From a Gloss to a Learning Tool: Does Visual Aids Enhance Better Sentence Comprehension?

Takeshi Sato[a*] and Akio Suzuki[b]

a. Tokyo University of Agricultural & Technology, Tokyo, Japan
b. Toyo University, Tokyo, Japan

Abstract. The aim of this study is to optimize CALL environments as a learning tool rather than a gloss, focusing on the learning of polysemous words which refer to spatial relationship between objects. A lot of research has already been conducted to examine the efficacy of visual glosses while reading L2 texts and has reported that visual glosses can be effective for incidental vocabulary learning. This study, however, discusses the efficacy of visual aids on vocabulary learning, from the following three different standpoints. The first point is that previous studies have not covered the meaning of these words and have concluded the aids become effective regardless of the part of speech of these words. That is, some words are easy to learn, but the others are difficult depending on the part of speech. Paying more attention to the meaning structures is necessary. The second is that previous studies have focused on visual aids in vocabulary learning using CALL in terms of a gloss while reading texts. As CALL environments have been developed, however, glosses are now used not merely as a reference tool, but as a learning tool. Finally, a lot of research on vocabulary learning with multimedia has been conducted in reading activities, although visual aids can be effective in other activities such as listening activities, in which deeper discourse comprehension is required. Taking these standpoints into consideration, we hypothesize that the intentional learning of those words with multimedia-oriented visual aids could enhance not only comprehension of vocabulary meanings but also better comprehension of a script that includes those words. To examine our hypothesis, we will conduct an experimental study with computer-mediated learning material for English prepositions which we developed for this study. The findings of this study can contribute to the better CALL environments, leading to more effective web or mobile-based learning tools.

Keywords: L2 vocabulary, prepositions, image schema, sentence comprehension, intentional learning.

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* Contact author: tsato@cc.tuat.ac.jp

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1. Introduction

The efficacy of pictures or images as visual glosses has been discussed in L2 vocabulary learning and CALL. Most of the studies related to this issue focus on the efficacy for the long retention through incidental learning such as reading (for example, Al-Seghayer, 2001; Chun & Plass, 1996; Lomicka, 1998; Yoshii & Fraitz, 2002). With the development of CALL with multimodality, however, an electronic dictionary as a collective of glosses has been used not only for reference tools but also for learning tools (Pachler, 2001) to intentionally obtain certain vocabulary items, for example. In that sense, it would be better to reexamine the conditions of better use of glosses in intentional L2 vocabulary learning, leading, we believe, to the development of CALL materials. We therefore would like to address this issue by comparing planar still images and animated stereo ones, which depicted conceptual schemes of L2 spatial prepositions.

2. Background

As mentioned above, many studies concerning L2 vocabulary learning with visual glosses have been conducted and then recognized for their positive impact on L2 vocabulary learning. However, we have concerns about the fact that the previous studies focus less on the following points (Sato & Suzuki, 2010, 2011); the first is that they may examine L2 vocabulary learning as incidental learning. As a result, less discussion has not been made about the relationship between certain type of glosses and vocabulary. In addition, they may regard longer retention of words as the goal of successful learning.

In this study, on the other hand, L2 vocabulary should be learned intentionally because we know some types of words which are easier to learn and also harder to learn in terms of meanings. Given our claim that comprehension of the meanings is regarded as successful L2 vocabulary learning, we revalidate the effectiveness of pictures or images as visual glosses.

3. Our study

Therefore, our study focuses on prepositions, schematic image as a visual gloss, and pictorial image and live-action image. The reason we focus on English spatial prepositions is owing to the fact that learning English prepositions is regarded as important but difficult. This is because prepositions appear very frequently in any discourse, but learners do not always understand their meanings (Lindstromberg, 1996). They might learn prepositions as idioms or chunks, but they cannot use them according to context only by memorization (Lindstromberg, 2001). In addition, L2 translation of a sense of the word may confuse us because the connection among the

senses becomes unclear (Tanaka, 1990). These problems L2 learners have encountered in learning L2 prepositions show that more focus on meanings is needed than on the retention of the vocabulary.

Then we focus on image schema as a visual gloss to learn English prepositions. Johnson (1987) defines "image schemata [as] abstract patterns in our experience and understanding that are not propositional" (p. 2), which can be served as a mediator to connect the senses of the word. The image schema can reflect the prototypical sense of the word, but it can be extended into other examples. As a result, the image can cover all the senses. This means that if L2 learners understand image schema as a medium of each sense of the word, they could differentiate senses of other prepositions.

Finally, we compare planar still images with animated stereo images. This is because both images are theoretically supported by different frameworks: CALL and Cognitive Linguistics. CALL research supports the effectiveness of animation as we see Al-Seghayer's (2001) research. On the other hand, in the field of cognitive linguistics, from which the image schema was derived, schematic images have flexibility and changeability such as their foregrounding, rotation and focusing (Langacker, 1987), which implies that simple image is better while live-motion images might prevent learners from modifying the images due to their fixed configuration.

Therefore, our research question is whether planar still images or animated stereo ones can serve a better facilitator to learn the meanings of English prepositions. We will explain the detail of our experimental research in the next chapter.

4. Research

4.1. Procedures

Fifty-two Japanese university students from freshmen to postgraduates joined our research. They are from the university the first author works at and are not majoring in English language. They were randomly divided into two groups: a control group and an experimental group. First of all, both participants were asked to answer multiple questions about the sense of eight spatial prepositions: above, across. along, below, in, into, on and over. The test consists of forty-five questions and no feedback was given after the test. Then they learned the sense of prepositions using the two kinds of dictionaries we gave them respectively for ten minutes. They were then asked to answer the post vocabulary test which consists of the same questions as the pre-test, but they are randomized. The data we have got are analysed through ANOVA with between and within subject variables.

4.2. Findings

The result we have got from the analysis shows that in both groups participants could get higher scores in post-test than those in pre-test. As a result of ANOVA, in terms of

image, a big difference was found (Images: $F(1,50) = .018$, $p > .05$; Tests: $F(1,50) = 112.5$, $p < .05$). The results tell us that there is no statistical significance between the two groups. However, significant difference is found between pre-test and post-test after the treatments, while no interaction between the two factors is found (Figure 1). These results may indicate visual glosses can facilitate intentional learning of senses of English prepositions even if they are planar still images or animated stereo ones, which is different from the results many studies relating to L2 vocabulary learning with visual glosses.

Figure 1. The result of ANOVA analysis

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A = Image
B = Test

---------------------------------------------------
S.V      SS       df    MS      F
---------------------------------------------------
A       0.4712    1     0.4712  0.02 ns
subj    1343.2500 50           26.8650
---------------------------------------------------
B       706.1635  1     706.1635 112.49 **
AxB     0.4712    1     0.4712  0.08 ns
sxB     313.8654  50           6.2773
---------------------------------------------------
Total   2364.2212 103   +p<.10 *p<.05 **p<.01
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5. Discussion and conclusion

In conclusion, our experimental research shows that the images as visual glosses can be a good facilitator of learning L2 prepositions regardless of their configurations. We have to admit, however, more analysis must be conducted like a delayed test, but our previous studies also show the same result. In terms of L2 vocabulary learning in this setting, technologically advanced visual glosses do not always bring about a better result. Of course, this result does not mean using technology or multimedia functions has no meaning, all we want to say is optimization of the glosses according to the target should be required. We have to think about the condition to make learning successful. Either way, further research is needed.

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