# Multiple Input Modes to Enhance Vocabulary Development: A Systematic Review

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**[Abstract]** With the increasingly recognized importance of vocabulary knowledge in promoting language learning success, pedagogical research on what is a better input method for vocabulary learning and incidental vocabulary acquisition has drawn more and more attention. Although this research is growing, no systematic reviews of studies on the effects of multiple input modes on mastering vocabulary knowledge have been conducted to date. Reading and listening are the main input enhancements in the review literature. However, the results of individual studies were inconsistent and inconclusive. This article systematically overviews the most current research (2001-2018) on vocabulary learning and acquisition in multiple input modes. This literature review shows that only partial dimensions of vocabulary knowledge are mastered in multiple input enhancements and indicates general positive effects for vocabulary acquisition and learning outcomes. In considering various language proficiency levels of EFL learners, further research on the role of input modes in mastering vocabulary knowledge is needed to fully realize the potentials in enhancing language learning achievement.

**[Keywords]** input enhancement, vocabulary incidental acquisition, vocabulary intentional learning

## Introduction

Given the importance of vocabulary knowledge in enhancing English as a foreign language (EFL) learning, distinctly separate dimensions of vocabulary knowledge were introduced by scholars (Nation, 1990, 2001; Qian, 1998). The basic three dimensions of vocabulary knowledge were proposed by Nation (2001), including forms, meanings and use. Qian (1998) collected previous strength on decoding the nature of vocabulary knowledge, the size and depth dimensions of vocabulary knowledge were placed in emphasis. Due to the complicated nature of vocabulary knowledge, multiple input modes focusing on partial properties of vocabulary knowledge have been adopted in accordance to achieving specific learning outcomes (Lenhart, Lenhard, Vaahtoranta, & Suggate, 2018; Teng, 2018; Zeeland, 2017).

This review focuses on the various ways of vocabulary knowledge acquisitions in different contexts and attempts to explore what specific dimensions of lexical knowledge was acquired by means of separate input modes. Aural input in multiple forms is emphasized. Thus, the aim of this paper is to review multiple input modes of vocabulary knowledge with a specific focus on reading and aural input modes. Of particular interests to this review are studies investigating the effects of different input modes of vocabulary knowledge on enhancing EFL language proficiencies (Cheng & Matthews, 2018; Gottardo, Mirza, Koh, Ferreira, & Javier, 2018).

## Methods

Cook and West's approach (2012) suggested principles to do systematic reviews in medical education and provided guidance of the screening and classification process of reviewed papers. The selection process in this systematic review is demonstrated subsequently. The PICO (the population, intervention, comparison and outcomes) modal (Cook & West, 2012) was adopted in addressing the focused questions. To review the literature of input modes and EFL learning outcome, the research questions addressed in this review are:

I. What input modes of vocabulary knowledge were addressed in the reviewed literature?

II. What are the effects of multiple input enhancements to vocabulary acquisition and learning outcome in the reviewed literature?

***Eligibility Criteria***

In accordance to the PICO guidance, the eligibility criteria for the selection of reviewed studies were set. Regarding the population, there are no restrictions on learners' age and gender. Studies on the effectiveness of vocabulary input modes on EFL learning performance, both positive and negative research findings were included. Published journal articles on multiple vocabulary enhancement modes in English language were selected. The database provides evidence to address the research questions along with the grey literature.

***Selection of Publications***

Three widely recognized databases were used to conduct a comprehensive computerized database search of full-text English articles including web of science, Scopus and ProQuest. Initial search terms were ("reading input" OR "listening input" OR "aural input" ) AND ("vocabulary" OR "lexi*" OR "word*") AND ("learn*" OR "acquire*"). To further refine the search results retrieved from separate databases, article title/keywords/abstract was selected in the initial search stage. In light of the PICO inclusion standards, the titles and abstracts of retrieved papers were first filtered and rated. Reviews and commentaries were excluded. The screening process figure (see Figure 1) demonstrated the database search method and standards, as well as the final number of selected studies for systematic review (N= 15). In accordance to Cook and West's approach (2012), key information (i.e., author, year, research design, research purpose, findings) for selected journal articles was covered. Narrative or quantitative pooling was adopted to analyze the results and synthesis was reported in attempt to address the research questions.

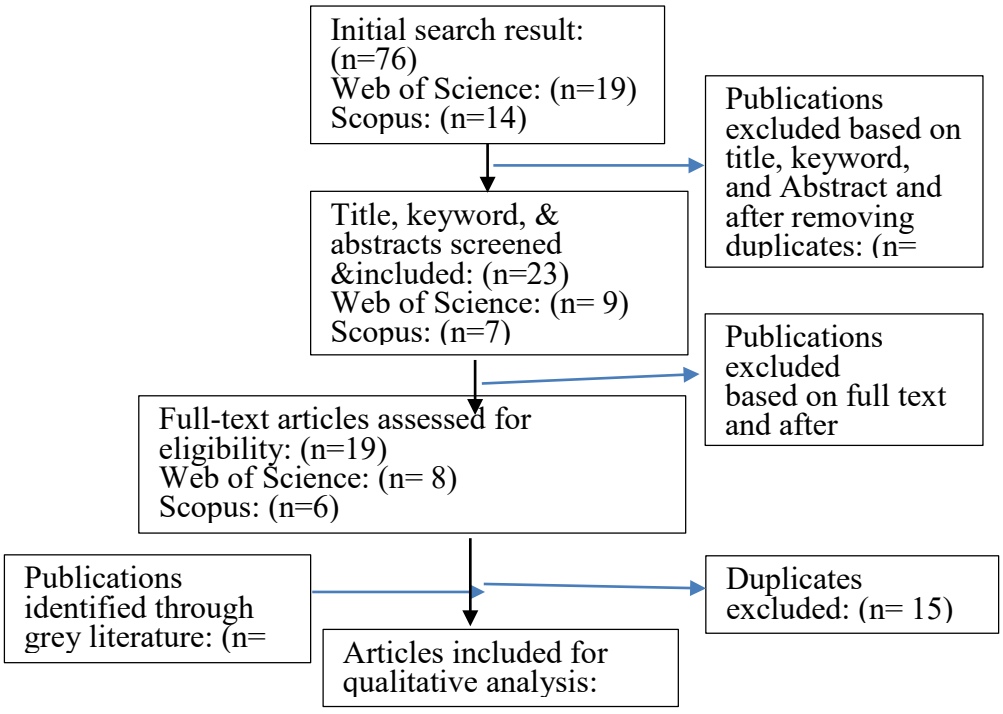


*Figure 1. Flowchart of the Search Process*

## Results

### *Multiple Input Enhancement and Vocabulary Learning Outcome*

Reviewed studies have implemented, evaluated, or explored aural and reading input enhancements of vocabulary knowledge learning and acquisitions. The multiple input modes of vocabulary learning and acquisitions have aroused increasing research attention. Brown, Waring, and Donkaewbua (2008) examined the effects of three input enhancing methods on incidental vocabulary acquisitions (reading, reading-while-listening, and listening to stories). The three separate input channels made little difference on the incidental vocabulary acquisition. But the higher frequency of item occurring supports vocabulary retentions. Teng (2018) also conducted a comparison study on the effects of reading-only condition and reading-while-listening condition on EFL learners' mastery of partial dimensions of vocabulary knowledge (form recognition, grammar recognition, meaning recall and collocation recognition).

This study concludes that more vocabulary knowledge was gained in the reading-while-listening practice. Mastery of word form and grammar were indicated by word exposure frequency levels, but no effects were found in the acquisition of word meaning and collocation. From different input channels, high word exposure frequency levels and elaborate word processing were suggested to enhance vocabulary knowledge acquiring process(Teng, 2018). Little and Kobayashi (2011) added vocabulary-focused enhancement in addition to reading plus focused-listening activities to investigate their effects on vocabulary learning and retention. Reading plus focused-listening enhancement emerged to be a stronger predictor of vocabulary retention while vocabulary-enhancement revealed to be more effective in vocabulary acquisitions.

Sawada (2009) attempted to explore better learning channels to promote vocabulary acquisitions among Japanese EFL high school learners. The study also provided positive empirical evidence that the aural input enhancement was more effective in vocabulary retention than the visual and haptic learning channels. Sawada (2009) further suggested that passage comprehension, vocabulary size, and grammatical competence explained the variance of vocabulary acquisition in aural input.

In contrast to mixed input channels, studies on the relative significance of listening-only and reading-only incidental vocabulary acquisition provides further evidence (Chen & Teng, 2017; Cheng & Matthews, 2018). There are many reasons for the low rate of incidental vocabulary knowledge gaining in reading input enhancement, including "less word exposure, methodological weakness, small amounts of reading, insensitive measurement instruments, inadequate control of text difficulty, small numbers of target words, and no delayed post-tests" before 1990s' research (Schmitt, 2008, pp. 347).

Later research on the reading-input mode of vocabulary learning and acquisition attempted to address the previous issues and found out higher rate of exposure would produce better learning of lexical words especial on the aspect of spelling, but not on the word-meaning and grammatical features (Horst, Cobb, & Meara, 1998; Horst, 2005; Pigada & Schmitt, 2006). However, Waring and Takaki (2003) found low word retention from the reading enhancement of incidental vocabulary acquisition. Chang and Ma (2018) adopted listening or reading input on 88 EFL learners in China and found that reading input showed general advantages on vocabulary form, meaning and production acquisitions than listening group and rich contextual clues of the listening task was suggested to facilitate incidental vocabulary acquisition process. Similar empirical evidence was revealed in EFL learners in China (Chen & Teng, 2017).

In summary, EFL learners on different language proficiency levels show various preferences of input channels in vocabulary learning and acquisition. The difference of age and variance of testing instruments might lead to the divergent research outcomes. But the positive impact of aural and reading input enhancement to vocabulary learning and acquisition are empirically proved.

### *Means to Vocabulary Enhancement*

A wide range of methods for fostering vocabulary development was examined from different input resources. Story-delivery was one way to be examined in the aural input of vocabulary acquisitions (Elley, 2016; Houston-Price, Howe, & Lintern, 2014), which was especially suited for preschool level learners (Lenhart, et al., 2018). However, different empirical results were reported. Little effect of reading aloud and free story telling approach on vocabulary gains were indicated. While Houston-Price, et al. (2014) provided positive indications of listening to stories to expand vocabulary knowledge among preschool and school-aged children. The effect of listening to comic strip stories on incidental vocabulary knowledge acquisition was investigated among Iranian EFL learners (Arast & Gorjian, 2016) . Watching stories' comic photos was found to be a strong predictor of incidental vocabulary acquisitions. Multimedia facilitating means were also investigated on its effectiveness.

Jones (2009) investigated how multimedia learning environments assist vocabulary learning and found out pictorial annotations alone positively support high-verbal-ability learners. Written annotations along with pictorial annotations could facilitate gaining vocabulary knowledge within the low and high ability groups. However, no effect was found as well for incidental vocabulary acquisition through multimedia glosses on text recall in aural input resources (Cakmak & Ercetin, 2018). Zeeland (2013) investigated the effects of gaining vocabulary knowledge through decontextualized and contextual situations and found out that better mastery of lexical meanings was gained in the reading input instead of aural input due to the difficulties on the real-time nature of information processing in listening comprehension.

### *Frequent Word Exposure Enhancement*

Direct vocabulary instructions were also suggested as a facilitating method to enhance the incidental vocabulary acquisition process, which led an effective recall than listening-only conditions (Hennebry, Rogers, Macaro, & Murphy, 2017). Pedagogical implications of vocabulary learning by means of listening practice are indicated. Effects of word exposure frequency, repetition, and pictorial support, on incidental vocabulary acquisition were investigated to offer further empirical evidence on the role of facilitating methods in vocabulary acquisition (Chen & Teng, 2017). Most previous studies focusing on the meaning recall assessment to evaluate the learning effects, Zeeland and Schmitt (2013) argues that mastery of form and grammar comes before lexical meanings. Distinct frequency levels on form, grammar and meaning showed little difference to obtaining of vocabulary knowledge. For aural input, over 15 word exposures were suggested to be greatly needed through listening resources.

The importance of repeated exposure not only on lexical levels was stressed, but also on textual levels (Ellis & Chang, 2016). Ellis and Chang (2016) found out a positive effect of text repetition on incidental vocabulary acquisition while listening. Mohsen (2016) conducted a comparative study on the facilitating tools in aural input vocabulary acquisition between two alternative options of annotations + captions + animation (ACA) and annotations + transcripts+ animation (ATA). ATA was found to have long-term effects on mastery of vocabulary knowledge than ATA. Perez, Van Den Noortgate, and Desmet (2013) provided positive evidence of the effects of captions on listening comprehension for vocabulary learning. There are increasing studies aiming to explore a better way of facilitating vocabulary knowledge in various input channels.

## Discussion

The journal articles and book chapters reviewed in this study suggest that vocabulary knowledge could be obtained through direct learning and incidental acquisition. Direct learning refers to teachers' instructions on vocabulary knowledge that arouses students' attentions on specific aspect of lexical words after reading or listening. In contrast to learning vocabulary knowledge with intentions, studies on incidental vocabulary knowledge acquisitions have also aroused scholars' attention through reading or listening input modes (Suggate, Lenhard, Neudecker, & Schneider, 2013; Vidal, 2011). Incidental

vocabulary learning gained increasingly pedagogical concerns in recent years. The investigated results show that positive impact of input enhancement in intentional vocabulary knowledge learning and unconscious acquisitions of lexical words through reading and listening. Schmitt (2008) pointed out the four learning strands proposed by Nation (2001) (meaning-focused input, meaning-focused output, language focused learning, and fluency development) should be adopted as the basic structure to integrate intentional learning and incidental acquisition of vocabulary knowledge. Vocabulary engagement should be increased to facilitate the learning process of lexical words.

Partial dimensions of vocabulary knowledge were acquired in the multiple input modes (Chen & Teng, 2017; Cheng & Matthews, 2018; Schmitt, 2008; Teng, 2018). Schmitt (2008) suggested no full mastery of lexical words from reading input and a number of aspects of vocabulary knowledge should be learnt for each lexical item. Each input mode can only focus on part of lexical words, such as forms, meanings, phonetic sound or use. In listening-only input mode, phonological properties of schwa in academic vocabulary was examined to explore rhythmic alternation with stressed syllables on a micro-level (Weber, 2018). Meanwhile, various aural input enhancement means were adopted such as captioned video, listening to stories, handheld devices or captioned audiovisual material.

The multimedia teaching materials used in vocabulary knowledge learning and acquisitions laid emphasis on phonological properties of lexical words instead of orthographic aspect of vocabulary knowledge. While in the reading-only input mode, collocations of meanings and forms and size of vocabulary knowledge are focused either on vocabulary learning and acquisitions. Reading-while-listening input mode attempts to apply a more comprehensive way to facilitate vocabulary learning and acquiring process. However, the depth and use of vocabulary knowledge have not been fully covered in this input mode. Thus, multiple input enhancements might be necessary to fulfill the task of vocabulary knowledge learning and acquisitions.

Besides the input modes of vocabulary knowledge learning and acquisitions are examined by scholars, minor aspects in the separate input context are also investigated. Studies on the word exposure frequency (Chen & Teng, 2017) and the effects of in and out of context vocabulary learning on reading and listening (Zeeland, 2013) were also investigated. Thus, facilitating materials in the multiple input modes and detailed discussions on their impact of learning outcomes are drawing attention. Scholars not only focused on what input methods could support EFL learners' mastery of vocabulary knowledge, but also investigated how to scaffold their learning and acquiring process. There may be no single method that can solve all the problems and no conclusive answer for this issue as well. More empirical evidence would be needed to provide a more comprehensive picture on vocabulary knowledge learning and acquisitions.

## Conclusion

Although multiple modes were adopted in the vocabulary knowledge learning and acquisition process, only partial vocabulary knowledge are emphasized and mastered by EFL learners. It has also been investigated whether it is necessary to involve facilitating materials to support the learning or acquiring process of vocabulary knowledge or direct vocabulary teaching might be needed following the incidental acquisitions of vocabulary knowledge via various input modes. In considering different levels of EFL learners and separate language skills' training, further research on the role of input modes in mastering vocabulary knowledge is needed to fully realize their potential in enhancing language learning achievement.

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