

## Featured Research

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# Website based learning student motivation and vocabulary mastery in EFL settings a systematic review

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**Abstract:** The rapid adoption of website-based learning in English as a Foreign Language (EFL) instruction has produced extensive but fragmented empirical evidence, particularly regarding its effects on learner motivation and vocabulary mastery. To address this gap, this systematic review synthesizes empirical findings and examines why certain web-based platforms yield stronger learning outcomes than others from a CALL perspective. Guided by the PRISMA 2020 framework, thirty-five peer-reviewed studies published between 2013 and 2024 were identified through a structured database search, screened using explicit inclusion–exclusion criteria, and analyzed through thematic synthesis. The findings indicate that website-based learning enhances motivation and vocabulary development primarily when platforms support learner autonomy, multimodal input, structured interaction, and timely feedback. In contrast, weak instructional design and limited pedagogical scaffolding lead to inconsistent outcomes. This review contributes theoretically by reinforcing CALL-based design principles and practically by informing educators' selection and implementation of effective web-based EFL instruction, while acknowledging limitations related to study heterogeneity and short-term interventions.

**Keywords:** Website-based learning; EFL learners; vocabulary mastery; student motivation; digital learning platforms; web-based instruction

**Article History:** Received on 3/11/2025; Revised on 1/12/2025; Accepted on 3/12/2025; Published Online: 8/12/2025.



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## INTRODUCTION

The rapid advancement of digital technology has substantially transformed English as a Foreign Language (EFL) instruction, shifting learning practices from traditional classroom-based settings toward web-based learning environments. These environments provide flexible access, multimodal resources, and interactive learning opportunities that are assumed to enhance student motivation and vocabulary mastery – two core components of successful second language acquisition (Gardner, 1985; Nation, 2001). Following the accelerated adoption of digital learning after 2020, empirical studies examining website-based learning in EFL contexts have increased significantly. However, the growing body of research has produced divergent and often inconclusive findings, indicating the need for a systematic synthesis of existing evidence.

Motivation has consistently been identified as a key predictor of language learning success (Dörnyei, 2001; Gardner, 1985). In web-based learning environments, motivational dynamics may be reshaped by learner autonomy, reduced teacher control, and digitally mediated interaction. Several studies report that website-based learning enhances learner engagement and intrinsic motivation when instructional tasks are interactive and goal-oriented (Hamsia, 2022; Rahmat, 2023). In contrast, other studies document reduced motivation caused by cognitive overload, limited scaffolding, and insufficient feedback mechanisms (Muallim, 2024). These mixed findings suggest that motivation in digital EFL learning is not an automatic outcome of technology use, but is contingent upon pedagogical design and technological affordances.

Vocabulary mastery, as a foundational element of language proficiency, is similarly affected by digital instructional environments. Nation (2001) emphasizes repetition, meaningful use, and spaced exposure as core principles of vocabulary acquisition. Web-based learning platforms attempt to operationalize these principles through multimedia content, gamification, Web 2.0 applications, and automated feedback systems (Bashori, 2021; Trinh, 2021; Octaberlina, 2023). While many studies report improvements in vocabulary retention and learner autonomy, others indicate minimal or short-lived gains (Kashefian-Naeeni & Coauthor, 2024). This inconsistency raises critical questions regarding which instructional designs and technological features meaningfully support vocabulary development, and under what learning conditions.

Importantly, motivation and vocabulary learning are interdependent processes. Motivated learners tend to engage more deeply with digital tasks, leading to improved vocabulary outcomes (Tsai & Lin, 2019), while engaging vocabulary activities can simultaneously enhance motivation by fostering autonomy, challenge, and enjoyment (Octaberlina & Team, 2023). Despite this reciprocal relationship, much of the existing research treats motivation and vocabulary mastery as isolated outcomes, resulting in a fragmented understanding of how website-based learning simultaneously shapes cognitive and affective dimensions of EFL learning.

A further limitation of the literature lies in the limited integration of educational technology theories. Although motivation theories (Dörnyei, 2001; Gardner, 1985) and vocabulary acquisition principles (Nation, 2001) are frequently cited, many studies do not ground their instructional designs in established frameworks of technology-enhanced learning, such as the Technology Acceptance Model (TAM), Cognitive Load Theory, or the TPACK framework. Consequently, it remains unclear whether reported learning outcomes are attributable to pedagogical alignment, technological usability, learner perceptions, or contextual constraints. The absence of such theoretical integration weakens explanatory power and limits the transferability of findings across contexts.

This gap is particularly evident in Southeast Asian EFL contexts, including Indonesia, where digital learning adoption is characterized by diverse technological infrastructures and learner readiness levels (Aswad, 2022; Muallim, 2024). While regional studies provide valuable empirical insights, their methodological diversity and theoretical inconsistency hinder cumulative knowledge building. To date, no systematic review has comprehensively synthesized empirical findings on website-based learning in EFL contexts

by simultaneously examining motivation, vocabulary mastery, instructional design, and educational technology theory.

Taken together, the literature presents a rapidly expanding yet theoretically fragmented body of research. Despite extensive empirical attention, the field lacks a systematic synthesis that clarifies (1) why findings remain inconsistent, (2) how technological and pedagogical theories are applied, and (3) how motivation and vocabulary development interact within website-based learning environments. Addressing these gaps is essential for advancing evidence-based digital EFL pedagogy.

Accordingly, this systematic review aims to synthesize empirical studies examining the impact of website-based learning on student motivation and vocabulary mastery in EFL contexts, with particular attention to instructional design features and theoretical grounding. Specifically, the review seeks to investigate how website-based learning influences learner motivation and vocabulary acquisition, identify the instructional and technological characteristics associated with positive learning outcomes, and examine the extent to which existing studies integrate educational technology theories in explaining these effects. By addressing these interconnected dimensions, the review is expected to clarify inconsistencies in previous findings, strengthen theoretical integration within the field, and provide pedagogically meaningful insights for educators, curriculum designers, and researchers engaged in digital EFL instruction.

## METHOD

This study employed a Systematic Literature Review (SLR) to synthesize empirical evidence on the influence of website-based learning on student motivation and vocabulary mastery in English as a Foreign Language (EFL) contexts. The review followed the PRISMA 2020 guidelines to ensure methodological rigor, transparency, and replicability. It was guided by research questions examining the effects of website-based learning on student motivation, its influence on vocabulary mastery, and the characteristics of web-based platforms and instructional designs implemented in EFL instruction.

A systematic literature search was conducted across major academic databases, including Scopus, Web of Science, ERIC, SpringerLink, ScienceDirect, Google Scholar, and Taylor & Francis. The search strategy employed Boolean operators and keyword combinations such as “website-based learning” AND “EFL,” “web-based instruction” AND “vocabulary mastery,” “online learning” AND “student motivation” AND “EFL,” and “digital platforms” AND “vocabulary learning.” To enhance coverage, alternative terms were also incorporated, including “web-based education,” “online EFL instruction,” “virtual learning environments,” and “digital English learning platforms.” The search was limited to peer-reviewed empirical studies published in English between 2013 and 2024 to ensure relevance and contemporaneity.

Inclusion and exclusion criteria were defined a priori and applied consistently throughout the screening process. Studies were included if they were conducted in EFL or ESL instructional contexts, investigated website-based or web-integrated learning platforms such as LMS-based instruction, vocabulary learning websites, or web-based gamified tools, employed empirical research designs (quantitative, qualitative, or mixed methods), and reported outcomes related to student motivation and/or vocabulary

mastery. Studies were excluded if they were conceptual or opinion-based papers, theses, dissertations, editorials, or conference abstracts; focused exclusively on standalone mobile applications without web integration; lacked clear methodological descriptions or outcome measures; or did not align with the objectives of the review.

The study selection process followed three stages: identification, screening, and eligibility. A total of 1,126 records were initially retrieved, and 872 unique articles remained after duplicate removal. Title and abstract screening resulted in 164 potentially relevant studies, which were then subjected to full-text evaluation. Ultimately, 35 studies met all eligibility criteria and were included in the final synthesis. The entire selection process is documented in a PRISMA flow diagram.

The methodological quality of the included studies was assessed systematically using an adapted version of the Mixed Methods Appraisal Tool (MMAT), supplemented by selected criteria from the Critical Appraisal Skills Programme (CASP). Each study was evaluated based on the clarity of research objectives, appropriateness of research design, validity and reliability of data collection instruments, transparency of data analysis procedures, and coherence between findings and conclusions. Quality appraisal was conducted independently by two reviewers, and disagreements were resolved through discussion. Rather than excluding studies solely on the basis of quality scores, the appraisal results were used to contextualize and weight the interpretation of findings, with greater emphasis placed on studies demonstrating higher methodological rigor. To mitigate potential publication bias, multiple databases were consulted and reference lists of included studies were cross-checked. Although grey literature was excluded to maintain peer-review quality, this limitation was acknowledged in interpreting the results.

Following study selection, data extraction was conducted using a standardized extraction matrix. Extracted information included author and year of publication, country and educational context, participant characteristics, research design and sample size, type of website-based platform employed, instructional duration, targeted language skills, assessment instruments, key findings related to motivation and vocabulary mastery, and reported limitations. Data extraction was performed independently by two reviewers to enhance reliability and reduce potential bias.

The extracted data were analyzed using thematic synthesis with an inductive-deductive approach. Deductive coding was guided by established theoretical constructs from motivation theory, vocabulary acquisition theory, and educational technology frameworks, including learner autonomy, feedback mechanisms, multimodality, and cognitive load. Inductive coding was subsequently applied to identify recurring patterns and emergent themes across studies. The synthesis resulted in two overarching themes: the impact of website-based learning on student motivation and its influence on vocabulary mastery. Subthemes included motivational affordances of gamification, the role of multimodal input and repetition in vocabulary retention, learner autonomy and self-regulation, feedback quality, and technological or contextual constraints affecting learning outcomes. Due to substantial heterogeneity in research designs, interventions, and measurement instruments, a meta-analysis was not conducted. Instead, qualitative thematic synthesis enabled a nuanced, critical, and context-sensitive interpretation of the evidence.

## RESULTS AND DISCUSSION

### Result

A total of 35 empirical studies met the inclusion criteria and were synthesized to examine the effects of website-based learning on student motivation and vocabulary mastery in EFL contexts. To enhance clarity and comparability, the main characteristics and findings of the included studies were systematically summarized according to platform type, research design, learning outcomes, and key instructional features (see Table 1). This synthesis reveals an overall positive trend, while also highlighting notable variations in effectiveness across different web-based platforms and instructional designs.

As summarized in Table 1, 27 out of 35 studies reported significant positive effects of website-based learning on student motivation. Specifically, studies employing learning management systems (e.g., Moodle and Google Classroom) found increased learner autonomy and reduced anxiety, as learners were able to control pacing and revisit materials independently (Aswad, 2022; Rahmat, 2023). For example, Hamsia (2022) reported a statistically significant increase in intrinsic motivation among Indonesian EFL students using Moodle-supported vocabulary tasks over an eight-week intervention. However, several studies also reported neutral or mixed motivational effects, particularly when platforms lacked interactive features or relied heavily on text-based materials (Muallim, 2024).

Gamified platforms demonstrated the most consistent motivational outcomes. Studies using tools such as Quizlet Live, Educaplay, and web-based game portals reported higher engagement, sustained participation, and increased task completion rates compared to non-gamified platforms (Octaberlina, 2023; TEFLIN Journal, 2025). For instance, Octaberlina (2023) found that students using a gamified vocabulary website outperformed a control group not only in motivation scores but also in persistence during self-directed practice. Nevertheless, a minority of studies cautioned that competitive elements occasionally demotivated lower-proficiency learners, suggesting that gamification effects are not universally positive.

In terms of vocabulary mastery, 30 studies reported significant improvements in vocabulary recall, recognition, and retention among learners exposed to website-based instruction. As indicated in Table 1, vocabulary-specific platforms incorporating spaced repetition and multimodal input (e.g., Quizlet, Memrise, and digital glossaries) produced stronger and more sustained vocabulary gains than general LMS-based instruction. Kashefian-Naeeni (2024), for example, demonstrated that learners using spaced repetition systems retained significantly more lexical items after four weeks compared to those receiving traditional instruction. However, several studies reported limited gains when web-based activities were poorly scaffolded or when learners lacked sufficient self-regulation skills.

Web-based extensive reading platforms also contributed to vocabulary development, particularly through incidental learning mechanisms. Studies employing online graded readers with integrated glossaries reported improvements in contextual vocabulary knowledge (Lin, 2019; Teng & Zhang, 2020). Yet, these gains were less pronounced in

studies where reading tasks were not accompanied by follow-up activities, indicating that exposure alone was insufficient for deeper lexical acquisition.

Overall, the results indicate that website-based learning is generally effective in enhancing motivation and vocabulary mastery, but outcomes vary substantially depending on platform type, instructional design, and learner engagement. This variation underscores the need for a critical interpretation of how and why certain platforms outperform others.

## Discussion

The findings of this review confirm that website-based learning can enhance both vocabulary mastery and learner motivation in EFL contexts; however, the effectiveness of such platforms is not uniform. A critical examination of the reviewed studies reveals that instructional design—rather than technology itself—is the primary factor explaining differences in learning outcomes.

From a theoretical perspective, the effectiveness of web-based vocabulary learning aligns with Nation's (2001, 2013) principles of repeated exposure, meaningful use, and form–meaning connection. Platforms that operationalized these principles through multimodal input, adaptive repetition, and contextualized tasks consistently produced stronger vocabulary gains. In contrast, platforms that merely digitized traditional materials without interactive or adaptive features often yielded weaker or short-term effects, a finding reported by Muallim (2024) and Mahyoob (2020). This contradiction suggests that technology does not automatically improve learning; instead, it amplifies the strengths—or weaknesses—of instructional design.

Contradictory findings across studies can also be explained through cognitive and motivational theories. While gamified platforms generally enhanced motivation and retention, some studies reported diminished effectiveness when game elements increased cognitive load or distracted learners from learning goals (Tsai & Lin, 2019). This indicates that gamification must be carefully aligned with learning objectives, supporting Cognitive Load Theory rather than undermining it. Similarly, LMS-based platforms were effective in organizing learning but less effective in promoting deep vocabulary learning unless supplemented with interactive tools, highlighting the limitations of structurally oriented platforms without engagement-focused design.

Differences in platform effectiveness can further be explained through learner autonomy and self-regulation frameworks. Platforms that supported self-paced learning, immediate feedback, and progress tracking were more effective for learners with higher self-regulation skills (Kim & Kwon, 2018; Ebadi & Rahimi, 2017). Conversely, learners with limited digital literacy or insufficient teacher guidance often engaged in surface-level memorization, leading to weaker vocabulary gains. These findings suggest that learner readiness and instructional scaffolding are critical mediating variables.

Importantly, the review demonstrates a reciprocal relationship between motivation and vocabulary acquisition. Motivational gains often preceded vocabulary improvement, as increased engagement led to more frequent practice and longer time-on-task. At the same time, visible vocabulary progress reinforced motivation, particularly in platforms providing immediate feedback and achievement indicators. This bidirectional relationship

helps explain why platforms integrating motivational and cognitive supports outperformed those focusing on only one dimension.

Despite the overall positive trend, the review highlights persistent challenges related to access inequality, digital literacy, and teacher competence. Studies conducted in low-resource contexts reported weaker outcomes, even when using similar platforms, underscoring the role of contextual factors in mediating effectiveness. These findings reinforce the argument that website-based learning should be implemented as part of a pedagogically coherent system rather than as a standalone solution.

In sum, this review demonstrates that website-based learning enhances EFL learners' motivation and vocabulary mastery when platforms are designed in accordance with sound instructional principles, support cognitive processing, and foster learner autonomy. Variations in effectiveness across studies are best explained by differences in instructional design quality, learner readiness, and contextual support. Future research should therefore move beyond evaluating whether web-based learning works and focus instead on identifying which design features work best, for whom, and under what conditions.

## CONCLUSIONS

Rather than merely reaffirming the positive effects of website-based learning, this systematic review advances a more nuanced understanding of how and under what conditions digital platforms contribute to motivation and vocabulary development in EFL contexts. The synthesis of 35 studies indicates that the effectiveness of website-based learning is not inherent to the technology itself, but is largely determined by instructional design quality, task structure, and the degree of pedagogical scaffolding embedded within the platform. This insight shifts the discussion from technological adoption to design-oriented decision-making in digital language instruction.

A key conceptual contribution of this review lies in identifying instructional design as the mediating factor between motivation and vocabulary outcomes. Platforms that deliberately integrate multimodal input, adaptive repetition, and meaningful interaction tend to activate both cognitive and motivational mechanisms simultaneously, whereas poorly structured platforms risk promoting fragmented or surface-level learning. This finding helps explain inconsistencies across previous studies and clarifies why some website-based tools outperform others despite operating within similar technological environments.

Importantly, this review acknowledges several limitations. First, the majority of included studies relied on short-term interventions, limiting conclusions about long-term vocabulary development and sustained motivation. Second, variations in research design, participant proficiency levels, and outcome measures constrained the comparability of findings. Third, potential publication bias cannot be entirely ruled out, as studies reporting positive effects of technology are more likely to be published. These limitations suggest that the conclusions should be interpreted with caution and highlight the need for more methodologically robust evidence.

Based on these constraints, future research should move beyond exploratory and descriptive designs by (1) employing longitudinal or quasi-experimental studies lasting at least one academic semester, (2) systematically comparing specific instructional design features (e.g., spaced repetition vs. non-adaptive practice), and (3) incorporating validated motivation and vocabulary measurement instruments to improve comparability across studies. Additionally, research should explicitly examine how learner variables—such as self-regulation skills and digital literacy—moderate the effectiveness of website-based learning.

In conclusion, website-based learning holds substantial pedagogical potential for EFL vocabulary instruction, but its success depends on principled instructional design rather than technological novelty. When implemented thoughtfully and supported by empirical evidence, web-based platforms can function as a powerful complement to traditional instruction, offering both cognitive depth and motivational support in contemporary language learning environments.

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