Scientific Research Publishing

Open Journal of Modern Linguistics, 2025, 15(2), 417-435
https://www.scirp.org/journal/ojml
ISSN Online: 2164-2834
ISSN Print: 2164-2818

An Empirical Study of Vocabulary Acquisition in the Framework of Comprehensible Input

Shengyu Du

Institute of Education, University of Reading, Reading, UK
Email: 2960593503@qq.com

How to cite this paper: Du, S. Y. (2025). An Empirical Study of Vocabulary Acquisition in the Framework of Comprehensible Input. *Open Journal of Modern Linguistics, 15,* 417-435.
https://doi.org/10.4236/ojml.2025.152023

Received: March 28, 2025
Accepted: April 24, 2025
Published: April 27, 2025

Copyright © 2025 by author(s) and Scientific Research Publishing Inc.
This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).
http://creativecommons.org/licenses/by/4.0/

Open Access

Abstract

Comprehensible input and vocabulary acquisition are viewed as the crucial components of second language acquisition. So as to further discuss the relationship between comprehensible input and second linguistic vocabulary acquisition, we conducted an empirical study at a university in Guangdong, the present study based on Krashen's Input Hypothesis, investigates two main research questions: 1) Do different forms of comprehensible input cause significant differences in vocabulary acquisition? 2) Do different semantic types of vocabulary affect the efficiency of comprehensible input? This research uses a qualitative questionnaire to collect data and quantitative software SPSS to analyse the data. The results of this research indicated that: Different forms of CI (literal explanation and pictorial explanation) have no significant difference in vocabulary acquisition. Besides, only under the pictorial explanation of CI, the acquisition of common nouns is obviously more efficient than the acquisition of the technical terms. Under other conditions, there is no correlation between semantic categories of vocabulary and comprehensible input efficiency.

Keywords

Comprehensible Input, Vocabulary Acquisition, Literal Presentation, Pictorial Presentation

1. Introduction

The definition of input in SLA is clear and multiple. According to Corder (1967), input is not what the learner hears or what is presented to the learners to take in but rather what actually goes in. Ellis (1985) narrowed the definition of input and he believed that input is a language that is transmitted to SLA learners by other SLA learners or native speakers. Richards et al. (2002) gave the explanation in the *Longman Dictionary of Language Teaching and Applied Linguistics* that the term

input refers to the linguistic knowledge which that learners hear or receive during the learning process, or what they can get from the language.

Input is viewed as a crucial component in SLA. Gass (1997) emphasized the significance of input in SLA with the statement that "the concept of input is perhaps the single most important concept of second language acquisition. It is trivial to point out that no individual can learn a second language without input of some sort (p. 1)". Van Patten (2003) claimed that every successful L2 learner must be exposed to target language input as a step of SLA and further highlighted the vital position of input in SLA. Liu (2014) held the same view that Input is a key element in English learning.

Accordingly, the significance of input in SLA is long-standing and obvious, meanwhile, it raises another question: what kind of input is helpful for SLA learning?

Under this circumstance, the importance of comprehension in input became the focus of SLA theory and research territory (Han, 2010), which was motivated by the belief that input is not the only sufficient and effective condition for SLA, meanwhile, researchers argued that input should be comprehensible if it is useful for L2 learning process.

The relatively influential research of the comprehensible input is Stephen D. Krashen (1985)'s Input Hypothesis. We intend to use Krashen's theory as a root to further explore its validity in the modern linguistic context.

According to Krashen's statement in 1982, CI is the most significant element of vocabulary acquisition, meanwhile, he believed that the more input the students have, the higher scores they will get in vocabulary tests (Krashen, 1989), which raised our research interest. So, we take vocabulary acquisition as the focus of our research under the framework of the Input Hypothesis.

2. Literature Review

2.1. Research on Comprehensible Input

Stephen. D. Krashen (1982) originally posed the term Comprehensible Input (CI) in his Input Hypothesis. In this Hypothesis, Krashen tried to answer a basic question in SLA: How do we acquire language?

Krashen gave his answer in his hypothesis that CI is the only necessary condition for effective second language development and makes language acquisition happen. In concisely, if stage i represents the current acquired or existing linguistic competence of language learners, stage i+1 represents the new or next linguistic knowledge and structures that learners want to acquire, CI is the basic step for the span from stage i to stage i + 1.

Long (1982) summarized the Hypothesis of Krashen: 1) CI is a necessary composition of successful L2 acquisition; 2) more CI results in better and faster L2 acquisition; 3) Without CI, no language acquisition will occur.

Some scholars supported Krashen's point. Allwright (1984) posed that the success of SLA depends on the communicating context in which students need to get

in touch with sufficient CI so that they can cultivate their linguistic strength to distinguish the useful linguistic knowledge from context and acquire the language unconsciously. Swain (1985) added that CI provide routes for SLA learners to go into real-language communication. Meanwhile, Ellis (1990) evaluated that Krashen's Input Hypothesis is clear, explicit, and can explain many problems in teaching and learning, which also provides a clear pedagogical theory for English teaching methodology and provides a corresponding theoretical basis for SLA in practice.

Throughout the millennium, many researchers still favoured comprehensible inputs. Cook (2000) also believed that comprehensible input has a significant impact on second language acquisition. Echevarria (2010) revealed that a critical concept for students' development of SLA with and without learning problems is comprehensible input, which order for students to understand the meaning of the comprehensible input materials.

The above studies further emphasized that CI is beneficial to SLA.

However, some scholars do not fully agree with the Input Hypothesis of Krashen, Larsen-Freeman (1983) originally stated, that learners can digest meaningful information of language without CI and SLA may also happen without CI, accordingly, CI may not be the basic impulse to actualize language acquisition. Rost (1990) argued that, although comprehensive ability is basic and necessary in our daily lives, we cannot understand something completely or not at all. In 1994, Ellis posed the modifications of Krashen's Hypothesis: "Comprehensible input can facilitate acquisition, but it is not a necessary condition of acquisition, and it does not guarantee that acquisition will take place" (p. 279). Swain (1985) pointed out that learners cannot use language fluently and accurately merely relying on comprehensible input, he considered that successful L2 learners not only need to contact with CI but also need to produce comprehensible output as well. Gass (1997, 2008) argued that it is not comprehensible input but comprehended input which triggers intake in SLA.

In sum, there are a lot of debates about the Input Hypothesis, but most of them focus on the surface in a dichotomous way that CI is either useful or not and do not go into the comprehensible input itself to discern its validity in terms of the forms of comprehensible input. Besides, most studies have also not explored the effects of different linguistic content on comprehensible input. Under this circumstance, we intend to further explore the validity of the Input Hypothesis with different input forms and linguistic content.

2.2. Research on Vocabulary Acquisition

According to Krashen's statement in 1982, CI is the basic foundation for vocabulary acquisition, meanwhile, he believed that the more input the students have the higher scores they will get in vocabulary tests (Krashen, 1989), which raised our research interest. Besides, vocabulary presentation includes many forms related to CI. Therefore, we intend to investigate vocabulary acquisition under the Input Hypothesis.

Admittedly, vocabulary is more important than grammar and pronunciation in SLA. Mackeow & Curtis (2014) added that vocabulary learning is one of the main tasks of the teaching and learning process. As Lewis (1993) stated, vocabulary acquisition is the central task of SLA, and learners' reliance on vocabulary is indispensable for the formation and improvement of every linguistic ability. Verhallen and Schoonen (1998) stated the same point of view that acquiring sufficient vocabulary is at the heart of linguistic issues.

Nation (1990) categorized vocabulary acquisition into two ways: direct and indirect. Direct acquisition means learners intentionally acquire vocabulary by memorizing words, doing exercises, etc. Indirect acquisition is also called incidental acquisition, which means that learners acquire vocabulary incidentally when they complete listening, reading and other learning tasks. The indirect vocabulary acquisition coincides with CI.

According to Nation (1990), vocabulary is a linguistic unit that contains both form and meaning, and the criterion for defining whether a word has been acquired is whether or not the learner needs to engage in additional learning. For example, "write" and "writer" are two words that are different in form but identical in meaning, and as long as the learner masters one of them, the other will be mastered naturally without additional learning, so "write" and "writer" are recognized as one word by Nation. In the present study, we adopt Nation's viewpoint, in which the target vocabulary words presented in the experiment are all vocabulary words that have not yet been acquired by the subjects and that need additional learning.

With the continuous development of vocabulary teaching theories and practices, scholars have explored and generalized a variety of vocabulary presentation styles. Gairns and Redman (1986) generalized three vocabulary presentation styles: pictorial explanation, literal explanation and lexical translation. In Tinkham's (1997) study, lexical presentation was divided into two categories: semantic clustering presentation and thematic clustering presentation, Penny (2000) summarized as many as ten ways of presenting vocabulary, including concise definitive presentation, concrete descriptive presentation, examples presentation, illustrative presentation, demonstrative presentation, contextual presentation, translating presentation, synonym presentation, antonym presentation and phrase matching presentation.

In the present study, we adopt the view of Garins and Redman, to be more precise, we take pictorial and literal explanations as the main forms of vocabulary presentation in this research because these two vocabulary presentation forms also belong to CI forms.

In addition, with the development of science and technology, multimedia technology provides great convenience for foreign language teaching. Some researchers have also studied vocabulary presentation based on multimedia technology, especially pictorial presentation. Kroll and Tokowicz (2001) compared the effectiveness of vocabulary acquisition in two forms: pictorial presentation and naming

presentation, and found that pictorial presentation can stimulate the learners' interest in learning in a more intuitive form, which can greatly promote the vocabulary acquisition effect of the learners. Yagoub and Mortaza (2012) compared the vocabulary acquisition effect of university students in multimedia presentation and traditional direct translation through comparative experiments and found that the vocabulary acquisition effect of students in multimedia presentation is significantly better than that of traditional presentation, and the multimedia presentation with pictures, text, sound and images effectively promotes the deep processing and long term memory of the target vocabulary. The study found that students' vocabulary acquisition was significantly better under the multimedia presentation than under the traditional one.

Liu (2011) took adult English learners as the research objects and explored the effect of multimedia presentation on their foreign language vocabulary acquisition through experiments, and found that multimedia presentation had a significant effect on learners' receptive vocabulary and output vocabulary.

Clearly, a large number of the above studies compare traditional vocabulary presentation methods with multimedia lexical presentation methods. However, they rarely compare the multimedia lexical presentation methods internally. Therefore, we intend to compare the difference of effectiveness of two forms (electronic pictorial and literal explanations), which both belong to multimedia vocabulary presentation.

Besides, current research on vocabulary acquisition predominantly treats vocabulary as an entity or categorizes it by parts of speech (nouns, verbs, adjectives, etc.) for investigation, with minimal attention devoted to semantic categories as a research focus. Luo (2023) selected terminology as the research subject to explore how different vocabulary presentation methods influence terminology acquisition, which has sparked our research interest. We hypothesize that terminology and common nouns belong to distinct semantic categories, and we intend to explore the difference of acquisition effectiveness between vocabulary in different semantic categories when they exposed to identical presentation methods.

2.3. Research Questions

We intend to investigate two research questions in this study:

1) Do different forms of comprehensible input (literal explanation and pictorial explanation) cause significant differences in vocabulary acquisition?

2) Do different semantic types of vocabulary (common noun and technical term) affect the efficiency of comprehensible input?

3. Research Design

3.1. Material

"A necessary condition to move from stage i to stage i + 1 is that the acquirer understands input that contains i + 1" (Krashen, 1982, p. 20), but how can the

leaner (acquirer) understand the "+1" which they have not yet acquired in stage i? Krashen (1985) pointed out that learners should use not only their linguistic knowledge to comprehend. Literally, comprehensible input means learners can understand target language input by reading or listening from non-target language material. Besides, Krashen (1985) argued that the best language input condition is that "language input should be interesting and relevant".

Furthermore, Mushait and Mohsen (2019) found that the amount of vocabulary gained from listening is less than the amount of vocabulary gained from reading. Therefore, in this study, we chose reading materials as the research tool.

How to make input comprehensible? Long (1982) proposed four methods to make input comprehensible with the utilization of modifications, 1) provide in-language context, 2) provide out-language context, and 3) make simpler communication, and 4) modify the interactional structure of communication.

In this research, we select in-language and out-linguistic context as the forms of comprehensible input, linguistic context refer to literal explanation, and extra-linguistic context refers to pictures (the pictorial explanation of target vocabulary).

The reading material (both in literal and pictorial explanation) contains 20 words. Before we selected the concrete word, we developed the following principles:

1) The target vocabulary must be brand new English words that the experimental subjects have not formally learned their forms but subjects must be able to comprehend the meaning they represent.

2) The lexical meaning of target vocabulary should be avoided to be guessed by participants, so words with obvious meaningful roots and affixes should not be chosen.

Under these principles, we consulted the glossary of CET Band 6 and TEM Band 8 to confirm the exact level of each word. Meanwhile, so as to discuss the relation between vocabulary acquisition effectiveness and semantic categories of vocabulary, 10 words of the reading materials (total of 20 words) are technical terms which are taken from the textbook of C*hinese Language and Culture Institute, Modern Chinese* (2nd *edition*), and we consulted with the professors of Chinese Language and Culture Institute to ensure that the participants had been exposed to the Chinese meanings of these terms in their college courses. Then, we found the English words that correspond to these terms and took them in our reading material.

Besides, these words are all nouns or noun phrases and some of them belong to polyseme (a word that has multiple meaning items), however, in this study, we only select one of their multiple-meaning items as target acquisition item.

Furthermore, we use an online instrument, Vocab Profile English (http://www.lextutor.ca/vp/eng/), to ensure the frequency level of each word. Vocab Profile is a computer program for lexical analysis, which aims to investigate the proportion of high-frequency and low-frequency words of English in a written

text. This kind of system classified words into four frequency categories: 1) K1 words refer to the 1,000 most frequent English words; 2) K2 words mean the next most frequent 1000 English words; 3) AWL words are the academic English words; and 4) Off-list words belong to the words not found in the first three frequency categories. The frequency category of each word is listed in Table 1.

Table 1. The frequency category of each word in reading material.

Target Words	Word Form	Frequency Category
Technical term		
Pictophonetic character	noun	Off-list word
Hieroglyph	noun	Off-list word
Retroflex Final	noun	AWL word
Ambiguity	noun	AWL word
Semantic triangle	noun	Off-list word
Antonym	noun	Off-list word
Hierarchy	noun	AWL word
Metonymy	noun	Off-list word
Stroke Order	noun	K1 word
Labial	noun	Off-list word
Common noun		
Bunk	noun	Off-list word
Manicure	noun	Off-list word
Loot	noun	Off-list word
Reek	noun	Off-list word
Forage	noun	Off-list word
Rampart	noun	Off-list word
Impersonator	noun	Off-list word
Bishop	noun	Off-list word
Burglar	noun	Off-list word
Crevice	noun	Off-list word

Clearly, most words of reading material in this research are AWL and OFF-list words which mean participants are hardly exposed to these words in daily English learning contexts, accordingly, these words are above participants' " stage i" (current English level), furthermore, in order to ensure these words can be understood by participants with the use of their extra-English-linguistic knowledge (only "+1" above participants' stage i), we consulted the professors of the Institute of Chinese Language and Culture and confirmed that the Chinese meanings of these words belong to the common Chinese nouns and technical terms which participants have already acquired in their modern Chinese language programme and daily lives. The Chinese meaning of our reading material can be seen in Table 2.

Table 2. The Chinese meaning of our reading material.

Target Words	Chinese Meaning
Technical term	现代汉语术语：
Stroke order	笔顺
Pictophonetic character	形声
Retroflex Final	儿化
Hieroglyph	象形
Semantic triangle	语义三角
Antonym	反义词
Ambiguity	歧义
Hierarchy	层级
Metonymy	借代
Labial	唇齿音
Common noun	常规名词：
Bunk	卧铺
Manicure	美甲
Loot	战利品
Reek	臭味/气
Forage	饲料
Rampart	城墙
Impersonator	模仿秀演员
Bishop	主教
Burglar	窃贼
Crevice	裂缝

As we mentioned before, we use literal explanation and pictorial explanation as the form of comprehensible input, before we searched the literal explanation of target words, we also developed some principles:

1) The literal explanation should match the meaning of the target vocabulary without ambiguity;

2) In addition to the target words, the literal explanation should try not to appear interference words (refers to the less frequently used words), if it must appear, it is necessary to mark the Chinese meaning in order to understand;

3) The literal explanation should be in line with the cognitive level of the subjects and close to their life and study.

Under these principles, we selected relevant literal explanations of target words: The literal explanation of Common nouns comes from *Oxford Advanced Learner's English-Chinese Dictionary* (10th *Ed*) and the literal explanation of technical terms comes from *Modern Chinese* (2nd *edition*), the textbook of participants come from the Institute of Chinese Language and Culture, we translated the Chinese explanation of each technical term into English and consulted a professor who taught Modern Chinese programme for ten years and has excellent

academic English ability to make sure the English translation is accurate and understandable.

Before we searched the pictorial explanation of target words, we also developed some principles:

1) Pictures must conform to the specific meaning of the target vocabulary without triggering ambiguity;

2) Pictures need to be in line with the cognitive level of the subjects and close to their lives and study;

3) Pictures must be clear and distinctive and not cause visual interference to the subjects;

4) Pictures must keep in line with teaching requirements and do not contain violence, pornography and other illegal content.

Under these principles, we selected relevant pictorial explanations of target words: The pictorial explanations of common nouns were selected by the researchers, and we invited 3 students who majoring in Chinese language and literature at the same college of participants to make a pilot study to ensure that most students can understand the pictures clearly.

The pictures of the technical terms were also selected by the researchers, and we also consulted professors at the Institute of Chinese Language and Culture to make sure the pictorial explanations can represent the technical terms properly, besides, we conducted pilot study with the help of 3 students in the Institute of Chinese Language and Culture in the same university of participants to ensure that most students majoring in Chinese language and Culture can understand the pictures of the technical terms clearly.

After selecting the literal and pictorial explanation of target words, we created two versions of the questionnaires, literal explanation questionnaire and pictorial explanation questionnaire.

The effectiveness of vocabulary acquisition in this study is related to the short-term memory which means participants will finish the questionnaire immediately after they exposed to CI.

3.2. Participants

The subjects in this research are 106 students from the Department of Chinese Language and Culture of a university in Guangdong. All of the participants are L2 learners of English who have studied English for six to nine years and are aged above 18. Besides, in order to further control the potential confounding variables especially the inherent English preference of participants. We used the One-sample T-Test of SPSS to analyse the difference between the score of CET of each participants and the mean score of CET of all participants and found that the difference is not significant which means the English proficiency of each participants is discrepant but controllable.

The majority of subjects had an undergraduate major in Chinese language and literature or in foreign language and literature (only 6 of them had other under-

graduate majors).

106 subjects came from two groups, each group containing two undergraduate classes and one graduate class, and administered literal questionnaire and pictorial questionnaire, respectively. literal group only completed the literal questionnaire and pictorial group only completed the pictorial questionnaire.

3.3. Data Collection

In this research, we selected the Likert scale as the scoring instrument, in both questionnaires, each question contains five options, and their meanings are in order: not at all sure, not quite sure, more sure, sure, and very sure, and we assign values to these five options, and their scores are: not at all sure—1 point, not quite sure—2 points, more sure—3 points, sure—4 points, and very sure—5 points (total of 100 points).

We used a Chinese online questionnaire survey software, Questionnaire Star (https://www.wjx.cn) to distribute the questionnaires, after recovering the questionnaires, we quantified the responses to the questionnaires according to the above scoring rules and imported them into Excel for data storage.

After recovering the questionnaires, we eliminated the invalid ones and got 82 valid questionnaires, with 41 valid samples of literal group and 41 valid samples of pictorial group. The criteria for rejected questionnaires are as follows: 1) all choose one answer; 2) the response time is less than 120 seconds (we have tested that the fastest speed for the researcher to complete questionnaire A is 127 seconds, and the fastest speed for the researcher to complete questionnaire B is 123 seconds).

3.4. Data Analysis

In this research, we selected SPSS 23.0 as the data analyzing instrument, in concise, we used the Descriptive Statistics, the Independent Samples Test, the Paired Samples Test and the One-sample Test by SPSS to analyse the data.

4. Results and Discussion

4.1. The Analysis of Results in Literal Questionnaire

Table 3. The descriptive statistics of literal questionnaire.

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
QA (literal group)	41	29.00	95.00	70.2683	15.23323
Valid N (listwise)	41				

After performing invalid questionnaire elimination, we got a total of 41 valid samples by literal group, the statistic presented in Table 3 provides the mean score, standard deviation, maxima and minima of literal group, in concisely, literal group scored a mean of 70.2683 (SD = 15.23323) out of 100.

Table 4. The paired samples statistics of literal questionnaire.

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Common (10)	34.4634	41	8.95851	1.39908
	Technical (10)	35.8049	41	8.37323	1.30768

Paired Samples Test									
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Common-Technical	−1.34146	8.28737	1.29427	−3.95728	1.27435	−1.036	40	0.306

As we mentioned before, so as to survey the effect of lexical semantic categories on the effectiveness of vocabulary acquisition in comprehensible input framework, questionnaires (total of 20 nouns) of 2 groups all include 10 common nouns and 10 technical terms, in Table 4, we used the Paired samples statistics by SPSS to analyse the relation between common nouns and technical terms in literal group which finished the literal explanation questionnaire and drawn the following conclusion: Under the condition of literal explanation, the acquisition of technical terms ($M = 35.8049$, $SD = 8.37323$) is slightly better than in the case of common terms ($M = 34.4634$, $SD = 8.95851$) but this difference was not statistically significant, $t_{(40)} = -1.036$, $p = 0.306 > 0.05$.

4.2. The Analysis of the Results in Pictorial Questionnaire

Table 5. The descriptive statistics of pictorial questionnaire.

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
QB (pictorial group)	41	25.00	91.00	67.3659	14.93780
Valid N (listwise)	41				

After performing invalid questionnaire elimination, we also got a total of 41 valid samples by pictorial group, the statistic presented in Table 5 provides the mean score, standard deviation, maxima and minima of pictorial group, in concisely, the pictorial group scored a mean of 67.3659 ($SD = 14.93780$) out of 100.

Table 6. The paired samples statistics of pictorial questionnaire.

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Common	35.1220	41	7.65243	1.19511
	Technical	32.2439	41	9.28111	1.44947

Paired Samples Test									
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Common-Technical	2.87805	8.14001	1.27126	0.30874	5.44735	2.264	40	0.029

So as to survey the effect of lexical semantic categories on the effectiveness of vocabulary acquisition in a comprehensible input framework, questionnaires (total of 20 nouns) of the 2 groups all include 10 common nouns and 10 technical terms, in Table 6, we used the Paired Samples Test of SPSS to analyse the relation between the acquisition of common nouns and technical terms in pictorial group which finished the questionnaire pictorial explanation questionnaire and drawn the following conclusion: Under the condition of pictorial explanation, the acquisition of common terms ($M = 35.1220$, $SD = 7.65243$) is significantly better than in the case of technical terms ($M = 32.2439$, $SD = 9.28111$) and this difference is statistically significant, $t_{(40)} = 2.264$, $p = 0.029 < 0.05$.

4.3. The Comparison of the Results in Literal & Pictorial Questionnaire

So as to survey whether different forms of Comprehensible input (literal explanation and pictorial explanation) cause significant differences in vocabulary acquisition, we used the Independent Samples Test of SPSS to compare the mean of the total scores of literal group and pictorial group as presented in Table 7.

Table 7. The group statistics and the result of independent samples test of literal & pictorial group.

Group Statistics					
	Group	N	Mean	Std. Deviation	Std. Error Mean
Total Score	Literal	41	70.2683	15.23323	2.37903
	Pictorial	41	67.3659	14.93780	2.33289

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Score	Equal variances assumed	0.225	0.637	0.871	80	0.386	2.90244	3.33199	−3.72844	9.53331
	Equal variances not assumed			0.871	79.969	0.386	2.90244	3.33199	−3.72848	9.53335

As shown in Table 7, we found that the Levene's Test for Equality of Variances

between groups in this table is not statistically significant, $p = 0.637 > 0.05$, so we adopted the statistics in line of Equal variances assumed and found that there is no statistically significant differences between the total scores of literal explanation Group ($M = 70.2683$, $SD = 15.23323$) and pictorial explanation group ($M = 67.3659$, $SD = 14.93780$), $t_{(80)} = 0.871$, $p = 0.386 > 0.05$.

Besides, in order to further explore the effects of different forms of comprehensible input on the acquisition of vocabulary of different semantic categories, we used the Independent Samples Test to make separate comparisons of the acquisition of common and technical terms between groups, as shown in Table 8 and Table 9.

Table 8. The group statistics and the result of independent samples test of the common noun in literal & pictorial group.

Group Statistics

	Group	N	Mean	Std. Deviation	Std. Error Mean
Score of Common noun	Literal	41	34.4634	8.95851	1.39908
	Pictorial	41	35.1220	7.65243	1.19511

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Score of common noun	Equal variances assumed	1.338	0.251	−0.358	80	0.721	−0.65854	1.84003	−4.32032	3.00325
	Equal variances not assumed			−0.358	78.093	0.721	−0.65854	1.84003	−4.32169	3.00462

As presented in Table 8, the Levene's Test for Equality of Variances between groups in this table is not statistically significant, $p = 0.251 > 0.05$, so we adopted the statistics in line of Equal variances assumed and found that although pictorial group ($M = 35.1220$, $SD = 7.65243$) is slightly better than literal group ($M = 34.4634$, $SD = 8.95851$), there was no statistically significant difference between the two groups in the acquisition of common nouns, $t_{(80)} = -0.358$, $p = 0.721 > 0.05$.

Table 9. The group statistics and the result of independent samples test of the technical term in literal & pictorial group.

Group Statistics

	Group	N	Mean	Std. Deviation	Std. Error Mean
Score of technical term	Literal	41	35.8049	8.37323	1.30768
	Pictorial	41	32.2439	9.28111	1.44947

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Score of technical term	Equal variances assumed	0.306	0.581	1.824	80	0.072	3.56098	1.95217	−0.32397	7.44592
	Equal variances not assumed			1.824	79.167	0.072	3.56098	1.95217	−0.32460	7.44655

As presented in Table 9, the Levene's Test for Equality of Variances between groups in this table is not statistically significant, $p = 0.581 > 0.05$, so we adopted the statistics in line of Equal variances assumed and found that although literal group ($M = 35.8049$, $SD = 8.37323$) is slightly better than pictorial group ($M = 32.2439$, $SD = 9.28111$), there was no statistically significant difference between the two groups in the acquisition of technical terms, $t_{(80)} = 1.824$, $p = 0.072 > 0.05$.

Under this circumstance, we then used the Independent Samples Test to make between-group comparisons for the acquisition of each individual words by SPSS and found that most of the words (questions) do not show statistically significant differences when compared between groups, and only four are acquired with significant differences between groups:

Table 10. The group statistics and the result of independent samples test of the common noun "Manicure" in literal & pictorial group.

Group Statistics					
	Group	N	Mean	Std. Deviation	Std. Error Mean
Score of Manicure	Literal	41	3.6829	1.33115	0.20789
	pictorial	41	4.2195	1.06095	0.16569

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Score of manicure	Equal variances assumed	5.836	0.018	−2.018	80	0.047	−0.53659	0.26584	−1.06563	−0.00754
	Equal variances not assumed			−2.018	76.208	0.047	−0.53659	0.26584	−1.06603	−0.00714

As presented in Table 10, the Levene's Test for Equality of Variances between groups in this table is statistically significant, $p = 0.018 < 0.05$, so we adopted the statistics in line of Equal variances not assumed and found that when acquiring common noun "manicure" pictorial group ($M = 4.2195$, $SD = 1.06095$) is obvious better than literal group ($M = 3.6829$, $SD = 1.33115$) and there is statistically significant difference, $t_{(76.208)} = -2.018$, $p = 0.047 < 0.05$.

Table 11. The group statistics and the result of independent samples test of the common noun "burglar" in literal & pictorial group.

Group Statistics

	Group	N	Mean	Std. Deviation	Std. Error Mean
Score of burglar	Literal	41	3.4146	1.48283	0.23158
	Pictorial	41	4.2195	1.31362	0.20515

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Score of burglar	Equal variances assumed	3.684	0.059	−2.602	80	0.011	−0.80488	0.30938	−1.42057	−0.18919
	Equal variances not assumed			−2.602	78.854	0.011	−0.80488	0.30938	−1.42070	−0.18905

As presented in Table 11, the Levene's Test for Equality of Variances between groups in this table is not statistically significant, $p = 0.059 > 0.05$, so we adopted the statistics in line of Equal variances assumed and found that when acquiring the common noun "burglar", pictorial group ($M = 4.2195$, $SD = 1.31362$) is obviously better than literal group ($M = 3.4146$, $SD = 1.48283$) and there is a statistically significant difference, $t_{(80)} = -2.602$, $p = 0.011 < 0.05$.

Table 12. The group statistics and the result of independent samples test of the technical term "retroflex final" in literal & pictorial group.

Group Statistics

	Group	N	Mean	Std. Deviation	Std. Error Mean
Score of retroflex final	Literal	41	3.3659	1.35566	0.21172
	Pictorial	41	2.3902	1.39424	0.21774

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Score of retroflex final	Equal variances assumed	0.004	0.952	3.212	80	0.002	0.97561	0.30371	0.37122	1.58000
	Equal variances not assumed			3.212	79.937	0.002	0.97561	0.30371	0.37121	1.58001

As presented in Table 12, the Levene's Test for Equality of Variances between groups in this table is not statistically significant, $p = 0.952 > 0.05$, so we adopted the statistics in line of Equal variances assumed and found that when acquiring technical term phrase "retroflex final", literal group ($M = 3.3659$, $SD = 1.35566$) is obviously better than pictorial group ($M = 2.3902$, $SD = 1.39424$) and there is a statistically significant difference, $t_{(80)} = 3.212$, $p = 0.002 < 0.05$.

Table 13. The group statistics and the result of independent samples test of the technical term "ambiguity" in literal & pictorial group.

Group Statistics

	Group	N	Mean	Std. Deviation	Std. Error Mean
Score of Ambiguity	Literal	41	3.8780	1.20820	0.18869
	Pictorial	41	2.9512	1.59611	0.24927

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Score of Ambiguity	Equal variances assumed	7.844	0.006	2.965	80	0.004	0.92683	0.31263	0.30467	1.54899
	Equal variances not assumed			2.965	74.510	0.004	0.92683	0.31263	0.30397	1.54969

As presented in Table 13, the Levene's Test for Equality of Variances between groups in this table is statistically significant, $p = 0.006 < 0.05$, so we adopted the statistics in line of Equal variances not assumed and found that when acquiring the technical term "Ambiguity", literal group ($M = 3.8780$, $SD = 1.20820$) is obviously better than pictorial group ($M = 2.9512$, $SD = 1.59611$) and there is a statistically significant difference, $t_{(74.510)} = 2.965$, $p = 0.004 < 0.05$.

In other words, when comparing the acquisition of individual words in literal and pictorial groups, there are four words that showed significant differences in acquisition between groups, including two technical terms and two common nouns and the significant differences are demonstrated by the phenomenon that the literal group outperforms pictorial group when acquiring the two technical terms, meanwhile, the pictorial group outperforms literal group when acquiring the two common nouns.

In summary, when analyzing the results between literal and pictorial questionnaire, we found that there is no statistically significant difference between the total scores of the literal group and the pictorial group, besides, there is also no statistically significant difference between the two groups in the acquisition of both technical terms and common nouns.

This finding is similar to that of Liu and Qin (2014), who explored the effects

of three vocabulary presentation modes, namely vocabulary lists, pictures/animations/videos, and incidental contexts, on students' vocabulary acquisition, and found that there was no significant difference in students' instantaneous acquisition with different vocabulary presentation modes under short-term memory.

However, we made between-group comparisons for the acquisition of individual words and found that there are four words show statistically significant differences when compared between groups: when acquiring common noun "manicure" and "burglar" the pictorial group is obviously better than the literal group, and when acquiring technical terms "retroflex final" and "ambiguity", literal group was better than pictorial group.

Accordingly, we hypothesize that although there is no statistically significant difference between the acquisition of technical terms and common nouns in the framework of different comprehensible input forms, literal explanation seems more efficient in acquiring technical term and pictorial explanation seems more efficient in acquiring common noun and this assumption need to be further discussed.

5. Conclusion

In this study, 106 students are selected as participants. Under the guidance of Krashen's Input Hypothesis, questionnaires were used as research material and SPSS were used to collect and analyze the data. The main findings are as follows:

1) Under the condition of the literal explanation of CI, there is no statistically significant difference between the acquisition of common nouns and technical terms, although the acquisition of technical terms seems to show a tendency to be more efficient.

2) Under the condition of pictorial explanation of CI, the acquisition of common nouns is more efficient than the acquisition of the technical terms.

3) There is no statistically significant difference between the total scores of the literal explanation Group and the pictorial explanation group, besides, there is also no statistically significant difference between the two groups in the acquisition of both technical terms and common nouns. However, under the frame of CI, the literal explanation seems little more efficient in acquiring technical terms and the pictorial explanation seems little more efficient in acquiring common nouns.

Accordingly, based on these main findings, we can answer the research questions:

1) Do different forms of Comprehensible input (literal explanation and pictorial explanation) cause significant differences in vocabulary acquisition?

In this research, different forms of CI: literal explanation and pictorial explanation have no significant difference in vocabulary acquisition.

2) Do different semantic types of vocabulary (common noun and technical term) affect the efficiency of comprehensible input?

In this research, only under the pictorial explanation of CI, the acquisition of

common nouns are obvious efficient than the acquisition of the technical term. Under other conditions, there is no correlation between semantic categories of words and comprehensibility input efficiency.

Based on these results, we recommend that English language educators should adopt different CI methods based on the semantic categories of vocabulary when designing vocabulary acquisition lessons.

For instance, when teaching common nouns, pictorial explanations should be employed to reduce SLA learner's cognitive load and enhance their learning interest. When introducing technical terms, literal explanations should be prioritized to ensure accurate transmission of the terminological content (according to our research results, the literal explanation seems little more efficient in acquiring technical terms, although the preference is not statistically significant.)

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

References

Allwright, R. (1984). *The Importance of Interaction in Classroom Language Learning*. Cambridge University Press.

Cook, V. (2000). *Second Language Learning and Language Teaching*. Foreign Language Teaching and Research Press.

Corder, S. P. (1967). The Significance of Learner's Errors. *International Review of Applied Linguistics, 5,* 161-170.

Echevarria (2010). *Response to Intervention (RTI) and English Learners: Making It Happen*. Allyn & Bacon.

Ellis, R. (1985). *Understanding Second Language Acquisition*. Cambridge University Press.

Ellis, R. (1990). *Instructed Second Language Acquisition: Learning in the Classroom.* Basil Blackwell.

Gairns, R. & Redman, S. (1986). *Working with Words: A Guide to Teaching and Learning Vocabulary.* Cambridge University Press.

Gass, S. (1997). *Input, Interaction, and Second Language Learner.* Lawence Erlbaum Associates.

Gass, S. (2008). *Second Language Acquisition: An Introductory Course*. Routledge.

Han, X. H. (2010). *An Empirical Study on the Influence of Comprehensible Input on Second Language Reading Comprehension and Incidental Vocabulary Acquisition*. PhD Thesis, Shanghai International Studies University.

Krashen, S. D. (1982). *Principles and Pratice in Second Language Acquistion*. Oxford: Pergamon Press.

Krashen, S. D. (1985). *The Input Hypothesis: Issues and implications*. Longman.

Krashen, S. D. (1989). We Acquire Vocabulary and Spelling by Reading: Additional Evidence for the Input Hypothesis. *The Modern Language Journal, 73,* 440-464.

Kroll, J. F., & Tokowicz, N. (2001). *The Development of Conceptual Representation for Words in a Second Language*. Blackwell Publishers Inc.

Larsen-Freeman, D. (1983). *The Importance of Input in Second Language Acquisition*. In

R. Anderson (Ed.), *Pidginization and Creolization as Language Acquisition* (pp. 87-93). Newbury House Publishers.

Lewis, M. Q. (1993). *The Lexical Approach: The State of ELF and A Way Forward*. Language Teaching Publications.

Liu, B. (2014). *Research on the Application of Input Hypothesis Theory in High School English Reading Teaching*. Chongqing Normal University.

Liu, L., & Qin, X. Q. (2014). An Empirical Study on the Influence of Vocabulary Presentation on English Vocabulary Learning. *Foreign Language Circle, 2,* 67-75.

Liu, W. H. (2011). The Influence of Multimedia Presentation on Adult Foreign Language Vocabulary Acquisition. *Foreign Languages and Foreign Language Teaching, 6,* 41-46.

Long, M. (1982). Native Speaker/Non-Native Speaker Conversation in the Second Language Classroom. In M. Long, & C. Richards (Eds.), *Methodology in TESOL: A Book of Readings* (pp. 339-354). Newbury House.

Luo, L. L. (2023). *A Study on English Terminology Acquisition by Chinese College Students*. Master's Thesis, Nanjing University of Science and Technology.

Mackeow, M. G., & Curtis, M. E. (2014). *The Nature of Vocabulary Acquisition*. Psychology Press.

Mushait, S., & Mohsen, M. A. (2019). Is Listening Comprehension a Comprehensible Input for L2 Vocabulary Acquisition? *International Journal of English Linguistics, 9,* 76-84. https://doi.org/10.5539/ijel.v9n6p77

Nation, I. S. P. (1990). *Teaching and Learning Vocabulary*. Heinle.

Penny, U. R. (2000). *A Course in Language Teaching: Practice and Theory*. Foreign Language Teaching and Research Press.

Richards, J. C., Platt, J., & Platt, H. (2002). *Longman Dictionary of Language Teaching and Applied Linguistics*. Foreign Language Teaching and Research Press.

Rost, M. (1990). *Listening in Language Learning*. Longman.

Swain, M. (1985). Communicative Competence: Some Roles of Comprehensible Input and Comprehensible Output in Its Development. In *Input in Second Language Acquisition* (pp. 235-253). Newbury House.

Tinkham, T. (1997). The Effects of Semantic and Thematic Clustering on the Learning of Second Language Vocabulary. *Second Language Research, 13,* 138-163. https://doi.org/10.1191/026765897672376469

Van Patten, B. (2003). *From Input to Output: A Teacher's Guide to Second Language Acquisition*. The Mc Graw-Hill Companies.

Verhallen, M., & Rob, S. (1998). Lexical Knowledge in L1 and L2 of Third and Fifth Graders. *Applied Linguistics, 19,* 452-470.

Yagoub, Z., & Mortaza, A. (2012). The Impact of Imagery Strategy on EFL's Learners' Vocabulary Learning. *Procedural Social and Behavioral Science, 69,* 2264-2272.