



Form Receptive to Productive Ways: Boosting Secondary School Students' Vocabularies through Picture Word Inductive Model

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Abstract. The low English proficiency in secondary school students stems from internal factors such as motivation, self-confidence and rote learning; external factors such as the family and school environments. This issue is getting highly urgent due to the gap between global needs, the reality on the ground, and shifts in national policy, which will make English compulsory in primary schools in the 2027/2028 academic year. This study investigates the effectiveness of the Picture Word Inductive Model and to identify the aspects of form, meaning, and use with sub-aspect in improving the vocabulary mastery of Year 7 students based on Nation's (2022) framework, in both receptive and productive ways. The methods using a quasi-experimental study into experimental and control group with purposive sampling, involving 64 students with 32 students each groups. The data were collected in multiple-choice test consisting of 36 items; were conducted the Shapiro-Wilk normality test showed ($p < 0.05$), non-parametric tests were used in this study. The Mann-Whitney U test showed a significant improve ($U = 354.500$; $Z = -2.122$; $p = 0.034$) on experimental group. The Friedman test showed no significant differences between all aspects through receptive and productive ways ($X^2 = 4.692$; $p = 0.096 > 0.05$), indicating that PWIM stimulates balanced in all aspects. And post-hoc pairwise comparisons showed that the spoken form productive sub-aspect lagged significantly ($p < 0.05$). In conclusion, PWIM is effective in improving vocabulary mastery, and there is no significant difference increased on the 3 aspects, Meanwhile, there are lagging significantly behind on the sub-aspect.

Keyword: Active to Productive Learning; Aspect and Sub-Aspect of Vocabulary; From; Picture-Word Inductive Model; Secondary School.

1. INTRODUCTION

Vocabulary achievement is a primary foundation of second language acquisition due to it directly influences students' literacy skills and communicative competence. This is also emphasized by Jamal & Nurdiansa (2025); Marpaung (2023); Wilda et al. (2024), who emphasized that an crucial role for reinforcing overall English proficiency performance within listening, speaking, reading, and writing is vocabulary. Marpaung (2023) adds that a person cannot communicate effectively without having a sufficient vocabulary due to vocabulary is a crucial aspect that influences all language skills. In line with this, Adinda & Rahayu (2023) emphasize that without a solid grasp of vocabulary, students will struggle to understand and use language to convey their intended meaning. In fact, the achieved when students understand the meaning of words before learning grammatical structures is a primary benefit of vocabulary learning (Marpaung, 2023). With sufficient vocabulary, students will be more capable of interpreting written texts, understanding spoken conversations, and conveying ideas clearly both orally and in writing (Echalico-bermillo & Roma-remollo, 2022). Therefore, Students' Success in second language learning was determined through vocabulary achievement due to vocabulary achievement plays a crucial element foundation for effective communication and intact English language proficiency development.

Based on empirical data from EF English Proficiency Index (EPI) report (2025), Indonesia ranks far below the global average in terms of English proficiency scores, placing 80th out of 123 countries and regions surveyed (Education First, 2025). This indicates that the majority of students are at the low to intermediate levels, far from the high proficiency targets expected to support global communication. The primary factor of this situation is the critical phase of educational policy transition. As outlined in the Kemendikdasmen policy; (2025), English will be fully implemented in the 2027/2028 school year as a compulsory subject in primary schools and equivalent policy Which is the lack of readiness for this transition to compete in the global arena. This poses a challenge for 7th-grade of secondary school students in SMP N 1 Kaliwungu, who previously received only a basic foundation in English through the Local Content (Mulok) curriculum. It has a direct impact on low motivation to learn and students' difficulty in acquiring and applying vocabulary in sentence contexts and still using conventional method.

However, in practice, many students still struggle to achieve adequate vocabulary proficiency. The caused of struggle in achieving adequate vocabulary proficiency are internal and external factors. Internal factors play a key role, stemming from motivation, self-confidence and vocabulary learning strategies. Motivation is believed to be a key factor in the successful acquisition of vocabulary (Taye & Lodebo, 2026; Rianti et al., 2023); meanwhile Rianti et al. (2023) add that self-confidence is also a role as another determining factor in the successful acquisition of vocabulary. Furthermore, vocabulary learning strategies are also a determining factor in the success of reading comprehension (Taye & Lodebo, 2026). External factors stem from the family and school environments within the learning process (Rianti et al., 2023). Therefore, internal and external factors are closely interlinked in learning, as ineffective external practices tend to diminish students' internal motivation within the learning process. This is clearly evident in classroom practice, where students are often required to memorize material without understanding how to apply it, resulting in reduced attention to the teacher's explanations and difficulty in recalling new vocabulary (Dharmayasa, 2022). This situation indicates that teaching vocabulary includes pronunciation, spelling, meaning and usage. It is still a challenge for both teachers and students (Wilda et al., 2024).

Based on those challenges, a learning strategy that can bridge students' cognitive barriers through visual and verbal approaches is needed. It is called Picture Word Inductive Model (PWIM). PWIM is an inquiry approach strategy that is a stimulus for teaching through the picture and it enables students to develop understanding inductively through meaningful and contextual learning experiences (Calhoun, 1999; Masruroh et al., 2024). In which PWIM

is developed within 1999 by Calhoun, here are the students who are encouraged to find out the words from a picture through what the students read or see and write down the vocabulary. According Calhoun (1999), several core advantages of PWIM instructional process in the classroom adopted by Marpaung (2023) are as follows:

The first, emphasizing proficiency in phonics, grammar, spelling, writing skills and the correct use of English. Within PWIM, students learn how to use English in line with standard rules through activities involving looking at, listening to, spelling and writing words correctly. The development of phonics, spelling and writing skills, as students gain both visual and auditory learning experiences simultaneously through Pictures as its support.

The second, using the picture as contextual learning media to introduce the new vocabulary. It helps the students in recognising, understanding and classify new vocabulary before learning vocabulary in the form of phrases or sentences more effectively because the pictures as facilitator using concrete reference to provide visual stimuli.

The third, students' motivation, participation and self-confidence are enhanced. The use of engaging images makes students more enthusiastic in learning such as observing, identifying, labelling, discussing and constructing sentences to make students participate more actively.

The fourth, PWIM serves as a visual reference to help the students in developing vocabulary, phonics, and spelling. Picture word charts are able to help the students in developing vocabulary, recognizing the relationship between sounds and letters (phonics), and developing the ability to spell and write words correctly.

The fifth, helping the students in understanding the patterns, relationships and English language structure. The students are able to recognise the relationship between the words and how to use the new vocabulary, so Grammarly, students' understanding is reinforced through its activities, such as grouping words, recognising language patterns and constructing sentences systematically.

The sixth, speaking, reading, and writing abilities are increased properly. The students are able to do discussion and image-based learning activities to help in increasing speaking ability and strengthening the vocabulary achievement through listening, speaking, reading, spelling and writing the vocabulary activities repeatedly.

The last, constructing the phrases, sentences and paragraphs practices based on the context of an image. By making use of the vocabulary they have learnt, students are able to apply it in the form of phrases, sentences and paragraphs based on the pictures; in this way, their writing skills improve at the same time.

Numerous prior studies have revealed of the PWIM effectiveness in a few aspects as follows: the first, PWIM increasing vocabulary achievement compared to conventional method (Echalico-bermillo & Roma-remollo, 2022; Hazizah et al., 2025; Marpaung, 2023; Loo & Tan, 2023) and PWIM increasing vocabulary achievement with one group class without comparing with another group class (Mukadar et.al, 2021). The second, learning vocabulary through PWIM influences students' learning attitude (Echalico-bermillo & Roma-remollo, 2022); The third, learning vocabulary through PWIM enhances active engagement of students during class activities, resulted positive response toward the application of PWIM for learning vocabulary (Hazizah & Bani Said, Ana Mutmainah; Syam, Nur Fadhilah, Harmilawati, 2025). The last, increasing vocabulary recall and retention of young learners (Echalico-bermillo & Roma-remollo, 2022; Hazizah et al., 2025; Loo & Tan, 2023). Echalico-bermillo & Roma-remollo (2022) revealed the significant difference in retention test of the student, which an average score of 69.43 for those exposed to PWIM and an average score of 50.12 for those unexposed to PWIM. Meanwhile Loo & Tan (2023) revealed that the higher improvement vocabulary breadth in retention test, in experimental group showed mean score of pretest were 1.686 and 1.143 in control group. Meanwhile, the delayed posttest mean score in experimental group has shown 6.200 score and 2.171 score in control group. Thus, overall, PWIM has a highly effective positive impact when applied to vocabulary learning in various level groups.

Although previous studies have consistently reported the positive outcomes on vocabulary learning through PWIM method, there remains a crucial research gap. Previous research has been conducted on 7th-grade students, examining the effectiveness of using a pre-experimental design without comparing it to other conventional methods., additionally, most previous studies have focused in investigating the effectiveness of PWIM comparison with conventional methods in terms of students' vocabulary achievement, examined attitudes, learning response and retention without thoroughly investigating the form, meaning and use aspects in vocabulary through receptive and productive ways and none disaggregate the outcome into its 18 sub-aspects. As a result, it remains unclear whether PWIM develops these aspects evenly or whether particular sub-aspects. Therefore, the aim of this research is to fulfill these gaps by examining the effectiveness of PWIM through receptive and productive ways using a quasi-experimental design based on Nation Theory (2022) in 7th grade students within the 2026/2027 academic year at SMP N 1 Kaliwungu while also conducting an investigating of the aspects of students' vocabulary improvement either in form, meaning and use with sub-aspects within this article titled "Form Receptive to Productive Ways: Boosting Secondary School Students' Vocabularies Through Picture Word Inductive Model"

Research Questions of The Study

- a. Is there any significant improvement of students' vocabulary competence between those who are exposed to PWIM and those who are not?
- b. Which vocabulary aspect showed the most significant improvement after the implementation of PWIM through receptive and productive ways?

Hypothesis of the study

Hypothesis 1

H₀₁: There is no significant improvement of students' vocabulary competence between those who are exposed to PWIM and those who are not.

H₁₁: There is a significant improvement of students' vocabulary competence between those who are exposed to PWIM and those who are not.

Hypothesis 2

H₀₂: There is no significant difference in improvement in the vocabulary aspects after the implementation of PWIM either form, meaning or use.

H₁₂: There is a significant difference in improvement in the vocabulary aspects after the implementation of PWIM either form, meaning or use.

2. RESEARCH METHODOLOGY

This study conducted a quasi-experimental design with non-equivalent control group design to measure the effectiveness of the Picture Word Inductive Model (PWIM) method on the vocabulary mastery of 7th-grade students and in which aspect of form, meaning or use with sub-aspect in vocabulary showed the most significant difference improvement after the implementation of PWIM through receptive and productive ways. This design was chosen due to compare 2 groups involving experiment group and control group. In which, intact classroom groups were used as they naturally existed within the school through pretest and posttest in each group class (Putri et al., 2023). Therefore, the intact classes as experimental and control groups was applied by researchers. The research design was structured as follows:

Table. 1 Non-equivalent Control Group Design

Group	Procedure
Experimental	O1 X O2 Pre-test=>Experiment using PWIM method=> Posttest
Control	O3 O4 Pre-test=> conventional method => Posttest

(Creswell & Creswell, 2023; Sugiyono, 2023)

This study population consisted of overall 7th-grade students at SMP N 1 Kaliwungu, Kendal Regency, Central Java Province, totaling 228 students which is the sample was selected using purposive sampling, specifically by choosing two homogeneous classes based on initial ability. The determination of the sample size was adjusted to the principle of representativeness for quantitative research and took into account the stability of statistical analysis (Wakhata & Balimuttajjo, 2024). This study was there 32 students in each both class, class of 7 A as experimental group and 7 B as control. Both classes were in total 64 student and selected due to both classes have similar characteristics in terms of grade level, initial vocabulary ability, the classes had comparable numbers of students, thus meeting the requirements needed to answer the research questions

The research instruments consisted a vocabulary mastery test specifically developed for this study based on Nation's conceptual model, covering three aspects of vocabulary mastery involving Form, meaning and use through receptive and productive ways in multiple choice forms with the total were 36 questions based on the sub aspect for the pretest and posttest questions. The validity and reliability instrument were tested through expert assessment and using Cronbach's Alpha to measured the reliability, where $\alpha \geq 0.70$ is considered reliable (Yalew, 2024). The instruments consisted as follows:

Table. 2 The Instruments Adopted Nation 2022

Aspect	Sub-Aspect Nation (2022)	Indicators	Purpose	No. items	Total
Form	Spoken Form	Receptive: What does the word sound like?	Can the learner recognize the spoken form of the word?	1-2	2
		Productive: How is the word pronounced?	Can the learner pronounce the word correctly?	3-4	2
	Written Form	Receptive: What does the word look like?	Can the learner recognize the written form of the word?	5-6	2
		Productive: How is the word written and spelled?	Can the learner spell and write the word?	7-8	2
	Word Parts	Receptive: What parts are recognizable in this word?	Can the learner recognize known parts in the word?	9-10	2
		Productive: what word parts are needed to express the meaning?	Can the learner produce appropriate inflected and	11-12	2

Meaning	Form and Meaning	Receptive: What meaning does this word form signal?	derived forms of the word? Can the learner recall the appropriate meaning for this word form?	13-14	2
		Productive: What word form can be used to express this meaning?	Can the learner recall the appropriate word form to express this meaning?	15-16	2
	Concept and Referents	Receptive: What is included in the concept?	Can the learner understand a range of uses of the word and its central concept?	17-18	2
		Productive: What items can the concept refer to?	Can the learner use the word to refer to a range of items?	19-20	2
	Associations	Receptive: What other words does this make us think of?	Can the learner produce common associations for this word?	21-22	2
		Productive: What other words could we use instead of this one?	Can the learner recall this word when presented with related ideas?	23-24	2
		Receptive: In what patterns does the word occur?	Can the learner recognize correct uses of the word in context?	25-26	2
	Grammatical Functions	Productive: In what patterns must we use this word?	Can the learner use this word in the correct grammatical patterns?	27-28	2
		Receptive: What words or types of words occur with this one?	Can the learner recognize appropriate collocation?	29-30	2
	Collocations	Productive: what words or types of words must we use with this one?	Can the learner produce the word with appropriate collocations?	31-32	2
Use	Constraints on Use	Receptive: Where, when, and how often would we expect to meet this word?	Can the learner tell if the word is a common, formal, or infrequent word, etc?	33-34	2

	Productive: Where, when and how often can we use this word?	Can the learner use the word at appropriate times?	35-36	2
Total				36

Table. 3 The Grading Criteria

Grading Criteria	
Statement	Score
Valid answer	1
Invalid answer	0
Overall score	36
Score	Total score : 36 x 100

The pre-test and post-test results were counted quantitatively using SPSS 27 in several systematic stages. The data has been examined test to know the normality score using the Shapiro-Wilk. The normality test revealed that the score distributions dethroughted from a normal distribution ($p < 0.05$). This indicated that the analysis was carried out using a non-parametric test as appropriate alternatives to examine the hypotheses.

In order to investigate the first research question, the researchers conducted Wilcoxon Signed-Rank test to examine significant pretest and posttest score improvements within each group across vocabulary aspects of form, meaning, use through receptive and productive ways. And then, this was followed up by the Mann-Whitney U test to compare the total gain scores of both groups (Creswell & Creswell, 2024; Sugiyono, 2023). Meanwhile, in order to investigate the second research question, the Friedman test was conducted on the experimental class to evaluate the significant differences in improvement the gain scores across the three vocabulary aspects of form, meaning, and use with statistical significance set at $\alpha = 0.05$ as a non-parametric alternative to repeated measures ANOVA (Liu & Xu, 2022).

The procedure of this study was conducted over five meetings, each meeting 2×40 minutes. The pre-test was given to two classes at the first meeting, which were conducted within the experimental group and the control group. Intervention using PWIM method was delivered after the pre-test to Class 7A as the experimental class. While the conventional method was delivered after the pre-test to class 7 B as control class. At the end of the five meetings, the post-test was conducted to both classes.

3. RESULT AND DISCUSSION

RESULTS

Testing Hypothesis 1 on Comparing the Effectiveness of the Two Groups

Before comparing the magnitude of the increase (gain) between the groups, a normality test was applied on the descriptive statistics to determine the pre-test and post-test mean values. This was followed up by a Wilcoxon test to determine a significant increase in vocabulary scores between the pre-test and post-test each group.

Table 4. The Descriptive Statistics Test and The Wilcoxon Test for Total Vocabulary Results in The Experimental and Control Groups

Group	N	Mean Pretest	Mean Posttest	Mean Gain	Z	Asymp. Sig. (2-tailed)	Description
Eksperimen	32	62,50	75,59	13,09	-4,866	< ,001	Significant
Kontrol	32	55,47	63,78	8,31	-4,550	< ,001	Significant

Based on the table 4, the descriptive statistics test and the Wilcoxon test for total vocabulary scores presented that the experimental group experienced a significant improvement. The total vocabulary scores from the mean score 62.50 to 75.59, with a mean gain 13.09 ($Z = -4.866$; $p_{\text{value}} < 0.001 < p_{\text{tabel}} 0,05$). Meanwhile, the control group revealed the total vocabulary scores from the mean 55.47 to the mean 63.78 was a significant improvement, with a mean gain of 8.31 ($Z = -4.550$; $p_{\text{value}} < 0.001 < p_{\text{tabel}} 0,05$). Thus, both groups experienced a significant within-group improvement.

This was followed up by a Mann-Whitney U test to test hypothesis 1 and to determine the difference in the magnitude of the mean rank increase each groups, which states:

H₀₁: There is no significant improvement of students' vocabulary competence between those who are exposed to PWIM and those who are not.

H₁₁: There is a significant improvement of students' vocabulary competence between those who are exposed to PWIM and those who are not.

Tabel 5. The Mann-Whitney U Test on The Total Vocabulary Score Gain

Group	N	Mean Rank	Sum of Ranks	Mann-Whitney U	Nilai Z	Asymp. Sig. (2-tailed)	Description
Eksperimen	32	37.42	1197.50	354.500	-2.122	.034	Significant
Kontrol	32	27.58	882.50				

Based on the table 5, the data from the Mann-Whitney U test revealed that a U_{value} of 354.500 with $Z = -2.122$ and $\text{Asymp. Sig. (2-tailed)} = .034 > p_{\text{tabel}} 0.05$. This indicated a significant difference in the average gain score. The experimental group highly improved in 37.42 than the control group showed 27.58 mean rank.

Based on the test criteria ($p_{\text{tabel}} < 0.05$) and the higher mean rank of the Mann-Whitney U test showed 37,42 with $U = 354.500$; $Z = -2.122$; and $p_{\text{value}} = .034$. these results indicated that H_{11} is accepted and H_{01} is rejected. Hence, this indicated that there was a significant difference improvement in vocabulary competence between students exposed to PWIM and those who were not

Testing Hypothesis 2 on Differences in Improvement of the Form, Meaning and Use Aspect Following the PWIM Implementation

Hypothesis 2, which states:

H₀₂: There is no significant difference in improvement in the vocabulary aspects after the implementation of PWIM either form, meaning or use.

H₁₂: There is a significant difference in improvement in the vocabulary aspects after the implementation of PWIM either form, meaning or use.

Tabel 6. Friedman Test

Group	Mean Rank Gain Form	Mean Rank Gain Meaning	Mean Rank Gain Use	N	Chi-Square	df	Asymp. Sig
Experiment	1,88	1,84	2,28	32	4,692	2	,096

Based on the table 6, the data presented the Friedman test within the experimental group to know statistically significant increase in rank gain. The data revealed that a value of $X^2 = 4.692$ ($df = 2$; $p = 0.096$) in the experimental group indicated that there was no significant difference in improvement across the three vocabulary aspects through receptive and productive ways in experimental group due to the significance level is above $p_{\text{tabel}} = 0.05$. Based on these results, the statistical decision taken is to accept H_{02} and reject H_{12} ; data analysis will not proceed to the next stage of post-hoc testing using pairwise comparisons due to the non-significant results.

Analysis of Improvement Based on the Sub-aspects of Nation's Theory (Form, Meaning, and Use)

As supporting data, improvements in scores were also analysed across 18 components of vocabulary knowledges (receptive and productive) based on Nation's framework, covering Spoken Form, Written Form, Word Parts, Form & Meaning, Concept & Reference, Associations, Grammatical Function, Collocations, and Constraints on Use.

Tabel 7. Friedman Test

Test Statistics ^{a,b}	
N	32
Chi-Square	53.064
df	17
Asymp. Sig.	.000
a. Class Group = experiment	
b. Friedman Test	

Based on the table 7 Friedman Test for 18 sub aspects revealed that $p\text{-value } 0.000 < p\text{-tabel } 0.05$, this indicated were significant. Therefore, the analysis can proceed to the post-hoc stage using pairwise comparisons to identify, more specifically, which pairs of components differ significantly.

Picture 1. Post-Hoc Pairwise Comparisons with Bonferroni-Adjusted Significance among Vocabulary Sub-Aspects

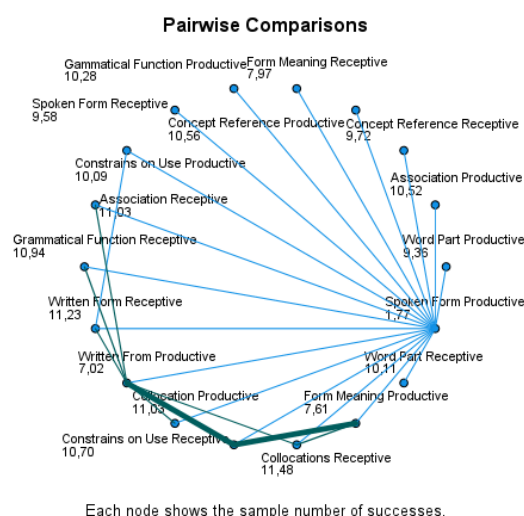
Sub-Aspect	SFR	SFP	WFR	WFP	WPR	WPR ₂	FMR	FMP	CR ₂	CRP	AR	AP	GFR	GFP	CR	CP	CUR	CUP
SFR	1																	
SFP	.000	1																
WFR	1.000	.000	1															
WFP	1.000	.013	.241	1														
WPR	1.000	.000	1.000	1.000	1													
WPR ₂	1.000	.000	1.000	1.000	1.000	1												
FMR	1.000	.001	1.000	1.000	1.000	1.000	1											
FMP	1.000	.002	1.000	1.000	1.000	1.000	1.000	1										
CR ₂	1.000	.000	1.000	1.000	1.000	1.000	1.000	1.000	1									
CRP	1.000	.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1								
AR	1.000	.000	1.000	.401	1.000	1.000	1.000	1.000	1.000	1.000	1							
AP	1.000	.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1						
GFR	1.000	.000	1.000	.505	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1					
GFP	1.000	.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1				
CR	1.000	.000	1.000	.124	1.000	1.000	1.000	.565	1.000	1.000	1.000	1.000	1.000	1.000	1			
CP	1.000	.000	1.000	.401	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1		
CUR	1.000	.000	1.000	.876	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1	
CUP	1.000	.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1

Notes: Values are Bonferroni-adjusted significance (Adj. Sig.) from Dunn's post-hoc pairwise comparisons following the Friedman test. Bold values indicate Adj. Sig. < .05 (statistically significant difference between sub-aspects).

SFR = Spoken Form Receptive; SFP = Spoken Form Productive; WFR = Written Form Receptive; WFP = Written Form Productive; WPR = Word Part Receptive; WPR₂ = Word Part Productive; FMR = Form Meaning Receptive; FMP = Form Meaning Productive; CR₂ = Concept Reference Receptive; CRP = Concept Reference Productive; AR = Association Receptive; AP = Association Productive; GFR = Grammatical Function Receptive; GFP = Grammatical Function Productive; CR = Collocation Receptive; CP = Collocation Productive; CUR = Constraints on Use Receptive; CUP = Constraints on Use Productive.

Based on the picture 1 result of Post Hoc was conducted using Pairwise Comparisons test, which was the significance values have been adjusted by the a Bonferroni correction with Adj. Significant 0,05 on Sub-aspect of vocabulary reveled that there was a significant difference each other. The significant difference occured on sub-aspect of Spoken From Productive. This was evident from the comparison with Written Form Productive (Adj. Sig. = 0.013), 'Form Meaning Receptive (Adj. Sig. = 0.001), and all other aspects such as Word Part Productive, Spoken Form Receptive, Grammatical Function Productive, and Collocation Receptive, all of which showed an Adj. Sig. value of $0.000 < 0,05$.

Picture 2. Further Pairwise Comparisons



Based on the picture 2 results of further pairwise comparisons, there were significant differences in most pairs of vocabulary knowledge aspects. The Spoken Form Productive aspect recorded the lowest mean score (1.77) and was statistically significantly different from almost all other aspects. The Collocations Receptive (11.48) and Written Form Receptive (11.23) aspects showed the highest levels of proficiency.

It can be concluded that the learning intervention successfully improved students' vocabulary comprehension not only at the level of recognition or passive (receptive knowledge), but also at the level of active use or production, using the PWIM method. However, the Spoken Form Productive sub-aspect remains a challenge for Year 7 students compared to the other sub-aspects.

DISCUSSION

The Effectiveness in Improving Vocabularies Based on the PWIM's Concepts and Intervention

The Picture Word Inductive Model (PWIM) is a learning approach based on an inquiry-based strategy, Which developed by Calhoun (1999) and guides students to actively discover and construct language knowledge through concrete visual stimuli. In the experimental group in Class 7A, PWIM was implemented with the theme 'This is my school' (School Building, Giving Directions, Extracurricular Activities and School Festival):

First, Selecting & Identifying Pictures were the teacher presented contextual pictures , and the students identify the objects in the pictures. Secondly, Labelling & Classifying were students written words in the boxes provided or draw lines (labelling), read the words and group

them (classifying) into word classes (nouns, verbs, adjectives and prepositions). Third, Read Aloud & Review Chart were students practiced repetition in sequence (say the word, spell it, say it again). Fourth, Sentence & Paragraph Construction were the teacher introduced the simple present and present continuous tenses, guiding students to construct sentences on the whiteboard, starting with simple sentences and progressing to writing a complete paragraph independently.

In contrast, the conventional method was conducted in Class 7B as control group, which was taught through word analysis on the whiteboard and constructing random sentences without the support of visual aids.

The statistical tests revealed that the data showed greater one on the mean score 62.50 to 75.59, with a mean gain of 13.09 ($Z = -4.866$; $P = 0.001$) in the experimental group. This indicated that the experimental group occurred highly score in improving vocabulary than the control group. Furthermore, the Mann-Whitney U test for inter-group comparisons. This indicated that the experimental group achieved significantly higher improvement than the control group ($U = 354.500$; $Z = -2.122$; $p = 0.034$).

Vocabulary development occurs due to PWIM utilized visual and verbal stimuli in the form of images, as students observe the images and label the words in them. The images help students to identify words inductively through the processes of observation, association and classification. Unconsciously, students' brains activate two types of memory simultaneously namely visual and verbal processing, whereas the image were easier to remember than text. Those were consistent with Macedonia et al. (2023) the students observe pictures and label them, their brains activate two codes simultaneously through images as visual and verbal. Meanwhile, the contextual images used act as a conceptual medium that facilitates the retrieval (reintegration) of word memories and reduces the cognitive load on students' memory.

Furthermore, the PWIM strategy employed in this study is consistent with the research by Hidayat (2023), which revealed that image-based strategies were making the meaningful connection and effective among the students. However, this study expands the findings of PWIM that PWIM not only increased in vocabulary but also enhanced students' syntactic fluency when grouping words into phrases and sentences. Thus, these findings were consistent with those previous studies of Marpaung (2023), Hazizah et al. (2025), Echalico-Bermillo & Roma-Remollo (2022), Loo & Tan (2023) all of whom confirm the superiority of PWIM effectiveness over conventional teaching methods that most previous studies have focused in investigating the effectiveness of PWIM comparison with conventional methods in terms of students' vocabulary achievement, examined attitudes, learning response and retention. Instead

the study of Mukadar et al. (2021) examining the effectiveness of using a pre-experimental design without comparing it to other conventional methods, which showed that it is effective.

Improvements in Vocabulary Aspects and Sub-Aspects After Intervention Using PWIM

Based on Nation's (2022) concepts and vocabulary indicators, knowing a word, according to Paul Nation (2022), consisted three aspects namely Form, Meaning and Use that occur through passive (receptive) knowledge and active (productive) knowledge ways. Receptive and productive according by Mohammadi et al. (2024), argued that in an academic context, receptive and productive skills were equally important. In practical terms, a strong mastery of receptive skills enables students to understand the subject matter. Meanwhile, a strong mastery in productive skills helps to develop students' ability to express their ideas coherently and with confidence. This study utilized a 36 item instrument receptive and productive that had been adapted to Nation's indicators, including:

First, the Form aspect (items 1–12), which measures spelling and oral/written pronunciation, consisted with spoken and written forms, as well as morpheme structure (word parts). Secondly, the Meaning aspect (items 13–24), which measures the relationship between form and meaning, concept & referents, and associations. Thirdly, the Use aspect (items 25–36), which measures the use of words in terms of grammatical function, collocations and constraints on use.

Based on Nation's theoretical aim Nation (2022), which is to facilitate learners' transition from passive as receptive knowledge to active as productive knowledge. In this study, the data was conducted using the Friedman test in the experimental group to know the significantly differences improvement in all vocabulary aspect. This friedmant test result showed the value that $X^2 = 4.692$; $df = 2$; $p_{value} = 0.096 > p_{tabel} = 0,05$. It revealed that there is no statistically significant difference improvement between the Form, Meaning and Use aspects. And this can be interpreted to mean that the application of PWIM is capable of stimulating the growth of students' vocabulary skills in a balanced and comprehensive manner. The PWIM method did not focus primarily on a specific aspect; rather, it contributes equally well and evenly improvements in the all aspects either form, meaning and use through receptive and productive ways.

Furthermore, in this study, 18 sub-aspects through the receptive end productive was conducted using friedmant test by the reseachers to know the significant differences within them. And based on the result, significant differences within them was shown. Meanwhile this was also followed up by a Post Hoc Pairwise Comparisons Test, with the significance level adjusted to an adjusted significance (Adj. Sig) of 0.05; and the results significant differences

overall in Spoken Form Productive when compare with each other sub aspect, which was in gain rain 1,77. In contrast, the ‘Receptive Collocations’ (11.48) and ‘Receptive Written Form’ (11.23) aspects showed the highest levels of proficiency.

It means that Spoken Form Productive showed lagging behind. This was evident based on Spoken Form Receptive Indicator, the student learnt about ‘what does the word sound like’ with the aim was ‘Can the learner recognise the spoken form of the word?’. Meanwhile Spoken Form Productive, the students learnt about ‘How is the word pronounced’ with the aim was ‘Can the learner pronounce the word correctly?’. It shown that students merely receive the word’s form when Spoken Form Receptive while Spoken Form Productive the students’ have known how to produce the sounds of the word.

Thus, at the receptive knowledge, students were only required to carry out auditory acquisition or passive matching between the sound waves they hear and their auditory memory in the brain. Conversely, at the productive knowledge, students were required to carry out active phonological encoding and motoric articulation, involving coordination between the lips, tongue, vocal cords and word stress. This is in line with Nation (2005, 2022) neurolinguistic explanation, the process of producing sounds requires a far more complex cognitive load and motoric control than simply recognizing sounds. Due to listening and imitating, or producing, are two different things. Consequently, success or failure in learning the Spoken Form Productive sub-aspect requires a high level of metacognitive analysis namely higher-order eta linguistic awareness and repetition at least 10–12 times (Zeng et al., 2025).

Even though the findings of (Loo & Tan, (2023) confirms that vocabulary acquisition showed a significantly greater improvement when verbal and non-verbal instructions are presented in parallel; consequently, achievement gaps in sub-aspects requiring active sound production, such as Spoken Form Productive. However this still occur even when PWIM visual stimuli have been optimally provided in class 7.

It was able to be concluded that, although the learning intervention succeeded in improving students’ understanding of vocabulary in its various aspects and sub-aspects through receptive and productive ways, this indicates that the productive sub-aspect in spoken form productive requires an understanding of pronunciation, spelling, meaning and usage simultaneously. This is consistent with the view of Wilda et al. (2024) that teaching vocabulary encompasses pronunciation, spelling, meaning and usage were a challenge for both teachers and students. Thus, this sub aspect remains a challenge for Year 7 students compared to other sub-aspects.

A Holistic Approach to Vocabulary Acquisition Through the Picture Word Inductive Model

Holistic vocabulary development can be explained using Nation's (2022) vocabulary knowledge framework through the Picture Word Inductive Model (PWIM) approach, which divides word mastery into the aspek of Form, Meaning and Use. This framework was consistent with the very nature of PWIM itself, which Loo & Tan (2023) explicitly define as a holistic language arts strategy; consequently, its conceptual application is indeed designed to address all aspects of vocabulary knowledge in an integrated manner, rather than just one aspect.

In the Form Aspect, the picture labelling process in PWIM trains students' orthographic (written form) and phonological (spoken form) awareness simultaneously as they spell and pronounce the words they point to. Meanwhile, in the Meaning Aspect, the visual stimuli in PWIM provide a concrete context that reinforces the relationship between word form and meaning (concept and referents) without having to define them one by one. Furthermore, in the Use Aspek, the stages of PWIM that engaged students to classify words and organise them into sentences actively promote an understanding of grammatical functions and word collocations.

The visual aids used are able to help students remember words by word and learn how to pronounce the word correctly; furthermore, students are introduced to the written form of the words, along with the grammatical information that typically accompanies or follows them. This revealed that PWIM was not only expands the quantity of words memorized, but also transformed students' receptive vocabulary knowledge into structured productive skills in accordance with Nation's (2022) principles; furthermore, the sustainability of PWIM engaged students' active participation in language production (productive knowledge) and can reduce language anxiety and boost students' self-confidence and motivation to learn through the stimuli applied, due to it was the main factors hindering students' mastery of vocabulary (Rianti & Batau, 2023; Taye & Lodebo, 2026). This was consistent with those findings of Hazizah et al. (2025) that PWIM boosts students' motivation, thereby encouraging them to be active in class and to participate without fear of making mistakes.

The overall character of applying PWIM was also shown, was able to flexibly combined with language skills and other learning approaches. Cahyani et al. (2025) confirmed that applying PWIM effectively was able to increase students' writing ability in Narrative text, meanwhile Sari et al. (2023) and Ilahi et al. (2022) revealed PWIM effectiveness within written learning of persuasive and descriptive text. At a level equivalent with the subject of this research, Simon et al. (2025) found that effectively increasing students' vocabulary mastery in class 7 through combination between PWIM with Think-Pair-Share (TPS) strategy. In other

hand, Gustiana et al. (2025) revealed that modification of PWIM with smart mobile phone (PIMSA), effectively increasing on students' basic literacy skills. Thus, these findings strengthen the characteristic of PWIM as a holistic language arts strategy, the impact is not only limited to vocabulary acquisition but also involves the integrated development of receptive and productive language skills.

4. CONCLUSIONS AND RECOMMENDATIONS

This study revealed that Vocabulary mastery proficiency in 7th grade students was significantly higher effective using Picture Word Inductive Model (PWIM) compared with conventional method with Mean Gain in experimental group was 13.09 vs control group 8.31; $U = 354.500$; $p_{\text{value}} = 0.034$, in terms of vocabulary (Nation, 2022), the PWIM method was found to promote balanced among the all aspects either Form, Meaning and Use through receptive and productive ways $p_{\text{value}} = 0.096 > P_{\text{tabel}} = 0,05$ was shown no significant difference improvement each of them, indicating that this model operates holistically and is not just focused in specific aspect. However, analysis at the sub-aspect level revealed one critical issue, which is proficiency in Spoken Form Productive lagged significantly behind after compared with all other sub-aspects. It indicated that the transfer from receptive knowledge to active spoken production knowledge was a far more complex cognitive-motor process and is not automatically facilitated by visual stimuli alone.

Theoretically, these findings enrich in understanding of the limits to effectiveness of image-based approach in vocabulary acquisition, particularly by demonstrating that balance at all aspects through receptive and productive ways. However, it does not guarantee the same balance at the sub-aspect level. Regarding the limitations of this study, the researchers only conducted five meetings; hence, the researchers recommended that these findings have important implications for English language teachers and curriculum developers, which they should not rely on PWIM as a stand-alone strategy, but rather integrate it with tools to reinforce oral production, such as repeated pronunciation exercises or audio-based assessments using recorded voices to ensure that vocabulary acquisition is truly holistic, encompassing both receptive and productive domains and conducting a delayed post-test be carried out to achieve the best possible results.

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