Chapter 30
Chunk Meets Image:
The Effects of Chunking and Imagery on Mobile-Based Self-Learning of English as a Foreign Language

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ABSTRACT

This study investigated the optimal conditions under which foreign language learning takes place using a smartphone. The authors proposed that two factors, chunking and imagery, would increase language learning. On the basis of previous findings, they formulated three hypotheses: (a) the use of images will have a positive effect on learning English sentences; (b) the use of chunks will have a positive effect on learning English sentences; and (c) the combined use of images and chunks will have a greater positive effect on learning English sentences than either feature alone. A total of 92 Korean seventh graders participated in this study. To examine the learning effect of chunking (i.e., sentence segmentation unit) and imagery (i.e., visual aid) in an experimental setting, they produced a smartphone learning application that incorporated the two methods. The authors measured learning effect with respect to lexical memory retention (i.e., word retrieval ability) and word order composition (i.e., ability to arrange words according to standard English syntax). The results show that the main effects of both chunking and imagery were significant and that the interaction effect between the two on lexical memory retention was also significant. The interaction effect was greater in the delayed effect measurement than in the immediate effect measurement. These findings suggest optimal conditions for designing a smartphone-based, self-learning application.

1. INTRODUCTION

In input-poor contexts (e.g., classroom situations in Korea), foreign language learning is a demanding task, and many learners fail, despite enormous amounts of time and effort. Foreign language learning can, however, be facilitated by mobile devices, which can help students learn on their own as part of their daily routine. Multimedia is an effective and powerful means of strengthening learning abilities, including the ability to learn a foreign language (Chen, Huang, & Liu, 2013).

The quantity and quality of language exposure both contribute to successful language learning. However, in an environment where English is not used on a daily basis, learning English naturally is generally considered difficult. Today, to help in this struggle, we have mobile applications that promote self-learning. Kukulska-Hulme (2009) suggested that the use of mobile devices could bring about significant change in teaching and learning practice (i.e., how languages are taught and learned). Nation (2001) pointed out that using the text-centered functions of cellphones (e.g., SMS) can promote English vocabulary learning. A smartphone is a handy tool that an individual can use to learn a foreign language at a casual pace (Lu, 2008). Using a smartphone minimizes the temporal and spatial restrictions of learning and enhances exposure of the target language (Mayer, 2001). A smartphone effectively delivers content in small units and can be a useful tool for teaching foreign language vocabulary (Brown, 2001). Scholars have addressed the usefulness of mobile devices in foreign language teaching, especially mobile-based lexical teaching (Kiernan & Aizawa, 2004). However, few have addressed optimal ways to present target language input on a smartphone to maximize learning effect (Duman, Orhon, & Gedik, 2012).

Assuming that language input presentation would influence cumulative learning effect, we posed the following question: Under which conditions will learning effect be maximized? Because learning effect is related to the cognitive load required for a learning task (Sweller, Van Merriënboer, & Paas, 1998), we posed the same question again from a different perspective: Under which conditions might the strongest learning effect require the limited cognitive load? Cognitive load is an important variable to consider because cognitive load and learning effect are negatively correlated (Cook, 2006). Reduction of cognitive load is likely to yield higher learning effect. In the current study, we assumed that chunking and imagery, both of which can easily be incorporated into a smartphone application, were two pedagogical devices that might reduce cognitive load in foreign language learners. To date, research on English language learning has dealt with the effects of chunking and imagery separately. Considered by some to be the minimal unit of meaning (Miller, 1956), a chunk is an alternative to the single word unit, which can present problems when learning a foreign language (Asher, Kusudo, & Torre, 1974). In addition, adding visual supplements to text can make understanding and remembering foreign words more efficient. Numerous studies have highlighted the effect of visual aids in foreign language acquisition; the study using multimedia for language learning (Dutke & Rinck, 2006; Mayer, 1997, 2001; Mayer &Sims, 1994), research using images in foreign language vocabulary learning (Nation, 2001), and studies on the effect of image on memory retrieval (Paivio, 1973; Paivio, 1979; Paivio, Clark, & Khan, 1988).

However, scholars have not explored the effect of combining chunking and imagery in English language learning. In the current study, we examined the interaction effect between two factors—the chunk and the image—the effects of which have already been tested separately. Acquiring a foreign language requires an enormous amount of time and effort. If we help students simplify information processing in the target language, they could, with lower cognitive load, acquire the language more efficiently.

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