

EFFECT OF MULTIMEDIA PRINCIPLE ON VOCABULARY LEARNING AMONG SECOND LANGUAGE LEARNERS

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Abstract

This paper discusses the importance of vocabulary in language learning and the effect of Multimedia Principle in vocabulary learning. Vocabulary acquisition is an essential part of language learning since it is considered as one of the main components of language proficiency which determine how well learners read, speak, listen and write. The language used in language learning becomes more complex as students move from one level to the next. Having limited vocabulary often hinders students from mastering the four language skills. Generally, in the traditional way of learning a language, only words and their associated meanings in a text-only format are presented to students. However, with the development of technology, multimedia glosses such as visual text, spoken text and graphics manage to assist students in acquiring new vocabulary. Research in the area of multimedia instruction has yielded results that indicate that texts and graphics (Multimedia Principle) are more conducive to learning, rather than just text or graphics alone.

Keywords: Multimedia Principle, Vocabulary learning, Multimedia glosses

1.0 INTRODUCTION

Vocabulary learning is an indispensable process for ESL learners to acquire proficiency and competence in the target language. Word power facilitates fluent speaking and effective writing. According to Richards and Renandya (2002), vocabulary is the key component of language proficiency which provides the basis for how well learners speak, listen, read, and write. Vocabulary should be recognized as a central element in language instruction from the beginning stages. There is no doubt that learning vocabulary is an essential part for language mastery (Schmitt, 2010); and that developing a rich vocabulary is a top priority but an on-going challenge for L2 learners (Waring & Nation, 2004). It is the major issue in learning English Language because it comprises the basic building blocks of English sentences. Without words that express a wider range of meanings, communication in L2 could not happen in any meaningful way (McCarthy, 1992).

The importance of vocabulary has also been recognized in language pedagogy. Berne & Blachowicz (2008) claimed that vocabulary is an area where teachers are asking for guidance on instructional approaches, strategies and materials. According to Tomlinson (1998), effective materials can meet the wants and needs of learners of different backgrounds. Traditionally, learners learn vocabulary by memorizing long lists of the target words, and they quickly refer to a bilingual dictionary when they encountered an unfamiliar word. Learners were also exposed to images, signs, realia and gestures to guess the meaning of a word (Read, 2000).

However, the nature of L2 learning has changed because of technology (Oxford, 2008). In order to develop efficient multimedia materials, some features that can facilitate language learning should be integrated into materials. These may include multimedia presentation formats and learners' target language proficiency. Mayer (2001) suggests that learners are able to create a deeper understanding of words when they establish connections between words and pictures than from words or pictures alone. From a pedagogical view point, multimedia can be used as a visual aid to illustrate meaning, and give organization to the material being taught. Given the important role of vocabulary in language learning, researchers are now investigating different strategies and methods to create an interest among ESL learners to successfully acquire and extend vocabulary successfully.

2.0 IMPORTANCE OF VOCABULARY IN LANGUAGE LEARNING

Vocabulary is an important element in language and it is a necessary component for improving competency in all areas of communication (Godwin-Jones, 2010). Macaro (2003) also emphasized the vital role of vocabulary teaching and learning of vocabulary in ESL and EFL contexts. Other researcher such as Ghabanchi and Anbarestani (2008) accept the importance of vocabulary learning in language proficiency and academic achievement. However, their ideas about how vocabulary is learned vary widely. They argue that one of the main concerns in vocabulary learning is the need to develop efficient and effective pedagogical methods for teaching L2 vocabulary. They believe that traditional pedagogical methods such as word-lists, dictionary use, workbooks, teacher-materials, and marginal glosses embedded in language textbooks are ineffectual for teaching L2 vocabulary.

Zhang and Li (2011) argue that L2 vocabulary learning is a fundamental task in second language acquisition and proficiency of L2 skills builds on lexical. In language learning, vocabulary takes place in building the language proficiency too. Students are able to have good language proficiency in the language skill depending on the quality and quantity of the vocabulary that they have mastered. The ability to master more vocabulary words make a learner an effective speaker, good listener, reader and writer.

On the other hand, lack of vocabulary significantly affects the four language skills. It is important to improve students' vocabulary in order to develop the advanced literacy levels required for success in school and beyond (Graves & Watts-Taffe, 2008). Schmitt, Jiang, and Grabe (2011) claimed that 98 percent of words ought to be known for L2 learners to comprehend academic texts. Granowsky (2002) states that by having limited vocabulary knowledge, students are not able to express and communicate well. According to Reads (2004) L2 learners are aware that the limitations in their vocabulary knowledge hinder their capability to communicate efficiently. However, learners have inadequate knowledge about the vocabulary learning techniques and they are struggling in dealing with this problem themselves (Akin & Seferoğlu, 2004).

Vocabulary is the core component of all language skills, the more vocabulary the learners get to know, the better their language competence is (Long & Richards, 2007). In order to help learners master as much vocabulary as possible, educators should use different teaching techniques. Studies on L2 vocabulary learning have been carried out from different perspectives, including incidental and intentional vocabulary learning, effects of lexical support, learning words in authentic and communicative tasks with a focus on form, multiple exposures, and the use of technology in L2 vocabulary learning (Laufer, 2009). L2 vocabulary learning can be enhanced by glosses, additional vocabulary exercises, modified texts, and strategy training (Chodkiewicz, 2001).

2.1 Challenges in Vocabulary Learning

Vocabulary is essential for expressing meaning and in using the receptive (listening and reading) and the productive (speaking and writing) skills. Unfortunately, mastering vocabulary is not an easy task for students, especially for students in Malaysia where English is learned as a second language because English is not used in daily communication. So, it is more challenging to master English vocabulary. As a result, students' vocabulary acquisition is still low. In the field of English language learning, there are many factors that have an effect on Malaysian students' low English language learning proficiency even after going through 11 years of learning English in school (Naginder, 2006: Nor Hashimah Jallaudin, Norsimah Mat Awal & Kesumawati Abu Bakar, 2008). Low (2004, cited in Zakaria, 2005:2) says that ESL learners in Malaysia face the challenge of coping with the four language skills, mainly because they lack vocabulary. According to Ratnawati and Ismail (2003), it is the students' lack of vocabulary that makes it difficult for them to understand or express themselves in English. They are unable to guess the meanings of words in context when they attempt reading tasks.

Vocabulary expansion begins at the intermediate level, however the learners' vocabulary resources are found to be inadequate at this level. The delay in vocabulary acquisition often imposes a handicap on ESL

learners' language development (Hajar Abdul Rahman & Abdul Ghani, 1996). Admittedly, lack of vocabulary knowledge will affect the four language skills: listening, reading, writing, and speaking. In addition, vocabulary learning and word retention are always the problems encountered by students. Studies on the written works of Malaysian ESL learners have shown that their writing is full of errors. Vahdatinejad (2008) discovered that Malaysian students committed errors in tenses, vocabulary and prepositions.

In addition, students have the tendency to forget newly learned words quickly. Long-term retention has received wide attention as one of the greatest problems in learning new words (Leeke & Shaw, 2000; Yoshii & Flaitz, 2002). The inability to recall known words is experienced not only in the production of spoken or written discourse, but also in comprehension. It is very difficult to guess the meaning of any new words unless learners are familiar with a large number of words on the page. Due to this reason, learners should use the newly acquired L2 words on a regular basis while learning to guess the meaning of words from their contexts and their derivation.

Many studies have been carried out in order to increase competence in vocabulary learning (Akbulut, 2007; Akın & Seferoğlu, 2004; Erten & Tekin, 2008; Kost, Foss, & Lenzini, 1999; Yoshii and Flaitz, 2002). In spite of numerous studies in vocabulary learning, learners show insufficient effort to deal with their problems about newly learned words and teachers tend to have an attitude to make students deal with this problem outside the class on their own (Baykal & Daventry, 2000).

It is challenging for learners who have limited vocabulary in the second language because it prevents them from comprehending a text. This challenge has to be faced since vocabulary acquisition is part of language learning. This is because, when an individual's working memory is not burdened with uncertainty about the accurate spelling, pronunciation and contextual use of the words, one can concentrate fully on higher level aspects of language such as using precise sentence structures and appropriate expressions for the type of conversation that is going on (Nation, 1994).

3.0 MULTIMEDIA PRINCIPLE

It is commonly assumed that adding pictures to words, rather than presenting text alone, makes it easier for people to understand and learn. The assumption leads to what may be called the *Multimedia Principle*. This principle, as stated by Mayer (2001), is that people learn better from texts and pictures than from texts alone, or, more specifically, that people learn more or more deeply when appropriate pictures are added to text. Clark & Mayer (2011) stated that multimedia presentations can encourage learners to engage in active learning by mentally representing the material in texts and in pictures and by mentally making connections between the pictorial and verbal representations. Therefore, the multimedia principle engages students to be active learners by integrating their cognitive processes with existing knowledge. While graphics can boost learning, it is also important to select the kind of graphic that is congruent with the text and with the learning goal. Graphics that are irrelevant or gratuitous actually depress learning so it is important to select relevant graphics based on the type of content being taught.

In teaching, it is normal to use printed or spoken words as the primary way for conveying information. Words are simple, easy and cheap to utilize. Do learners learn more from texts and graphics, which include static graphics such as drawings or photos than from texts alone? This article examines whether there is any benefit on adding texts with graphics specifically. The term multimedia refers to presentations that contain both words and graphics. There is strong and reliable evidence that learners obtain more knowledge from texts and graphics than from words alone (Akbulut, 2007; Kim & Gilman, 2008; Shahrokni, 2009). Richard Mayer was a pioneer in examining the effects of multimedia on learners. In 1989, Mayer argued that multimedia supports the way the human brain learns efficiently. Providing relevant graphics with text is a proven method of fostering deeper cognitive processing in learners. In short, learning is facilitated when the graphics and text work together to communicate the instructional message (Clark, R. & Mayer, R. E., 2008).

3.1 Text and Graphics Glosses in Vocabulary Learning

The research of gloss has expanded with the advancement of multimedia application in second language teaching and learning. Glosses in multimedia are facilitative for language learning (Nation, 2001). They allow learners to use multisensory elements, text, sound, pictures, video and animation, which provide a meaningful context to facilitate comprehension. According to Ko (2005), glosses assist readers comprehend words more accurately by preventing misleading guessing, and also to avoid interruption in reading comprehension when readers try to check dictionaries to find out the meaning of unknown words.

Paivio (1990) stated that the more learners associate target words with appropriate nonverbal referents (pictures, objects, emotions, and events), their interconnections between verbal and visual systems become more meaningful. As a result, learners have better recall and appropriate use of the words when they learn

the words verbally and visually rather than when the words are coded in a single manner (verbally or visually). Therefore, additional pictorial cues are efficient and effective and in assisting learners make associations between pictures and words (Oxford & Crookall, 1990).

Various studies have been conducted on multimedia glosses which confirmed and recommend the use of multimedia in particular texts and graphics, rather than texts or graphics alone in teaching (Akbulut, 2007; Kim & Gilman, 2008; Kost, Foss, & Lenzini, 1999; Martinez-Lage, 1997; Yeh and Wang, 2003; Yoshii and Flaitz, 2002; Shahrokni, 2009). Unlike traditional glossing, the usage of pictures through multimedia annotations can be beneficial for readers (Martinez-Lage, 1997). Learning vocabulary words from textual definitions alone creates inadequate links for retrieval of meanings, whereas learning vocabulary words from textual definitions and some visual supports constructs stronger meaning representations for future retrieval. With the innovation of multimedia, the process of language learning can be more entertaining and supportive. Martinez-Lage (1997) implies the effectiveness of multimedia annotations which provide instant and direct access to text, sound and visual annotations. When there is an interaction between students and text, it facilitates understanding because students learn with language as well as promoting active reading. If vocabulary learning can be made more effective and exciting with the aid of theory-based learning principles, learners may formulate more rapid, satisfying progress and become more proficient in the target language.

Kost, Foss, & Lenzini (1999) specifically used printed texts and analyzed the three types of glosses: (1) text-only (L1) gloss; (2) picture-only gloss; and (3) text (L1)-plus-picture. The participants were 56 American university students who were studying German as a second language. Learners read a 272-word text which contained 20 glossed words under three treatment groups with different gloss types. The participants took two vocabulary tests on 14 target words, first immediately after and the second one two weeks later. The tests consisted of both recognition (multiple-choice of definitions) and production (supply definitions), and the overall results showed that the combination of text and picture glosses was better than the picture only or text only glosses.

The results were further confirmed in a computer environment by Yoshii and Flaitz (2002). Their study also focused on the three types of glosses but this time in a computer reading environment which was conducted with 151 ESL students. They read a 392-word text with 20 word glosses among which 14 were the target words under three gloss type groups: (1) text (L2) only; (2) picture only and (3) text (L2) and picture. The researchers administered both the immediate and delayed vocabulary tests unexpectedly, which consisted of both recognition and production tasks. The results confirmed that text and picture glosses were better than text only and picture only glosses. In a similar vein, Yeh and Wang (2003) investigated the effect of three types of multimedia glosses, text-only, text and picture, and text, picture and sound, on the incidental vocabulary learning of 82 university students in Taiwan. The researchers used both L1 (Chinese translation) and L2 (English explanation) in textual glosses. The results showed that the combination of text and picture was the most effective type of annotation.

Furthermore, a number of researchers have discussed the effects of presenting information using multimedia on L2 vocabulary acquisition (Akbulut, 2007; Kim & Gilman, 2008). The results of these studies show that text along with video, pictures, and graphics promotes L2 vocabulary acquisition. The results of Akbulut (2007) study showed that students having access to word definitions along with pictures and short video clips achieved significantly higher vocabulary scores than those assigned to the word definition only groups. In a study of 172 Korean students, Kim and Gilman (2008) reported that information presented with visual text and supplementary graphics, or with visual text supplemented by spoken text and graphics could facilitate students' vocabulary acquisition the best.

Shahrokni (2009) investigated the effect of online textual, pictorial, and textual pictorial glosses on the incidental vocabulary learning of 90 Iranian EFL learners. They were randomly assigned to three groups of 30 and subsequently exposed to the research treatment. Having read each text under each research condition, the participants were tested on their incidental vocabulary learning through two research instruments, word and picture recognition tests. The result indicated that a combination of text and still images resulted in significantly better incidental vocabulary learning.

A research carried out by Ko (2012) investigated the effect of L1, L2, and no glosses on vocabulary learning. Ninety university students in Korea were randomly assigned to three groups. The result revealed that the experimental groups outperformed the no glosses group in the immediate vocabulary test and the delayed posttest. The participants also showed enthusiasm in having access to glosses.

In general, many researchers have demonstrated that adding relevant graphics to instruction can support vocabulary learning. Vocabulary learning with textual definitions and some visual aids activate both verbal and visual cognitive systems that offer learners dual channels to process the given information, and therefore, have dual channels to retrieve information.

4.0 CONCLUSION

Vocabulary development is vital to the progress of other aspects of language learning. It is important to search for an efficient way for developing students' performance in English involving the four skills. Learners with limited vocabulary knowledge are less likely to be able to develop advanced levels of reading, listening, writing and speaking skills in the target language. A combination of different modes of input in multimedia glosses, would result in an effective learning process in vocabulary teaching and learning.

Multimedia instructional design combines texts and graphics to enhance learning effectiveness which help learners to engage in active learning. But again, not all graphics are equally effective; graphics must not be overused, instead integrate them to maintain the learning aim. The communication functions of graphics serves a different purpose and is best aligned with specific learning objectives, stages of learning, and the learners' knowledge level.

REFERENCE LIST

- Akbulut, Y. (2007). Effects of multimedia annotations on incidental vocabulary learning and reading comprehension of advanced learners of English as a foreign language. *Springer Science & Media B. V.*, 35, 499-517.
- Akin, A. & Seferoğlu, G (2004). Improving learners' vocabulary through strategy training and recycling the target words. *Hacettepe University Journal of Education*, 27, 1-10.
- Baykal, G., & Daventry, A. (2000). Vocabulary for interacting with. Proceedings of the 5th METU International ELT Convention: Interaction on the threshold of a new millennium, 168-173.
- Bernes, J. I. & Blachowicz, C. L. Z. (2008). What reading teachers say about vocabulary instruction: Voices from the classroom. *The Reading Teacher*, 62, 314-323.
- Chodkiewicz, H. (2001). The acquisition of word meanings while reading in English as a foreign language. *EUROSLA Yearbook*, 1, 29-49.
- Clark, R. C., & Mayer, R. E. (2011). *E-Learning and the Science of Instruction: Proven Guidelines for Consumers and Designers of Multimedia Learning* (3rd Edition) San Francisco, CA: John Wiley & Sons.
- Clark, R.C & Mayer, R.E (2008). Learning by viewing versus learning by doing. Evidence-based guidelines for principled learning environments. Performance Improvement.
- Erten, I. & Tekin, M. (2008). Effects of vocabulary acquisition of presenting new words in semantic sets versus semantically unrelated sets. *System*, 36, 407-422.
- Ghabanchi, Z., & Anbarestani, M. (2008). The effect of call program on expanding lexical knowledge of EFL Iranian intermediate learners. *Reading Matrix: An International Online Journal*, 8 (2), 1 -10.
- Godwin-Jones, R. (2010). Emerging technologies, from memory places to spacing algorithms: Approaches to second-language vocabulary learning. *Language Learning & Technology*, 14, 4-11.
- Graves, M.F., & Watts-Taffe, S. (2008). For the love of words: Fostering word consciousness in young readers. *The Reading Teacher*, 62(3), 185-193.
- Granowsky, A. (2002). *Vocabulary Works: Research Paper*. Abstract retrieved April, 2014, from http://www.pearsonlearning.com/communities/assets/research_center/Research_Paper_VocabWorks.pdf
- Hajar Abdul Rahman, & Abdul Ghani. (1996). Teaching vocabulary using computer language games. In Mukundan, J. & Teh, C. S. (Eds.), *Trends in English language teaching* (1-13). Serdang: UPM Press.
- Kim, D., & Gilman, D. A. (2008). Effects of text, audio, and graphic aids in multimedia instruction for vocabulary learning. *Educational Technology & Society*, 11(3), 114-126.
- Knight, S. (1994). Dictionary: The tool of last resort in foreign language reading? A new perspective. *The Modern Language Journal*, 78, 285-299.
- Kost, C. R., Foss, P., & Lenzini, J. J. (1999). Textual and pictorial glosses: Effectiveness on incidental vocabulary growth when reading in a foreign language. *Foreign Language Annals*, 32(1), 89-113.
- Laufer, B., & Shumueli, K. (1997). Memorizing new words: Does teaching have anything to do with it? *RELC Journal*, 28(1), 89-108.
- Laufer, B. (2009). Second language vocabulary acquisition from language input and from form-focused activities. *Language Teaching*, 42, 341-354.
- Leeke, P., & Shaw, P. (2000) Learners' independent records of vocabulary. *System*, 28, 271-289.
- Long, M., & Richards, J. (2007). Series editors' preface. In H. Daller, J. Milton, & J. Treffers-Daller (Eds.), *Modelling and assessing vocabulary knowledge* (pp. xii-xiii). Cambridge: Cambridge University Press
- Macaro, E., (2003). *Teaching and Learning a Second Language*. New York: Continuum.
- Martinez-Lage, A. (1997). Hypermedia technology for teaching reading. In M. Bush & R. Terry (Eds.), *Technology enhanced language learning* (121-163). Lincolnwood, IL: National Textbook Company.
- Mayer (2001). *Multimedia Learning*. Cambridge; New York: Cambridge University Press.

- McCarthy, M. (1992). *Vocabulary (2ed.)*. Oxford University Press (OUP).
- Naginder Kaur. (2006). Non-autonomy and low-English proficiency among Malaysian students: Insights from multiple perspectives. In Kamisah Ariffin, Mohd. Rozaidi Ismail, Ngo Kea Leng, & Roslina Abdul Aziz. (Eds.), *English in the Malaysian context* (pp 21-34). Shah Alam: University Publication Centre (UPENA) UiTM.
- Nation I.S.P.(1994). *New ways in teaching vocabulary*. Alexandria, VA: TESOL.
- Nor Hashimah Jalaludin, Norsimah Mat Awal & Kesumawati Abu Bakar.(2008). The mastery of English language among lower secondary school students in Malaysia: A linguistic analysis. *European Journal of Social Sciences*, 7 (2), 106-11.
- Paivio, A. (1990). *Mental representations: A dual coding approach*. New York: Oxford University Press.
- Oxford, R. L. (2008). *How the digital age is transforming the way we learn foreign and second languages*. Singapore: Seameo Regional Language Centre.
- Ratnawati M.A. and Ismail S.A. (2003). Promoting English language development and the reading habit among students in rural schools through the Guided Extensive Reading program. *Reading in a Foreign Language* Volume 15(2).
- Read, J. (2000). *Assessing Vocabulary*. Cambridge: Cambridge University Press.
- Read, J. (2004). Research in Teaching Vocabulary. *Annual Review of Applied Linguistics*, 24, 146-161.
- Richards, J. C., & Renandya, W. A. (Eds.). (2002). *Methodology in language teaching: An anthology of current practice*. Cambridge: Cambridge University Press.
- Schmitt, N. (2010). Review article: Instructed second language vocabulary learning. *Language Teaching Research*, 12(3), 329 -63.
- Schmitt, N., Jiang, X., & Grabe, W. (2011). The percentage of words known in a text and reading comprehension. *The Modern Language Journal*, 95, 26–43.
- Schmitt, N., & McCarty, M. (1997). *Vocabulary Description, Acquisition and Pedagogy*. Cambridge: Cambridge University Press.
- Shahrokni, A. (2009). Second language incidental vocabulary learning: The effect of online textual, pictorial, and textual pictorial glosses. *Teaching English as a Second or Foreign Language*, 13(3), 1-17.
- Tomlinson, B. (Ed.). (1998). *Materials development in language teaching*. Cambridge: Cambridge University Press.
- Vahdatinejad, S (2008) *Student' error analysis and attitudes towards teacher feedback in using selected software: A case study*. Unpublished MA thesis, Universiti Kebangsaan Malaysia.
- Waring, R. & Nation, P. (2004). Second Language Reading and Incidental Language Vocabulary Learning. *Angels on English-Speaking World*, 4, 11-23.
- Yeh, Y. & Wang, C. (2003). Effects of Multimedia Vocabulary Annotations and Learning Styles on Vocabulary Learning. *CALICO Journal*, 21(1), 131-144.
- Yoshii, M., & Flaitz, J. (2002). Second language incidental vocabulary retention: The effect of picture and annotation types. *CALICO Journal*, 20(1), 33-58.
- Yoshii, M., & Flaitz, J. (2002). Second language incidental vocabulary retention: The effect of picture and annotation types. *CALICO Journal*, 20(1), 33-58.
- Zhang, B., & Li, C. (2011). Classification of L2 vocabulary learning strategies: Evidence from exploratory and confirmatory factor analyses. *RELC Journal*, 42, 141–154.