

Study on English Vocabulary Mobile Learning from the Perspective of Deep Learning

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論 文 名 : Study on English Vocabulary Mobile Learning from the Perspective of Deep Learning
(深層学習の視点から見た英語語彙のモバイルラーニングに関する研究)

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論 文 内 容 の 要 旨

Challenges and changes were raised in the current generation as a result of the rapid growth of information technology. In the landscape of language education, the integration of technology into the process of learning has become a burgeoning trend. Among these technology-assisted learning methods, mobile learning stands out as an outstanding performer for building a smarter learning environment and transforming the learning and teaching content to learners of a digital generation. In the realm of second language acquisition, especially with regard to vocabulary acquisition, mobile apps specially designed for second language vocabulary emerged at a rapid speed. Educational psychologists Ference Marton and Roger Säljö (1976) proposed the concept of deep learning in education which focuses on active exploration and deep understanding. Deep learning in educational psychology refers to a rational and critical mode of learning. Realizing this type of learning requires the active engagement of the learner, the ability to facilitate effective knowledge reconstruction, and the development of critical thinking skills. This learning approach stands in contrast to surface learning, which denotes a passive and mechanical method of learning. Guiding by the theory of deep learning, and a comprehensive literature review on L2 (Second Language) vocabulary and deep learning, this dissertation investigated higher education learners in Japan on their mobile learning situations and raised the research questions. This study aims to investigate university learners' acceptance of L2 vocabulary mobile learning by identifying the key factors that influence their adoption of this learning method. Essentially, it explores the extent to which current mobile applications contribute to the deep learning of English vocabulary. Moreover, the research seeks to understand university learners' perceptions of using mobile learning for L2 vocabulary acquisition, providing insights into their experiences and attitudes toward this educational approach.

The findings of this dissertation are presented as follows. Guided by the theory of deep learning, this dissertation establishes the objectives for English vocabulary mobile learning based on prominent taxonomies in education. This dissertation delved into the process of L2 vocabulary mobile learning and tries to provide objectives for L2 vocabulary learning from the perspective of deep learning approach. The objectives were established from three domains: Bloom's Taxonomy which focuses on the cognitive domain, Biggs' SOLO Taxonomy which emphasizes the thinking structure, and Krathwohl's Affective Taxonomy of the affective domain. Based on the abovementioned taxonomies, this dissertation tries to provide objectives for L2 vocabulary mobile learning accordingly.

This dissertation utilizes structural equation modeling (SEM) to examine the determinants that shape learners' acceptance and utilization of mobile learning technologies based on the Technology Acceptance

Model (TAM) in the context of English vocabulary learning. The dissertation finds that factors influencing learners' adoption of mobile learning, including subjective norms, perceived ease of use, and perceived usefulness. These factors all positively impact higher education learners' intention to adopt mobile technology for L2 vocabulary learning as well as their actual use of mobile learning. Perceived usefulness has a greater impact on learners' intention than perceived ease of use.

From the perspective of deep learning, this dissertation examines the extent to which current mobile vocabulary learning applications promote learners' deep vocabulary acquisition. This dissertation explored the participants' experiences with English and mobile learning of English vocabulary, the most frequently used vocabulary apps, the purposes and scenarios of mobile learning, as well as the advantages and prominent features of mobile learning. Regarding mobile learning of English vocabulary, the majority of participants spend less time on it, with mobile learning being viewed primarily as a supplementary method to traditional approaches. However, a small percentage are more frequent users, suggesting that while adoption is not widespread, some learners are highly reliant on it. Favored apps mentioned by participants fall into 5 categories: (a) Apps specifically designed for learning new words (like Mikan, Quizlet, Target's Friends); (b) Online translators as well as English; (c) Online course-based applications, such as Duolingo; (d) Video and audio applications: This category includes video-based applications such as YouTube, Ted Talk, NHK, and others; (e) Applications designed for a particular type of exam. Many participants appreciate the flexibility and convenience of mobile learning, particularly in utilizing fragmented time. However, traditional methods still dominate, and areas such as communication with other learners and detailed vocabulary explanations in mobile apps are not so satisfactory and need to be developed. Additionally, from the perspective of deep learning, the dissertation examined the extent to which current mobile vocabulary learning applications promote learners' deep vocabulary acquisition. The findings reveal that mobile learning has the most significant impact on active learning, followed by knowledge reconstruction, and finally, higher-order thinking. Participants express the highest level of satisfaction with vocabulary size, as they perceive that mobile learning significantly enhances their vocabulary expansion. This is followed by the presentation of learning content, the ability to use vocabulary and cooperative learning. The dimensions with lower ratings are long-term vocabulary retention and meta-lexical knowledge.

This dissertation adopts semi-structured interviews to collect qualitative evidence from participants regarding their experiences with mobile learning, learning strategies, challenges, and potential improvements. The qualitative findings from the interview provide detailed information on the participants' opinions. The method of thematic analysis was adopted to present findings from the following five parts: (a) the experience of mobile learning; (b) ignites deep learning with mobile technology; (c) mobile learning strategy, (d) the comparison between mobile learning and traditional learning; (e) the challenges and improvement. As for how to ignite deep learning of English vocabulary with mobile technology. Six sections were mentioned by the participants from the interview: (a) On-the-Go Learning: mobile learning provides learners with an on-the-go learning experience. Learning is no longer limited by space and has become incredibly adaptable and flexible. (b) Visualization and Audiolization: in terms of utilization, mobile apps provide learners with standard pronunciations of words and sentences, allow learners to record their own audio and correct learners' pronunciation, and access a wider range of listening materials. In terms of visualization, mobile learning apps are capable of generating pictures and videos to match the target word and to personalize them according to the learner's interests, thus increasing the learner's interest. (c) Gamification Elements: The gamification features of mobile learning will make the learning process more engaging and interesting.

Increasing the learners' motivation and in turn promoting their deep learning of vocabulary. (d) AI Elements: AI applications like ChatGPT are very beneficial regarding writing and speaking in English learning. AI language model apps are capable of correcting simple and basic grammar. (e) Intelligent Review System: Many participants noted that mobile learning offers more benefits in learning and review systems when compared to traditional methods. (f) Cooperative Learning: Mobile learning integrates both educational features and unique social elements.

The practical value of this dissertation lies in the following aspects. Providing multi-level learning objectives can assist educators and app developers in better designing and developing mobile learning applications to meet the needs of learners at different learning stages. This can help improve the effectiveness and learning outcomes of mobile learning applications, thus promoting the development of language learning and teaching. The objectives will serve as reference material if they want to design an app that will stimulate students' deep learning and foster a deep understanding of English vocabulary. The investigation of factors influencing learners' acceptance of L2 vocabulary mobile learning indicates that: the mobile apps that are designed for learning should be easy to operate, and the interface of apps needs to be simple and clear. When considering whether to adopt an app, perceived usefulness outweighs perceived ease of use according to the result of this study. These findings will shed new light on the overall design and purpose of L2 vocabulary mobile apps.

This dissertation served as a comprehensive investigation of the current status of Japanese university students' adopting mobile learning for English vocabulary. Tries to authentically reflect their mobile learning habits and preferences. This dissertation also investigates the extent to which mobile learning can facilitate the achievement of deep learning of English vocabulary. Through the presentation of the above-mentioned content, this dissertation can authentically reflect the advantages and shortcomings of current vocabulary mobile learning apps in promoting students' deep learning of English vocabulary.