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THE ROLE OF COMPUTERS IN LEARNING ENGLISH VOCABULARY

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Abstract

The increasing use of digital technology in education has created new opportunities for English vocabulary learning. This literature review examines the role of computers in supporting English vocabulary development, particularly among university students. The review synthesizes findings from five studies that investigated computer-based vocabulary learning support, computer-assisted glosses, visual technology, and technology-assisted vocabulary learning through meta-analytic research. The reviewed evidence indicates that computers can support vocabulary acquisition by providing learners with repeated exposure, accessible explanations, visual support, opportunities for practice, and flexible learning resources. The findings also suggest that technology-assisted vocabulary learning can contribute positively to learner engagement and vocabulary learning outcomes. However, the effectiveness of computer-based learning depends on how digital tools are integrated into instructional activities and whether they are connected to clear learning objectives. Overall, computers should be considered complementary pedagogical tools that can enhance both classroom-based and independent vocabulary learning rather than replace traditional instruction. The review highlights the potential of purposeful technology integration for supporting university students in developing their English vocabulary.

Keywords: computer-assisted language learning, English vocabulary learning, technology-assisted vocabulary learning, digital technology, EFL learners, university students

1. Introduction

Technology has become an important part of modern education, particularly in English language learning. Computers and other digital tools provide learners with different opportunities to develop their vocabulary through online dictionaries, educational websites, language-learning software, multimedia resources, and interactive activities. These technologies can make vocabulary learning more flexible and provide learners with opportunities for repeated practice.

Previous research has highlighted several benefits of technology-assisted vocabulary learning. Hasegawa et al. (2015) demonstrated that a computer-based vocabulary learning support system could help maintain learners' motivation and encourage continued vocabulary learning. Khezrlou et al. (2017) examined computer-assisted glosses and found that computer-supported learning conditions could facilitate vocabulary acquisition. Similarly, Kurt and Bensen (2017) showed that visual technology could contribute to EFL learners' vocabulary development. More broadly, two meta-analyses have reported positive effects of technology-assisted vocabulary learning (Hao et al., 2021; Yu & Trainin, 2022).

Although previous studies provide evidence of the benefits of technology-assisted vocabulary learning, the findings come from different types of digital tools and learning approaches. Therefore, reviewing these studies together can provide a clearer understanding of how computers and digital technologies support English vocabulary learning.

This literature review aims to investigate the role of computers in learning English vocabulary among university students. It addresses the following research question: How do computers help university students improve their English vocabulary learning?

2. Literature Review

2.1. Computer-Assisted Vocabulary Learning

Hasegawa et al. (2015) examined the potential of a computer-based vocabulary learning support system to facilitate English vocabulary learning. An important aspect of their study is that computer technology was considered not simply as a tool for presenting new words, but also as a means of supporting learners' continued engagement in vocabulary learning. The findings indicated that computer-based support could help maintain learners' motivation and encourage them to continue learning vocabulary (Hasegawa et al., 2015).

Khezrlou et al. (2017) also investigated the potential of computer-assisted vocabulary learning, focusing specifically on computer-assisted glosses. Their findings suggested that computer-based glosses could support learners in understanding the meanings of unfamiliar words and facilitate vocabulary acquisition. This indicates that the role of computers in vocabulary learning is not limited to providing practice activities; computers can also provide learners with immediate support for understanding new lexical items (Khezrlou et al., 2017).

Taken together, these two studies suggest that computer-assisted vocabulary learning can serve at least two important functions: supporting the learning process and facilitating vocabulary acquisition. However, the effectiveness of computer technology appears to depend not simply on its availability but also on how it is integrated into the learning process and what type of support it provides.

2.2. Multimedia and Visual Technologies in Vocabulary Learning

Another important aspect of computer-assisted vocabulary learning is the use of multimedia and visual resources. Kurt and Bensen (2017) investigated the potential of visual technology for developing vocabulary among EFL learners. Their findings indicated that visual technology could contribute to vocabulary development by providing learners with additional visual support during the learning process (Kurt & Bensen, 2017).

The findings of this study are consistent with the broader evidence from Hasegawa et al. (2015) and Khezrlou et al. (2017), as they demonstrate that the value

of technology lies not only in the technology itself but also in the learning opportunities it creates. Digital resources can provide learners with additional exposure to vocabulary, opportunities for practice, and contextual or visual information that may support understanding and retention.

From this perspective, computers can extend traditional vocabulary learning by allowing learners to encounter and practise words in different formats. Visual materials, digital glosses, and computer-based activities can therefore provide complementary forms of support for vocabulary development. Such resources may be particularly useful when they are integrated into purposeful learning activities rather than used simply as technological additions to existing instruction.

2.3. Overall Evidence from Meta-Analyses

The positive findings reported in individual studies are further supported by broader evidence from meta-analyses. Hao et al. (2021) conducted a meta-analysis of technology-assisted vocabulary learning and examined the overall effects reported across previous empirical studies. Their findings provided evidence that technology-assisted approaches can have positive effects on vocabulary learning, supporting the results reported in individual classroom-based studies (Hao et al., 2021).

Similarly, Yu and Trainin (2022) synthesized research on technology-assisted vocabulary learning through a meta-analytic approach. Their findings also indicated that digital technologies can contribute positively to vocabulary learning outcomes. The importance of these meta-analyses is that they provide evidence based on multiple empirical studies rather than relying on the results of a single learning context or technological tool (Yu & Trainin, 2022).

Overall, the reviewed literature presents a consistent pattern. Hasegawa et al. (2015), Khezrlou et al. (2017), and Kurt and Bensen (2017) demonstrate how specific computer-based, glossing, and visual technologies can support vocabulary learning, while Hao et al. (2021) and Yu and Trainin (2022) provide broader

evidence of the effectiveness of technology-assisted vocabulary learning. Across these studies, computers and digital technologies appear to support vocabulary learning through increased exposure, learner support, visualisation, practice opportunities, and engagement.

However, the reviewed studies differ in terms of the technologies used, learning conditions, and instructional approaches. Therefore, further attention is needed to understand how computers can most effectively support English vocabulary learning specifically among university students. This issue provides the basis for examining the role of computers in English vocabulary learning in the present review.

3. Discussion

The reviewed studies provide consistent evidence that computers and other digital technologies can play a supportive role in English vocabulary learning. However, the findings also suggest that the effectiveness of technology depends on how it is used within the learning process. Rather than functioning as a replacement for learning activities, computers can provide additional opportunities for exposure, practice, explanation, and reinforcement.

One important benefit identified across the studies is increased learner support. Hasegawa et al. (2015) showed that computer-based support could contribute to continued engagement in vocabulary learning, while Khezrlou et al. (2017) demonstrated the value of computer-assisted glosses in supporting learners' understanding of unfamiliar vocabulary. These findings suggest that computers can reduce some of the difficulties associated with independent vocabulary learning by providing learners with accessible support when they encounter new words.

Another important finding concerns the use of visual and multimedia resources. Kurt and Bensen (2017) demonstrated the potential of visual technology to support vocabulary development. When vocabulary is presented through visual information, learners may have additional ways of connecting new lexical items with

their meanings. Therefore, computer-based vocabulary learning can offer forms of representation that are not always available through traditional text-based learning.

The evidence from the two meta-analyses strengthens these observations. Hao et al. (2021) and Yu and Trainin (2022) both reported positive overall effects of technology-assisted vocabulary learning. This broader evidence indicates that the benefits identified in individual studies are not limited to one particular technological tool or learning environment. At the same time, the variation among the studies suggests that technology should not be viewed as automatically effective. Its contribution depends on the quality of the learning activities, the type of technological support provided, and the extent to which the technology is connected to clear vocabulary-learning objectives.

For university students, these findings are particularly relevant because computers can support more flexible and independent approaches to vocabulary learning. Students can access digital resources, review vocabulary repeatedly, and use different forms of support according to their learning needs. Such flexibility may be valuable in higher education, where students are often expected to take greater responsibility for their own learning.

Overall, the reviewed literature suggests that computers are most useful when they are integrated purposefully into vocabulary instruction and independent learning. The evidence does not indicate that computers should replace teachers or traditional learning activities. Instead, computers can complement classroom instruction by increasing opportunities for practice, providing additional explanations and visual support, and encouraging learners to engage with vocabulary beyond the classroom. This perspective highlights the importance of using technology as a pedagogical tool rather than treating technology itself as the main objective of vocabulary instruction.

4. Conclusion

This literature review examined the role of computers in English vocabulary learning by reviewing five studies focusing on computer-based and technology-assisted approaches. Overall, the reviewed evidence indicates that computers can provide meaningful support for vocabulary development. They can facilitate vocabulary acquisition, provide learners with additional opportunities for practice and exposure, support understanding through computer-assisted glosses and visual resources, and contribute to learner engagement.

The findings of Hasegawa et al. (2015), Khezrlou et al. (2017), and Kurt and Bensen (2017) demonstrate the potential of specific computer-based and visual technologies to support vocabulary learning. The broader evidence provided by Hao et al. (2021) and Yu and Trainin (2022) further supports the positive contribution of technology-assisted approaches to vocabulary learning.

However, the reviewed literature also suggests that the effectiveness of computers depends on their pedagogical use. Technology alone does not guarantee successful vocabulary learning. Computers are more valuable when digital tools and resources are connected to clear learning objectives and provide learners with meaningful opportunities for practice, repetition, and interaction with new vocabulary.

Therefore, computers should be viewed as complementary tools that can enhance rather than replace traditional vocabulary instruction. For university students, their flexibility and accessibility can provide additional opportunities for both classroom-based and independent vocabulary learning. Future research could further examine which types of computer-based activities are most effective for different vocabulary-learning needs and learning contexts.

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