Proper Modalities of Input Facilitate Incidental Vocabulary Acquisition:
Evidence From Advanced Chinese EFL Learners

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Abstract
Previous research has largely focused on the effects of single input modalities on vocabulary acquisition, often overlooking the potential of multimodal teaching methods. This study addresses this gap by comparing the impact of reading, listening, and subtitled audiovisual input modalities in promoting incidental vocabulary acquisition among advanced EFL learners in China. We divided 40 advanced college English learners into 4 groups: a control group, a reading group, a listening group, and a subtitled audiovisual group. Participants took a pre-test, an immediate post-test, and a delayed post-test to assess vocabulary knowledge. The findings revealed that the subtitled audiovisual input modality led to the most effective immediate vocabulary acquisition, though its impact decreased over time. Conversely, the listening modality was associated with the most sustained vocabulary retention. These results highlight the importance of input modality in vocabulary acquisition, suggesting that while subtitled audiovisual materials can enhance short-term learning, listening exercises are more effective for long-term retention. The study offers insights for language instructors aiming to enhance vocabulary teaching strategies through multimodal input.

Keywords: Multimodal, Incidental Vocabulary Acquisition, Vocabulary Teaching

Introduction

Incidental vocabulary acquisition refers to the process in which learners, while engaging in contextual activities such as extensive reading, watching, and listening, do not intentionally focus on a specific word but inadvertently expand certain aspects of their vocabulary knowledge (Nagy & Anderson, 1985). A substantial body of research has demonstrated that all types of communicative activities can provide opportunities for acquiring new vocabulary knowledge (Day & Haramatsu, 1991; Duppy & Krashen, 1993; Laufer & Hulstin, 2001; Pulido, 2003). Vocabulary learning is no longer merely a goal-oriented product confined to fixed teaching times and locations. Therefore, how to promote incidental vocabulary acquisition has become a key focus for researchers.

One of the key conditions for incidental vocabulary acquisition is language input. Much of the research in this area has focused on incidental vocabulary acquisition through reading activities (Brown & Donkaewbua, 2008; Wang, 2009; Zhang & Qi, 2009), with a few studies exploring the role of listening input in promoting vocabulary acquisition (Chang & Li, 2009; Vidal, 2011; Xu, 2012). With the development of multimodal theory, there has been an increasing number of studies using English audiovisual materials as language input to explore whether multimodal input can facilitate incidental vocabulary acquisition (Gu & Zang, 2011; Rodgers & Webb, 2011).

In terms of language output, learning tasks, as the most common form of language output activity, have received widespread attention for their learning effects. Factors such as task familiarity, task time, and task type can influence the effectiveness of learning tasks to some extent. Among these, the impact of task type is particularly pronounced, as different types of output tasks can trigger varying degrees of attention from participants, which in turn stimulates different levels of cognitive processing and ultimately leads to different acquisition outcomes. In light of this, the present study will compare the effects of incidental vocabulary acquisition through three types of input: reading materials, audio, and subtitled audiovisual content.

Literature Review

Before the concept of "incidental vocabulary acquisition" was proposed, Nation categorized vocabulary learning methods into two types: Direct Learning and Indirect Learning. He argued that "Direct Learning refers to activities and exercises where learners focus their attention on vocabulary; Indirect Learning refers to activities where learners focus on other aspects, especially the information conveyed by language, and vocabulary is acquired without deliberate focus on it" (Nation, 1990). Laufer's definition of incidental vocabulary acquisition, which is widely accepted in the research community, is essentially aligned with Nation's definition of Indirect Learning. She defines "incidental vocabulary acquisition" as the opposite of "Intentional Language Learning," referring to situations where learners acquire vocabulary while engaging in other tasks, such as reading articles or listening to English songs (Laufer, 1998).

As an indirect method of vocabulary acquisition, "incidental vocabulary acquisition" is mainly supported by three major theories: the Incidental Vocabulary Learning Hypothesis, the Input Hypothesis, and the Interaction Hypothesis. The proponents of these theories have all demonstrated, through theoretical and scientific practice, the possibility of incidental vocabulary acquisition and its indispensability in vocabulary learning. It has become a

consensus in the research community that extensive reading in second language learning facilitates incidental vocabulary acquisition. With further research, Meara (1997) raised a more challenging issue in the study of incidental vocabulary acquisition, namely, the various factors that may influence incidental vocabulary acquisition.

Current research on incidental vocabulary acquisition mainly focuses on three areas:
1. Verifying the effects of incidental vocabulary acquisition through reading activities. Studies by Qian (2003) and Zhu & Cui (2005) have shown that learners can acquire a small number of words incidentally through reading, and there is a positive correlation between students' language proficiency, vocabulary size, and incidental vocabulary acquisition. Some studies have compared the effects of direct vocabulary learning and incidental vocabulary acquisition in reading, finding that the highest acquisition and retention rates occur when direct learning is combined with incidental acquisition, followed by direct learning alone, and the lowest rates for incidental acquisition. However, incidental acquisition results in the largest vocabulary gain, making it the most important route for vocabulary acquisition in reading classes (Gan, 2008b). Over extended periods of repeated learning, both methods show different characteristics at different times and are complementary to each other (Wu & Chen, 2012).
2. Research on the factors influencing incidental vocabulary acquisition in reading. Gan's series of studies (Gan, 2008a, 2009, 2010, 2011, 2014) found that factors such as semantic transparency, context, word structure, and word class all influence incidental vocabulary acquisition.
3. Studies on word-meaning guessing in reading. Researchers, through analysing the processing methods and influencing factors of learners' guessing process, found that morpheme meaning, the relationship between morpheme meaning and word meaning, word internal structure, polysemy, and learners' language proficiency all affect word-meaning guessing (Liu, 2001; Qian, 2003; Zhu & Zhou, 2007; Zhang, 2010; Gan, 2012).

Overall, researchers agree that incidental vocabulary acquisition in reading is widespread, and the extent of acquisition is constrained by multiple factors, including the reading material, word properties, and learner characteristics.

Multimodal refers to the interaction between humans and the external environment through three or more sensory modalities (Gu, 2007). Current research on incidental vocabulary acquisition primarily focuses on the following three areas:
1. The role of multimodal teaching methods in achieving classroom teaching goals. For example, Sheng et al. (2011) studied the role of multimodal teaching methods in college English listening instruction. They found that the audiovisual group performed better in improving listening comprehension than the listening-only group. However, there was no significant difference in incidental vocabulary acquisition between the audiovisual and listening-only groups, though the audiovisual group had a higher average and standard deviation.
2. The impact of multimodal input on second language input. Gu & Zang (2011) conducted a controlled experimental study to investigate the effects of visual, auditory, and audiovisual input on second language comprehension and incidental vocabulary acquisition. They found that the correlation between comprehension and vocabulary acquisition varied with different input modalities. Visual comprehension was found to be superior to auditory comprehension, while auditory input might interfere with the

processing of visual input. In terms of incidental vocabulary acquisition, the visual and audiovisual groups both significantly outperformed the auditory group, with little difference between the visual and audiovisual groups.

3. Research on the factors influencing incidental vocabulary acquisition in multimodal input. Mo (2017) explored the effects of incidental vocabulary acquisition and retention under auditory and reading input modalities, as well as the impact of input frequency and semantic transparency on incidental vocabulary acquisition and retention.

Internationally, there is also a growing body of research on incidental vocabulary acquisition in second language learning under different input modalities, as well as studies exploring the factors influencing vocabulary acquisition and methods for improving its effects (Vidal, 2011; Peters & Webb, 2018). Peters & Webb (2018) conducted a comprehensive study on the effects of video viewing, vocabulary knowledge, and learner-related factors on incidental vocabulary acquisition, pointing out that these factors all have varying degrees of facilitative effects on vocabulary acquisition. Vidal's 2011 study analyzed the differences between reading academic texts and listening to three lectures, comparing input modalities in terms of word frequency, word class, discourse type, and learners' ability to predict words. The study found that reading academic texts was most effective, with the longest retention time, while listening to lectures was slightly less effective with a shorter retention time. Other studies have used eye-tracking to investigate whether dual or multimodal annotations can relieve memory capacity and reduce cognitive processing difficulty, thereby promoting vocabulary retention (Boers et al., 2017).

However, from the perspective of both research breadth and depth, Chinese research on incidental vocabulary acquisition has mostly focused on reading, with less attention given to speaking, listening, and writing, and fewer studies exploring multimodal perspectives. With the continuous integration of computers and education, as well as the lessons learned from the recent pandemic, online courses have become an indispensable alternative to traditional classroom instruction. In the context of remote learning, multimodal input can play a more significant role. Audiovisual and subtitled audiovisual input modalities (Peters et al., 2016; Peters & Webb, 2018) are gradually becoming important teaching methods. As commonly used approaches in English classrooms, there is still no consensus on which input modality is most beneficial for incidental second language vocabulary acquisition. Therefore, this study focuses on three commonly encountered input modalities in daily life: reading, listening while reading, and subtitled audiovisual input, comparing their effects on incidental second language vocabulary acquisition.

Methodology

Research Questions

This study aims to explore the impact of three different input modalities (reading, listening, and subtitled audiovisual input) on incidental vocabulary acquisition among English majors. Specifically, it seeks to answer the following research questions:
1. Can English majors acquire vocabulary incidentally under the three input modalities (listening, reading, and subtitled audiovisual)?
2. Which modality leads to the best incidental vocabulary acquisition effect?
3. Which modality results in the longest retention of the acquired vocabulary?

Research Design

This study adopts a 4 (input modality) × 3 (vocabulary acquisition testing time) mixed factorial design. The input modality is the between-subjects variable and the manipulated independent variable of this experiment, including four conditions: reading, listening, subtitled audiovisual input, and a control group (no target material input). The vocabulary acquisition testing time is the within-subjects variable, consisting of three testing times: pre-test, immediate post-test, and delayed post-test. The dependent variable of this experiment is the participants' vocabulary knowledge of the target words.

Participants

According to previous literature, Laufer (2001) and other scholars suggest that second language proficiency is an important factor influencing the ability to acquire vocabulary incidentally during reading. Learners with higher second language proficiency are more likely to successfully infer the meanings of unfamiliar words. Therefore, this study selected 40 first-year graduate students majoring in English at a university in Nanjing, China. The participants were randomly divided into four groups: reading group, listening group, audiovisual group, and a control group, with 10 participants in each group, totaling 40 participants. All participants had taken the national English proficiency test for English majors within the past three years. The analysis of their test scores showed no significant differences between the four groups (p=0.592>0.05), indicating that, overall, the participants' English proficiency was comparable.

Experiment

Materials and Target Words.

The experimental materials required for this study include reading texts, audio recordings, and subtitled videos. Given that the participants are English major graduate students with relatively high English proficiency, the difficulty of the selected materials should be moderate. After screening, the final experimental material chosen for this study was J.K. Rowling's classic speech at Harvard University's commencement ceremony, which consists of 705 English words. The topic is familiar to students, the structure is clear, and its readability value according to the Flesch-Kincaid readability test is 61.6, indicating moderate difficulty. The speech transcript was used by the reading group, the audio recording by the listening group, and the video, after careful comparison of its subtitles, was used by the audiovisual group. The control group received no input of the target material.

To select the target vocabulary for this study, 11 English major graduate students, whose English proficiency was comparable to the participants but who were not involved in the experiment, were asked to mark unfamiliar words in the experimental material. From all the words marked, 11 words that were marked by at least 8 of the students were selected as target vocabulary. These words made up 1.6% of the total vocabulary. Additionally, some words marked by fewer students were chosen as distractors, also making up 1.6% of the total vocabulary. In total, there were 22 target and distractor words, comprising 3.12% of the total vocabulary. According to previous research (Laufer & Hulstijin, 2001), one prerequisite for incidental vocabulary acquisition is that learners must recognize at least 95% of the words in the text, and the word-to-unfamiliar word ratio in this study's experimental materials meets this condition.

Procedure.

All four groups of participants completed a pre-test on target vocabulary knowledge in the first week, lasting 15 minutes. To reduce the carryover effect, one week later, the three experimental groups received input of the experimental material through reading, listening, and subtitled audiovisual methods. To control for explicit vocabulary learning behavior and achieve the experiment's goal of examining true incidental vocabulary acquisition, participants were informed of the reading/listening comprehension tasks but were not told about the vocabulary knowledge test. The duration of input for listening, reading, and video was 15 minutes, with the audio and video played twice. After the input, the three experimental groups completed the immediate post-test on target vocabulary knowledge. The control group received no input of the experimental material and only participated in the vocabulary knowledge test, which also lasted 15 minutes. One week later, both the experimental groups and the control group completed the delayed post-test on target vocabulary knowledge, which also lasted 15 minutes. During the entire experiment, participants were repeatedly reminded that they were not allowed to use dictionaries or other resources to look up word meanings, and they were not instructed to deliberately recall the experimental materials after the test.

Measurement Tools.

The target vocabulary knowledge test used an adapted version of the Vocabulary Size and Knowledge Scale (VSK) by Paribakht & Wesche (1993). The scale and scoring criteria are shown in Table 1.

Table 1: Vocabulary Knowledge Scale

Categories	Score	
I.I don't remember having seen this word before	0 point	
II.I have seen this word before, but I don't think I know what it means	1 point	
III.I have seen this word before, and I think I know what it means	2 points	
IV.I know this word. It means (Synonym or translations)	1 point	Incorrect
	2.5 points	Partially correct
	3 points	Correct
V.I can use this word in a sentence: _____ (If you do this section, please also do category 4)	1 point	Incorrect in lexical meaning and incorrect in context
	2.5 points	Partially correct in lexical meaning and incorrect in context
	3 points	Correct in lexical meaning and incorrect in context
	3.5 points	Correct in lexical meaning and partially correct in context
	4 points	Correct in lexical meaning and correct in context

In the three vocabulary knowledge tests, the target words were randomly arranged and presented in different orders. After the completion of the three tests, data analysis was conducted using SPSS 26.0 software.

Results

Data Validation

To ensure the validity and reliability of the research data, outlier detection was first conducted on the collected data, with the results shown in Figure 1. Three outliers were excluded due to extreme values. As outliers mostly appeared in the pre-test scores, the decision was made to retain the data and include it in the subsequent analysis.
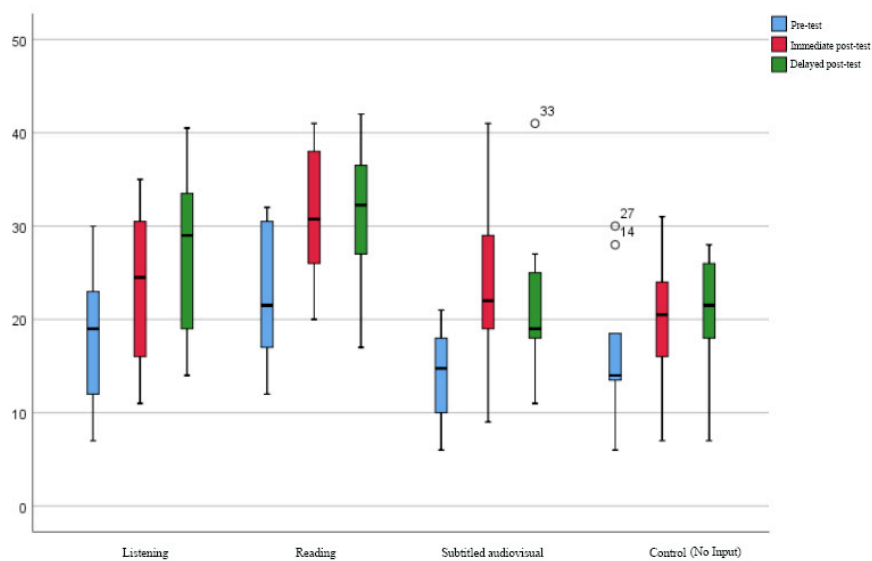

Figure 1: Box Plot of the Results

To verify whether there is multicollinearity between the independent variables, Pearson correlation coefficients and two-tailed significance tests were conducted. The correlation coefficients (r) for the pre-test scores, experimental scores, and post-test scores were found to be .668, .729, and .702, respectively. Since $|r|<1$, there is a certain degree of correlation between the multiple dependent variables, but multicollinearity does not exist. This indicates that while there is a relationship between the vocabulary acquisition patterns of different input modalities, they are not highly correlated, and thus, regression coefficients for vocabulary test results can be estimated reliably.

To verify whether the dependent variables follow a multivariate normal distribution, the Shapiro-Wilk test for normality was performed, and the results are shown in Table 2. All p-values were greater than .05, indicating that the three test scores in each group followed a normal distribution, and the residuals in each classification approximated a normal distribution. Therefore, it can be assumed that the vocabulary acquisition effects under different input modalities can be tracked.

Group	p-value		
	Pre-test	Immediate post-test	Delayed post-test
Listening	.630	.389	.532
Reading	.364	.282	.741
Subtitled audiovusal	.508	.923	.087
Control	.115	.997	.211

At the same time, scatter plots were used to check for linear relationships between dependent variables within each group (as shown in Figure 2). Upon observing the scatter trends of the listening, reading, and audiovisual groups, it was found that, under different input modalities, the two post-test scores exhibited a linear relationship. Thus, the hypothesis that there is a linear relationship between the immediate and delayed post-test scores for each input modality is accepted. However, the scatter plot distribution of the pre-test and post-test scores was more dispersed or showed a curve, suggesting that the linear relationship is not significant. This leads to the conclusion that the grouping does not cause any differential effects on the experimental results, and that exposure to any modality of correlated or uncorrelated English input will impact the vocabulary acquisition effect.
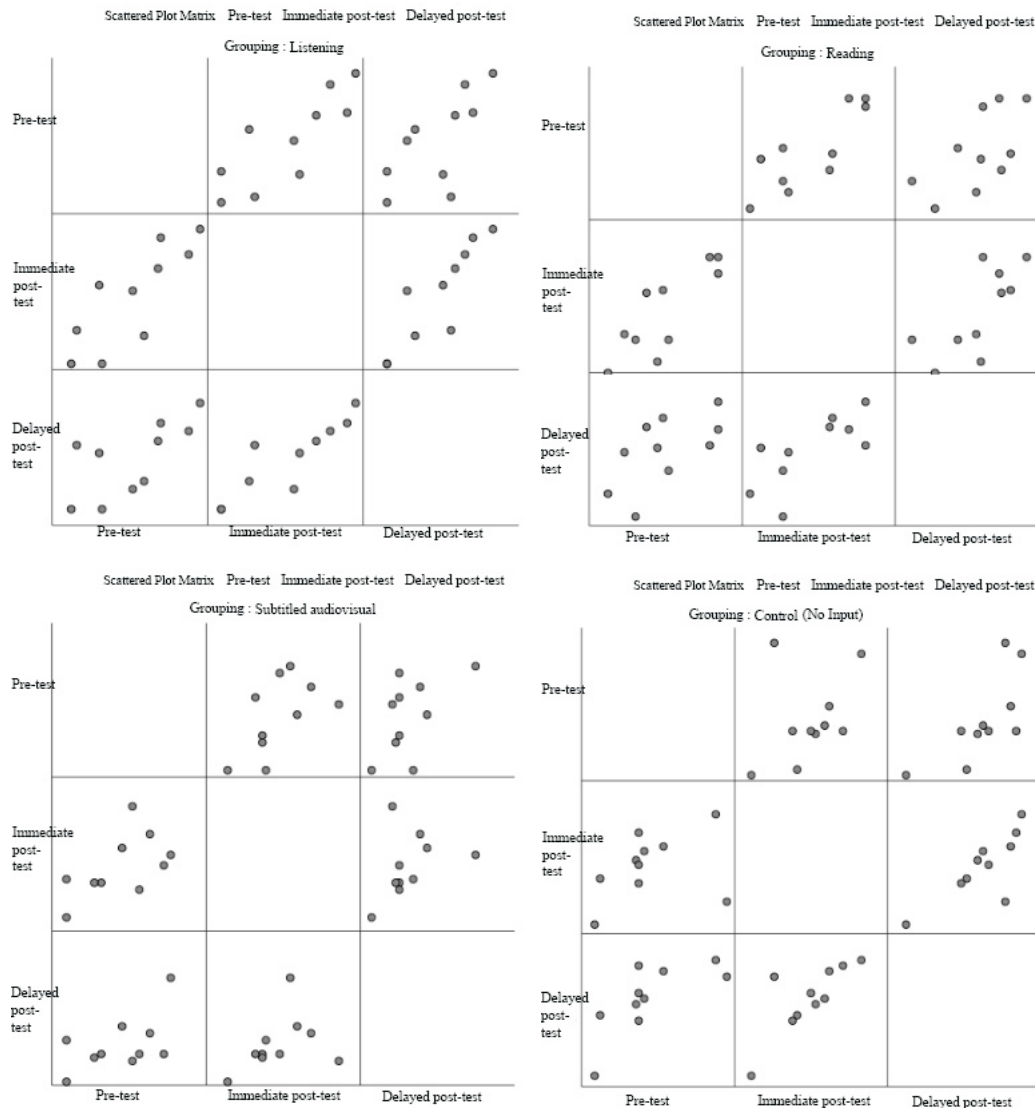
Figure 2: Scattered Plot Matrix of the Results

In the Box's Test of Equality of Covariance Matrices, $F_{(3, 36)}=1.070$, $p=.376>.001$, indicating a positive correlation between the input modalities and vocabulary acquisition effects. In Levene's Test of Equality of Error Variances, the pre-test scores showed $F_{(3, 36)}=28.516$, $p=.733$, experimental scores showed $F_{(3, 36)}=30.814$, $p=.787$, and post-test scores showed $F_{(3, 36)}=31.616$, $p=.641$. All three p-values were greater than .05, confirming the assumption of homogeneity of variance, i.e., equality of variances. A multivariate test using Wilks' Lambda showed a partial eta squared value of 0.142, which is greater than 0.14, indicating a large effect size. This suggests that the impact of different input modalities on vocabulary acquisition effects is substantial. Based on the above results, it can be concluded that the experimental data shows a highly significant effect, and the research findings are expected to have high practical value.

Experimental Results

The between-group difference test results are shown in Table 3. The p-values of the three tests gradually decreased over time, indicating that the differences between groups became more pronounced. This suggests that different input modalities have a substantial impact on vocabulary acquisition effects, and the results of this impact become more significant over time.

Table 3: Between-Group Difference Test Results

	ss	df	ms	F	*p*-value
Pre-test	398.069	3	132.690	2.589	.068
Immediate post-test	674.269	3	224.756	3.295	.031
Delayed post-test	688.425	3	229.475	3.721	.020

For the pre-test scores, $F_{(3, 36)}=2.589$, $p=.068>0.05$, indicating that before the experimental intervention, i.e., without any language input, there were no significant differences in the English proficiency levels of the participants. In other words, the grouping in this experiment was random, and the participants' initial English proficiency did not influence the experimental results. The differences observed between groups in the post-tests likely stem from the experimental treatment. For the immediate post-test scores, $F_{(3, 36)}=3.295$, $p=.031$, and for the delayed post-test scores, $F_{(3, 36)}=3.721$, $p=.020$, both *p*-values are less than .05, indicating that after exposure to language input, the participants' vocabulary abilities were effectively differentiated. This shows that different input modalities had a significant impact on vocabulary acquisition effects among English major students.

Post-hoc Multiple Comparison Results

The post-hoc multiple comparison results indicate significant differences between the scores of different groups. In the immediate post-test, there was a significant difference between the reading group and the control group, with a p-value of .021, which is less than the significance level of .05. This result shows that the reading group performed significantly better than the control group. In the delayed post-test, there were significant differences between the reading group and both the audiovisual group and the control group, with p-values of .047 and .027, both less than .05. This indicates that the reading group's test scores differed significantly from those of the audiovisual and control groups. In both tests, the

control group scored significantly lower than the other three groups, suggesting that vocabulary acquisition with any input modality yielded better results.

One-Way ANOVA Results

The one-way ANOVA results for the average scores of the three tests are shown in Table 4. From the differences in the three tests, the listening group's scores increased by 5 points and 3.55 points in the two post-tests compared to the pre-test. The reading group's scores increased by 8.7 points and 0.4 points in the two post-tests, while the audiovisual group's scores increased by 10 points and decreased by 1.9 points in the two post-tests. The control group's scores increased by 3.8 points and 1.3 points in the two post-tests. This data shows that the audiovisual input modality yielded the best immediate vocabulary acquisition results, but the worst delayed memory effects. In contrast, the listening input modality produced the opposite result. The control group had the smallest increase in the immediate post-test, indicating that even irrelevant language exposure can have some effect on vocabulary acquisition, but its effectiveness was less significant than the other three input modalities.

Table 4: One-Way ANOVA Results for the Average Scores of the Three Tests

Group	Pre-test		Immediate post-test		Delayed post-test	
	mean	SD	mean	SD	mean	SD
Listening	18.100	8.0305	23.100	8.9032	26.650	9.1865
Reading	22.350	7.1182	31.050	7.7834	31.450	7.6502
Subtitled audiovusal	13.800	5.3965	23.800	9.0897	21.900	8.0616
Control	16.000	7.7924	19.800	7.0993	21.100	6.2263

It is worth noting that, except for the audiovisual group, the listening group, reading group, and control group all showed an improvement in their delayed post-test scores.

Discussion

English Majors Can Acquire Vocabulary Incidental to Their Learning.

According to the between-group difference test in Table 3, the P-values gradually decrease across the three tests, indicating that the inter-group differences increase over time. This suggests that different input modalities have an impact on vocabulary incidental acquisition, with the effects becoming more significant as time progresses. The P-value for the immediate post-test is 0.031, and for the delayed post-test is 0.02, both of which are less than 0.05. This indicates that after exposure to language input, the participants' vocabulary abilities were differentiated, demonstrating that different input modalities significantly affect the vocabulary incidental acquisition of English major students.

The Best Immediate Vocabulary Incidental Acquisition Effect in the Audiovisual Input Modality.

According to the descriptive statistics in Table 4, the listening group's pre-test mean was 18.1, the immediate post-test mean was 23.1, and the delayed post-test mean was 26.65, with

increases of 5 points and 3.55 points respectively. The reading group's pre-test mean was 22.35, the immediate post-test mean was 31.05, and the delayed post-test mean was 31.45, with increases of 8.7 points and 0.4 points. The audiovisual group's pre-test mean was 13.8, the immediate post-test mean was 23.8, and the delayed post-test mean was 21.9, with increases of 10 points and a decrease of 1.9 points. The control group's pre-test mean was 16, the immediate post-test mean was 19.8, and the delayed post-test mean was 21.1, with increases of 3.8 points and 1.3 points. These results show that the audiovisual modality produced the best immediate vocabulary incidental acquisition effect, but the poorest delayed retention effect, while the listening modality showed better long-term retention of vocabulary.

This outcome can be explained through the lens of Cognitive Load Theory. First, combining both auditory and visual information maximizes the learner's working memory, thereby improving listening comprehension. Vocabulary presented with images helps participants with short-term memory and acquisition. Learners can create associations between the images and vocabulary, which prevents the auditory information from being entirely replaced by the visuals.

However, because audiovisual materials require learners to allocate attention between multiple discrete sources of information, this can interfere with learning. The limited attention resources available to learners prevent them from processing both linguistic and visual information simultaneously. Instead, they tend to rely more heavily on the visual system to store the information, processing auditory material through the video mode. In this case, learners are more likely to use visual cues to understand the content rather than linguistic forms (Van Pattern, 1990). The extralinguistic characteristics in audiovisual input can provide cues to understanding, and the difficulty level of the task can play a coordinating role. However, the non-verbal information in the video can interfere with both short- and long-term memory of vocabulary, which has a significant impact on the learners.

During the process of acquiring information from auditory input and forming mental representations, the continuous influx of sounds results in a very brief retention time for each piece of information in working memory. Only the parts that are understood and mentally represented are retained in long-term memory (Clark & Clark, 1977). The listening group is less likely to bypass difficulties like new words to gain understanding compared to the visual group, whereas the visual modality's relative durability may encourage learners to use strategies such as ignoring certain words to achieve comprehension, thus making it more difficult for them to retain vocabulary over time.

Conclusion

Findings

Based on the experimental results, the following conclusions can be drawn:

First, after learning a complete piece of material, learners can acquire incidental vocabulary through listening, reading, or audiovisual input, but the amount of vocabulary acquired varies across groups. After one week of learning through the three different input methods, learners who were exposed to listening and reading inputs retained a certain amount of vocabulary knowledge.

Second, there are statistically significant differences in the amount of vocabulary knowledge acquired and retained through the three input modes. Audiovisual input has the greatest impact on incidental vocabulary acquisition; while listening input has the most significant impact on vocabulary retention.

Finally, to achieve the best vocabulary retention effect, learning outcomes need to be reinforced in a timely manner.

Recommendations for English Teaching

First, based on the experimental results, it can be concluded that participants in the audiovisual group achieved the best incidental vocabulary acquisition. Compared to traditional classroom teaching, which focuses on imparting systematic knowledge, audiovisual teaching provides rich, authentic, and natural language materials. Students can acquire relevant language knowledge from both the visuals and subtitles, and the real-world communication context in videos can stimulate students' interest in learning. Therefore, teachers can implement this method according to the actual teaching needs, but attention should be paid to the following points during implementation:

Improving Audiovisual Teaching With Subtitles.

Teachers should design different teaching activities before, during, and after watching the video to maximize the role of audiovisual teaching in promoting incidental vocabulary acquisition.

Tailoring to Students' Actual Learning Situation.

Teachers need to pause the video at appropriate points based on students' understanding of the material and assess their comprehension of previous content. Teachers should also explain key and difficult points to deepen students' memory and cognitive processing of the material.

Reinforcing Vocabulary Learning.

The experimental results show that the listening group had the best retention of vocabulary. Therefore, teachers should encourage students to speak more and practice standard pronunciation in future lessons. They can emphasize the importance of using auditory memory to learn vocabulary by quickly activating word information in the brain upon hearing the audio input, which will improve listening comprehension and facilitate incidental vocabulary acquisition. The delayed post-test results show that if new words are not fully understood or reviewed regularly, students are likely to forget them. Therefore, to help learners fully master vocabulary, teachers should use various tasks or practices to encourage frequent exposure to these words, helping to consolidate and strengthen memory. For example, teachers can assign tasks around key words, main content, and cultural differences, allowing students to increase their understanding of the video material through classroom discussions, oral reports, and role-playing activities, thus promoting the mastery of incidental vocabulary.

Limitations

Sample Limitations.

The results of this study are based on an experiment involving 40 English major students, which represents a small sample size. This may not reflect the general level of all English majors. Future research can aim to include a larger sample, ideally encompassing students at various proficiency levels and from different backgrounds, in order to make the sample more representative and enhance the applicability of the experimental findings to the overall vocabulary acquisition levels of English major students.

Limitations in Variable Control.

The vocabulary testing lasted for three weeks, which is quite lengthy. Although the researchers informed the participants that the purpose of the test was to determine whether they could comprehend the material and made efforts to prevent participants from guessing the experiment's purpose, the repeated testing procedures might have led participants to prepare for the second round of vocabulary post-tests. This preparation could compromise the incidental nature of vocabulary acquisition, thus reducing the validity of the Incidental Vocabulary Acquisition (IVA) measurement. Furthermore, although the influence of external variables was minimized, other factors such as individual differences and vocabulary-related factors were not considered. Future research should strive to control for potential confounding variables to ensure a higher degree of rigor.

Limitations in Experimental Subjects.

The experimental subjects in this study were limited to graduate students majoring in English, and the results cannot be generalized to all English learners. Future studies could explore the impact of the three modes of input on vocabulary acquisition among learners of varying English proficiency levels, to enhance the validity of the results and ultimately support vocabulary learning among all second language learners.

References

Boers, F., Warren, P., Grimshaw, G., & Siyanova-Chanturia, A. (2017). On the benefits of multi-modal annotations for vocabulary uptake from reading. Computer Assisted Language Learning, 30(7), 709–725.

Brown, R., Waring, R. & Donkaewbua, S. (2008). Incidental vocabulary acquisition from reading, reading-while-listening, and listening to stories. Reading in a Foreign Language, 2, 136-163.

Cameron, D. (2001). *Working with spoken discourse*. London: SAGE.

Chang, L., & Li, J. K. (2009). A correlation study of metacognitive strategies, listening comprehension and incidental vocabulary acqusition. *Foreign Language World*, *6*, 50-90.

Coates, J. (2007). Talk in a play frame: More on laughter and intimacy. *Journal of Pragmatics, 39*, 29-49.

Day, R.R. Omura, C. & Hiramatsu, M. (1991). Incidental EFL vocabulary learning and reading. Reading in a Foreign Language, 2, 541-549.

Drew P., & Heritage J. (1992). Analysing talk at work: An introduction. In P. Drew, & J. Heritage (Eds.), *Talk at work* (pp. 3-65). Cambridge: Cambridge University Press.

Dupy, B. & Krashen, S. (1993). Incidental vocabulary acquisition in French as a foreign language. Applied Language Learning, 4, 55-63.

Gan, H. M. (2008a). Vocabulary acquisition in a Chinese reading class at the intermediate level. *Journal of Yunan Normal University(Teaching and Research on Chinese as A Foreign Language Edition)*, *5*, 47-53.

Gan, H. M. (2008b). The effect of semantic transparency on vocabulary learning in intermediate Chinese reading. *YUYAN WENZI YINGYONG, 1*, 82-90.

Gan, H. M. (2009). The effect of word formation and its recognition on vocabulary learning in Chinese reading. *YUYAN WENZI YINGYONG, 3*, 120-128.

Gan, H. M. (2010). The effects of word-class on incidental vocabulary learning. *Chinese Language Learning*, *3*, 105-112.

Gan, H. M. (2011). The effects of context on Chinese vocabulary learning during reading: an investigation based on natural reading. *Language Teaching and Linguistic Studies*, *3*, 10-16.

Gan, H. M. (2012). On the word-meaning inferring process and reading model of intermediate Chinese learners. *TCSOL Studies*, *2*, 30-38.

Gan, H. M. (2014). The effects of context on vocabulary learning during Chinese reading— Evidence from eye-movement studies. *Chinese Language Learning*, *2*, 88-96.

Gu, Q. Y., & Zang, C. Y. (2011). Input modality effects of second language comprehension and incidental vocabulary acqusition. *Journal of PLA University of Foreign Languages*, *3*, 55-59+68+128.

Gu, Y. G. (2007). On multimedia learning and multimodal learning. *Computer-Assisted Foreign Language Education in China*, *2*, 3-12.

Laufer, B. (1998). The development of passive and active vocabulary in a second language: Same or different? Applied Linguistics, 19(2), 255–271.

Laufer, B. & Hulstin, J. (2001). Incidental vocabulary acquisition in a second language:The construct of task-induced involvement. Applied Linguistics, 22(1), 1-26.

Lee, J. (2018). Yasukuni and Hiroshima in Clash? War and Peace Museums in Contemporary Japan. *Pacific Focus*, *33*(1), pp. 5–33. https://doi.org/10.1111/pafo.12109

Liu, S. H. (2001). Guessing the meaning of unfamiliar words from the context: an investigation. *Chinese Language Learning*, *1*, 45-49.

Meara, P. (1997). Towards a New Approach to Modelling Vocabulary Acquisition. In N. Schmitt, & M. McCarthy (Eds.), Vocabulary: Description, Acquisition and Pedagogy (pp. 109-121). Cambridge: Cambridge University Press.

Mo, D. (2017). A comparison of the effects of different input modality on incidental vocabulary acquisition. *Chinese Language Learning*, *6*, 87-95.

Nagy, W.E., Herman, P.A, & Anderson, R.C. (1985). Learning words from context. Reading Research Quarterly, 20, 233-253.

Nation, P. (2022). Teaching and learning vocabulary. In Handbook of Practical Second Language Teaching and Learning (pp. 397-408). Routledge.

Qian, X. J. (2003). On incidental vocabulary learning in Chinese L-2 reading. *Journal of Peking University Philosophy and Social Sciences*, *6*, 135-142.

Peters, E., Heynen, E., & Puimege, E. (2016). Learning vocabulary through audiovisual input: The differential effect of L1 subtitles and captions. System, 63, 134–148.

Peters, E., & Webb, S. (2018). Incidental vocabulary acquisition through viewing L2 television and factors that affect learning. Studies in Second Language Acquisition, 40(3), 551–577.

Pulido, D. (2003). Modelling the role of second language proficiency and topic familiarity in second language incidental vocabulary acquisition through reading. Language Learning, 53, 233-284.

Sheng, Z. R. (2011). Listening comprehension and vocabulary incidental acquisition under metacognitive strategies and multimodal interactions. *Heilongjiang Researches on Higher Education*, *9*, 179-182.

Vidal, K. A. (2011). Comparison of the effects of reading and listening on incidental vocabulary acquisition. Language Learning,61 (1), 219-258.

Wang, G. Y. (2009). Incidental vocabulary acquisition in natural reading condition. *Journal of PLA University of Foreign Languages*, *5*, 48-53.

Wu, M. J., & Chen, L. Y. (2012). A longitudinal study of intentional and incidental vocabulary learning. *TCSOL Studies*, *3*, 11-18.

Xu, Hao. (2012). An exploratory study of the noticing process of incidental vocabulary acquisition in reading tasks. *Foreign Language Learning Theory and Practice*, *2*, 48-54.

Zhang, J. L. (2010). Effects of the relationship between the meaning of the words and morphemes on inferrning the meaning of Chinese words. *Language Teaching and Linguistic Studies*, *3*, 16-22.

Zhang, X., & Qi, L. X. (2009). Incidental vocabulary acquisition in natural reading. *Foreign Language Teaching and Research*, *4*, 303-308.

Zhu, X. Y., & Zhou, J. (2007). Inferring the meaning of compound words in Chinese reading. *YUYAN WENZI YINGYONG*, *4*, 77-85.

Zhu, Y., & Cui, H. S. (2005). Re-probing the incidental vocabulary learning in Chinese reading. *Journal of Chinese Language and Culture of Jinan University*, *2*, 15-22.

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