<0,361	0,347>0,05	Invalid
Item 15	0,42	0,021	0,42>0,361	0,021<0,05	Valid
Item 16	0,239	0,204	0,239<0,361	0,204>0,05	Invalid
Item 17	0,546	0,002	0,546>0,361	0,002<0,05	Valid
Item 18	0,515	0,004	0,515>0,361	0,004<0,05	Valid
Item 19	0,529	0,003	0,529>0,361	0,003,0,05	Valid
Item 20	0,587	<0,001	0,587>0,361	<0,001<0,05	Valid
Item 21	0,508	0,004	0,508>0,361	0,004<0,05	Valid
Item 22	0,525	0,003	0,525>0,361	0,003<0,05	Valid
Item 23	0,371	0,044	0,371>0,361	0,044<0,05	Valid
Item 24	0,227	0,228	0,227<0,361	0,228>0,05	Invalid

Item 25	0,275	0,141	0,275<0,361	0,141>0,05	Invalid
Item 26	0,25	0,182	0,25<0,361	0,182>0,05	Invalid
Item 27	0,423	0,02	0,423>0,361	0,02<0,05	Valid
Item 28	0,335	0,07	0,335<0,361	0,07>0,05	Invalid
Item 29	0,148	0,436	0,148<0,361	0,436>0,05	Invalid
Item 30	0,227	0,227	0,227<0,361	0,227>0,05	Invalid
Item 31	0,394	0,031	0,394>0,361	0,031<0,05	Valid
Item 32	0,433	0,017	0,433>0,361	0,017<0,05	Valid
Item 33	0,455	0,011	0,455>0,361	0,011,0,05	Valid
Item 34	0,508	0,004	0,508>0,361	0,004<0,05	Valid
Item 35	0,219	0,245	0,219<0,361	0,245>0,05	Invalid
Item 36	0,439	0,015	0,439>0,361	0,015<0,05	Valid
Item 37	0,241	0,2	0,241<0,361	0,2>0,05	Invalid
Item 38	0,568	0,001	0,568>0,361	0,001<0,05	Valid
Item 39	0,33	0,081	0,33<0,361	0,081>0,05	Invalid
Item 40	0,546	0,002	0,546>0,361	0,002<0,05	Valid

(Source: SPSS 26 Data Management)

The validity test for the learning style questionnaire was conducted during the instrument piloting phase using the Pearson Product-Moment correlation formula. The researcher administered the questionnaire, consisting of 30 statements, to 30 students outside the research sample. The questionnaire was designed based on the VAK model, which includes three indicators: visual, auditory, and kinesthetic, with 10 items each. After analysis using SPSS, 22 items were deemed valid and 8 were deemed invalid. An item was considered valid if the calculated *r* value was greater than the table *r* value at a 5% significance level. With *N*=30, the table *r* value is 0.361. Invalid items were discarded. Consequently, the questionnaire used in the main study consisted of 22 items, comprising 6 items for visual learning styles, 8 items for auditory learning styles, and 8 items for kinesthetic learning styles.

Table 2. Validity of Learning styles Questioner Instrument in Try Out

Number of item Questioner	Correlation Coefficient (r value)	sig.	Comparison r table (0,361)	Comparison Sig. (0,05)	Criteria
Item 1	0,307	0,099	0,307<0,361	0,099>0,05	Invalid
Item 2	0,371	0,043	0,371>0,361	0,043<0,05	valid
Item 3	0,151	0,426	0,151<0,361	0,426>0,05	invalid
Item 4	0,599	<0,001	0,599>0,361	<0,001<0,05	valid
Item 5	0,604	<0,001	0,604>0,361	<0,001<0,05	valid
Item 6	0,321	0,084	0,321<0,361	0,084>0,05	invalid
Item 7	0,338	0,068	0,338<0,361	0,068>0,05	invalid
Item 8	0,628	<0,001	0,628>0,361	<0,001<0,05	valid
Item 9	0,431	0,018	0,431>0,361	0,018<0,05	valid
Item 10	0,429	0,018	0,429>0,361	0,018<0,05	valid
Item 11	0,409	0,025	0,409>0,361	0,025<0,05	valid
Item 12	0,815	<0,001	0,815>0,361	<0,001<0,05	valid
Item 13	0,275	0,142	0,275<0,361	0,142>0,05	invalid
Item 14	0,621	<0,00,	0,621>0,361	<0,001<0,05	valid
Item 15	0,434	0,017	0,434>0,361	0,017<0,05	valid
Item 16	0,751	<0,001	0,751>0,361	<0,001<0,05	valid
Item 17	0,278	0,136	0,278<0,361	0,136>0,05	invalid
Item 18	0,699	<0,001	0,699>0,361	<0,001<0,05	valid
Item 19	0,628	<0,001	0,628>0,361	<0,001<0,05	valid
Item 20	0,543	0,002	0,543>0,361	0,002<0,05	valid
Item 21	0,535	0,002	0,535>0,361	0,002<0,05	valid
Item 22	0,612	<0,001	0,612>0,361	<0,001<0,05	valid
Item 23	0,201	0,286	0,201<0,361	0,286>0,05	invalid
Item 24	0,358	0,052	0,358<0,361	0,052>0,05	invalid
Item 25	0,517	0,003	0,517>0,361	0,003<0,05	valid
Item 26	0,737	<0,001	0,737>0,361	<0,001<0,05	valid
Item 27	0,706	<0,001	0,706>0,361	<0,001<0,05	valid

Item 28	0,376	0,041	0,376>0,361	0,041<0,05	valid
Item 29	0,771	<0,001	0,771>0,361	<0,001<0,05	valid
Item 30	0,66	<0,001	0,660>0,361	<0,001<0,05	valid

(Source: SPSS 26 Data Management)

3.2 Result of Reliability Test

Testing for reliability was conducted to determine the consistency and validity of the learning style questionnaire. Reliability testing was performed using Cronbach's Alpha formula with the assistance of SPSS version 26.

3.2.1 Learning Styles

Based on the table below, a Cronbach's Alpha value of 0.688 was obtained for the 22 items. According to Sugiono, an instrument is considered reliable if the Cronbach's Alpha value is > 0.60 . Thus, the value of 0.688 for the 22 items is deemed suitable for use in data collection for the study. The Cronbach's Alpha value based on standardized items reinforces that the internal consistency of the items is good.

Tabel 3. Reliability Test

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.688	.680	22

(Source: SPSS 26 Data Management)

3.2.2 Vocabulary Acquisition

The reliability test of the vocabulary mastery test instrument yielded a Cronbach's alpha value of 0.875 for the 23 test items. This value falls into the "highly reliable" category, as it lies within the range of 0.80–1.00. This indicates that the vocabulary test instrument has high internal consistency and is reliable for measuring students' vocabulary acquisition.

Tabel 4. Reliability Test

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.875	.872	23

(Source: SPSS 26 Data Management)

3.3 Result of Student Vocabulary Acquisition

In this study, data were collected from 40 tenth-grade students at MAN 1 in Gorontalo Regency during the 2025/2026 academic year. The researcher administered a vocabulary test to the 40 students in the study sample; the test consisted of 23 items, and the students were given 40 minutes to complete it. After the test was completed, the researcher graded the students' answer sheets. The researcher assigned a score of 1 for correct answers and 0 for incorrect answers. The maximum score was 23. To calculate the test score, the following formula was used to determine the average score:

Table 5. Distribution of English Vocabulary Acquisition Test Scores

Number of Sample	Number of Item	Number of Answer		Score
		Correct	Incorrect	
1	23	22	1	98
2	23	20	3	87
3	23	20	3	87
4	23	21	2	91
5	23	20	3	87
6	23	20	3	87
7	23	21	2	91
8	23	9	14	39
9	23	21	2	91
10	23	22	1	96
11	23	20	3	87
12	23	9	14	39

13	23	22	1	96
14	23	7	16	30
15	23	20	3	87
16	23	13	10	61
17	23	16	7	70
18	23	19	4	83
19	23	14	9	61
20	23	22	1	96
21	23	19	4	83
22	23	22	1	96
23	23	20	3	87
24	23	18	5	78
25	23	22	1	96
26	23	19	4	83
27	23	22	1	96
28	23	14	9	61
39	23	18	5	78
30	23	10	13	43
31	23	19	4	83
32	23	15	8	65
33	23	16	7	70
34	23	13	10	57
35	23	19	4	83
36	23	12	11	52
37	23	10	13	43
38	23	14	9	61
39	23	21	2	91
40	23	21	2	91
TOTAL SCORE				3.004
MEAN SCORE				75.1%

$$mean = \frac{\sum x}{n} \times 100$$

$$mean = \frac{3004}{40} \times 100 = 75.10$$

Table 5 shows that the lowest score was 30, the highest score was 98, and the mean (x) of the data was 75.10. The lowest score was obtained by student number 14, and the highest score was obtained by student number 1.

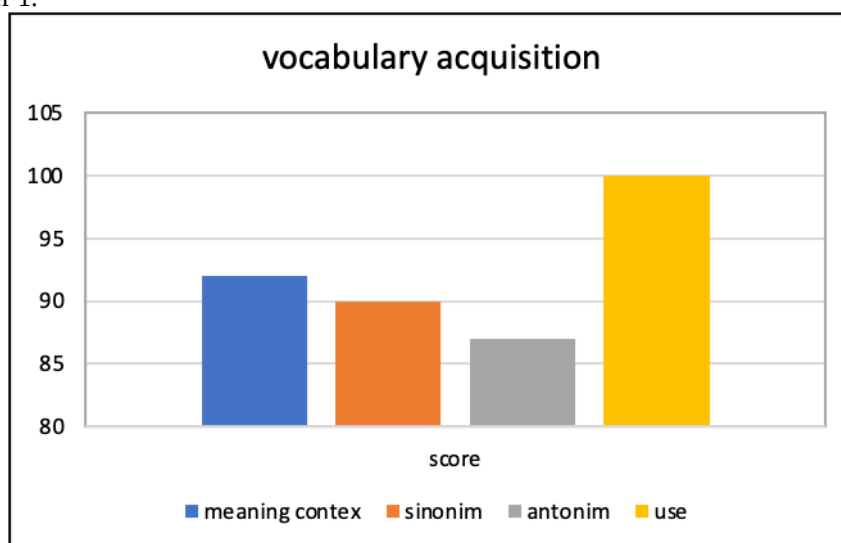


Figure 1. Average student scores in vocabulary acquisition

The graph above shows the average student scores for vocabulary acquisition. The values on each bar represent the average student score for each indicator. There are four indicators used to assess vocabulary acquisition: context-based meaning, synonyms, antonyms, and usage. The first indicator is context-based meaning with a total average of 92; the second is synonyms with an average of 90; the third is antonyms with an average of 87; and the fourth is usage with an average of 100.

This table shows that the highest score is for “use” and the lowest score is for “synonyms.” Students performed well on “use,” “contextual meaning,” and “synonyms.” However, this was not the case for those answering the “antonyms” indicator. This indicates that there were many errors when students were understanding antonyms. They did not know the antonyms of the given words.

3.4 Result of Learning Styles

In this study, learning style data were collected from 40 tenth-grade students at MAN 1 Gorontalo Regency during the 2025/2026 academic year. The researcher used a learning style questionnaire adapted from the VAK model (Visual, Auditory, Kinesthetic). The questionnaire consisted of 22 statements, including 6 Visual, 8 Auditory, and 8 Kinesthetic items. Students were asked to answer each statement using a 1–5 Likert scale, ranging from strongly disagree to strongly agree. To obtain the questionnaire score for each learning style, the average formula was used; the formula for calculating the average score is as follows:

Table 6. VAK Learning Style Score Data by Respondent

Respondents	Visual	Auditory	Kinesthetic
1	63	57	47
2	80	70	67
3	53	42	50
4	70	67	60
5	90	87	90
6	90	42	60
7	46	45	42
8	86	65	77
9	53	42	50
10	66	40	65
11	63	55	60
12	80	70	77
13	93	90	92
14	86	65	77
15	93	85	85
16	76	67	67
17	90	67	60
18	63	80	67
19	70	72	72
20	63	75	75
21	63	72	72
22	66	70	45
23	76	72	82
24	33	57	60
25	66	67	75
26	76	70	80
27	86	90	95
28	43	37	55
29	83	87	95
30	86	85	92
31	66	75	75
32	50	67	72
33	73	62	80
34	70	70	80
35	63	72	80
36	86	72	92
37	60	70	75
38	56	67	77
39	36	57	70

40	76	67	77
Average	76,5	75	79

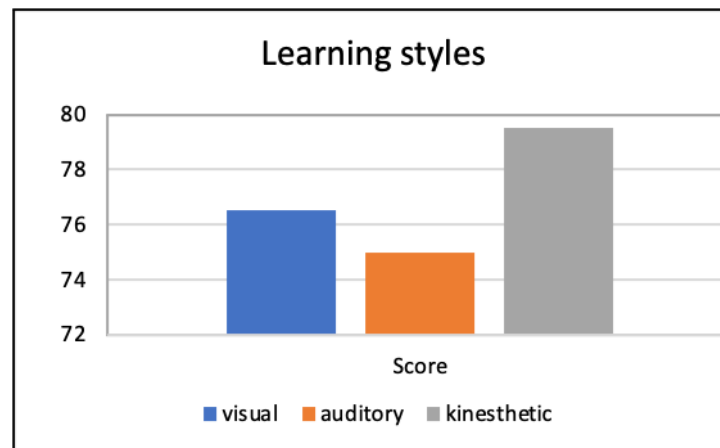


Figure 2. Average Learning Styles

Based on the graph above, it can be seen that the average score for the kinesthetic learning style was the highest at approximately 79.5, followed by the visual learning style with a score of approximately 76.5, while the auditory learning style received the lowest score at approximately 75. This indicates that the students in this study tend to learn more effectively through physical activities and hands-on practice than through visual and auditory media. The significant difference in scores among the three learning styles indicates that students have diverse learning styles, although the kinesthetic style is the most prominent.

3.5 Normality test

To evaluate the assumption of normality, a normality test was performed on each research variable. The Shapiro–Wilk test was selected due to the relatively small sample size ($n = 40$), as this test is recommended for samples with fewer than 50 observations. The interpretation of the results was based on the significance value (p -value), where a value greater than 0.05 indicated that the data were normally distributed, while a value less than 0.05 indicated a deviation from normal distribution.

The results of the normality test are presented in the following table:

Table 8. Normality Test

Variable	Shapiro-Wilk Statistic	df	Sig.
Visual	,956	40	,124
Auditory	,924	40	,011
kinesthetic	,958	40	,144
Meaning	,846	40	,000
Synonym	,752	40	,000
Antonym	,821	40	,000
Use	,799	40	,000

(Source: SPSS 26 Data Management)

A normality test was conducted using the Shapiro–Wilk test because the sample size consisted of 40 respondents. The test was performed to determine whether the data for both the independent variable (X) and the dependent variable (Y) were normally distributed.

For the independent variable, namely learning styles (X), the results showed that the Visual learning style obtained a significance value of 0.124 and the Kinesthetic learning style obtained a significance value of 0.144. Since both values were greater than 0.05, these data were considered to be normally distributed. However, the Auditory learning style yielded a significance value of 0.011, which was lower than 0.05, indicating that the data were not normally distributed.

For the dependent variable, namely English vocabulary mastery (Y), the Meaning, Synonym, Antonym, and Use components each obtained significance values of 0.000. Since these values were lower than 0.05, all components of vocabulary acquisition were found to be not normally distributed.

Overall, the results indicated that only two components of the independent variable, namely Visual and Kinesthetic learning styles, met the assumption of normality, whereas the Auditory learning style did not. Furthermore, all components of the dependent variable, including Meaning, Synonym, Antonym, and Use, were not normally distributed. Therefore, the assumption of normality was not fully satisfied, and a

nonparametric statistical technique, namely Spearman Rank Correlation, was considered more appropriate for examining the correlation between students' learning styles and their English vocabulary acquisition.

3.6 The Testing of Hypothesis

Hypothesis testing was conducted to determine whether there is a correlation between learning styles and vocabulary acquisition. Since the results of the normality test indicated that the data were not normally distributed, the Spearman's rank correlation test was used for hypothesis testing. The decision criterion is that if the significance level is < 0.05 , there is a significant relationship; whereas if the significance level is > 0.05 , there is no significant correlation.

The results of the Spearman correlation test are presented in the following

Table 9. Spearman Rank Correlation test

Learning Style	Vocabulary Aspect	rs	Sig.	Interpretation
Visual	Meaning	0.092	0,397917	Not significant
Visual	Synonym	-0.125	0,30625	Not significant
Visual	Antonym	-0.153	0,239583	Not significant
Visual	Use	-0.196	0,15625	Not significant
Auditory	Meaning	0,077778	0,340972	Not significant
Auditory	Synonym	0,070139	0,372917	Not significant
Auditory	Antonym	0.018	0,634028	Not significant
Auditory	Use	-0.172	0,199306	Not significant
Kinesthetic	Meaning	0.021	0,624306	Not significant
Kinesthetic	Synonym	-0.288	0.072	Not significant
Kinesthetic	Antonym	-0.177	0,191667	Not significant
Kinesthetic	Use	-0.334	0.035	Significant (weak negative)

(Source: SPSS 26 Data Management)

The Spearman Rank Correlation test was conducted to examine the correlation between students' learning styles and English vocabulary acquisition. The results revealed that the Visual learning style was not significantly correlated with any aspect of vocabulary acquisition, including Meaning ($rs = 0.092$, $p = 0.573$), Synonym ($rs = -0.125$, $p = 0.441$), Antonym ($rs = -0.153$, $p = 0.345$), and Use ($rs = -0.196$, $p = 0.225$).

Similarly, the Auditory learning style showed no significant correlation with Meaning ($rs = 0.112$, $p = 0.491$), Synonym ($rs = 0.101$, $p = 0.537$), Antonym ($rs = 0.018$, $p = 0.913$), or Use ($rs = -0.172$, $p = 0.287$). All significance values were greater than 0.05.

Regarding the Kinesthetic learning style, no significant correlations were found with Meaning ($rs = 0.021$, $p = 0.899$), Synonym ($rs = -0.288$, $p = 0.072$), or Antonym ($rs = -0.177$, $p = 0.276$). However, a significant negative correlation was identified between the Kinesthetic learning style and the Use aspect of vocabulary acquisition ($rs = -0.334$, $p = 0.035$). This indicates that students with higher kinesthetic learning style scores tended to obtain lower scores on the vocabulary use component, although the strength of the relationship was weak.

Overall, the findings suggest that there was no significant correlation between most learning style categories and English vocabulary acquisition. The only significant correlation found was a weak negative correlation between the Kinesthetic learning style and the Use aspect of vocabulary acquisition.

3.7 The Correlation between Visual Learning Style and Vocabulary Acquisition

The results of the Spearman Rank Correlation analysis revealed that the Visual learning style was not significantly correlated with any component of vocabulary acquisition. The correlation coefficients between Visual learning style and Meaning ($rs = 0.092$, $p = 0.573$), Synonym ($rs = -0.125$, $p = 0.441$), Antonym ($rs = -0.153$, $p = 0.345$), and Use ($rs = -0.196$, $p = 0.225$) were all weak and statistically insignificant.

According to Fleming's (2001) VARK theory, visual learners tend to process information more effectively through visual representations such as diagrams, charts, colors, and written texts. Although visual materials may facilitate comprehension, the findings of this study suggest that a preference for visual learning does not necessarily contribute to higher vocabulary acquisition.

This result supports Nation's (2022) view that vocabulary acquisition is influenced by multiple factors beyond learning preferences. Vocabulary development requires repeated exposure to words, meaningful contextual use, active retrieval, and continuous practice (Shin et al., 2023). Therefore, students who prefer visual learning may not automatically achieve better vocabulary mastery if these essential learning processes are absent. The findings also suggest that other factors, such as motivation, reading habits, learning strategies, and language exposure, may play a more substantial role in vocabulary acquisition than learning style preferences.

3.8 The Correlation between Auditory Learning Style and Vocabulary Acquisition

The findings showed that the Auditory learning style was not significantly associated with any vocabulary component. The correlation coefficients between Auditory learning style and Meaning ($r_s = 0.112$, $p = 0.491$), Synonym ($r_s = 0.101$, $p = 0.537$), Antonym ($r_s = 0.018$, $p = 0.913$), and Use ($r_s = -0.172$, $p = 0.287$) were all statistically insignificant.

Fleming (2001) explains that auditory learners generally prefer listening activities, verbal explanations, discussions, and spoken communication. Since language learning naturally involves listening and speaking, auditory learning preferences might be expected to facilitate vocabulary development. However, the findings indicate that merely preferring auditory learning does not guarantee improved vocabulary acquisition.

Nation (2022) emphasizes that vocabulary knowledge involves both receptive and productive dimensions. Students must not only recognize and understand words but also use them appropriately in communication. Consequently, listening to language input alone may be insufficient to enhance vocabulary acquisition unless it is accompanied by active engagement, contextual learning, and opportunities to use newly acquired vocabulary. The absence of significant correlations suggests that vocabulary acquisition depends on broader learning experiences rather than auditory preferences alone.

3.9 The Correlation between Kinesthetic Learning Style and Vocabulary Acquisition

The results indicated that the Kinesthetic learning style was not significantly correlated with Meaning ($r_s = 0.021$, $p = 0.899$), Synonym ($r_s = -0.288$, $p = 0.072$), or Antonym ($r_s = -0.177$, $p = 0.276$). However, a statistically significant negative correlation was found between Kinesthetic learning style and the Use component of vocabulary acquisition ($r_s = -0.334$, $p = 0.035$). Although significant, the strength of this correlation was weak.

According to Fleming's (2001) VARK model, kinesthetic learners tend to learn more effectively through direct experience, physical activities, hands-on practice, and active participation. In theory, learning activities such as role-playing, simulations, games, and practical exercises may support vocabulary learning by increasing learner engagement. However, the present findings suggest that students with stronger kinesthetic preferences did not demonstrate higher performance in vocabulary use. Instead, the weak negative relationship indicates that higher kinesthetic learning preferences were associated with slightly lower scores in the use component of vocabulary acquisition.

One possible explanation is that vocabulary acquisition requires systematic exposure, repetition, and contextual practice, which may not always be provided through kinesthetic activities alone. Nation (2022) argues that repeated encounters with words in different contexts are essential for developing a deep understanding of vocabulary meaning and usage. Therefore, kinesthetic learning preferences may contribute to learning engagement, but they are insufficient on their own to ensure vocabulary acquisition.

Overall, the findings of this study support the view that learning styles are not the primary determinants of vocabulary acquisition. Factors such as motivation, learning strategies, reading frequency, quality of instruction, language exposure, and opportunities for meaningful language use may have a greater influence on students' vocabulary development than individual learning style preferences.

4. CONCLUSIONS AND SUGGESTIONS/RECOMMENDATIONS

4.1 Conclusions

This study examined the correlation between students' learning styles and English vocabulary acquisition among tenth-grade students at MAN 1 Kabupaten Gorontalo. The Spearman Rank Correlation analysis showed that visual and auditory learning styles had no significant relationship with any vocabulary component, including meaning, synonym, antonym, and use. Similarly, the kinesthetic learning style was not significantly correlated with meaning, synonym, or antonym. However, a significant but weak negative correlation was found between the kinesthetic learning style and the use component ($r_s = -0.334$, $p = 0.035$). Overall, the findings indicate that learning styles based on Fleming's VARK model are not significantly associated with most aspects of vocabulary acquisition. Vocabulary development may be influenced by other factors, such as motivation, reading habits, language exposure, learning strategies, classroom instruction, and opportunities for meaningful language practice. In line with Nation (2022), vocabulary acquisition can be strengthened through repeated exposure, contextualized learning, active language use, and continuous practice. Therefore, vocabulary learning should employ a comprehensive approach rather than relying solely on students' preferred learning styles.

4.2 Suggestions/Recommendations

Students are encouraged to improve vocabulary through active practice, such as keeping vocabulary notes, practicing synonyms and antonyms, and using new words in context. Teachers are encouraged to apply varied and engaging strategies, including contextual learning, repetition, games, discussions, and communicative activities, rather than relying solely on students' learning styles. Future researchers are

recommended to use experimental designs and triangulate data through student interviews, teacher interviews, and classroom observations to obtain more comprehensive findings.

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