

Students' Motivation toward the Use of Alef Platform for Secondary School EFL Vocabulary Learning: A Mixed-Methods Study

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ABSTRACT

This study aims to describe students' motivation toward the use of the Alef Platform, an AI-based adaptive learning system, in English vocabulary learning. Vocabulary mastery is a fundamental yet often challenging aspect of English learning for secondary school students, and technology-enhanced learning platforms are increasingly used to address low learning motivation. This research employed a convergent mixed-methods design, combining a validated 24-item Likert-scale questionnaire administered to 70 students with semi-structured interviews and classroom observations involving nine purposively selected students. The questionnaire measured three motivational dimensions: intrinsic motivation, extrinsic motivation, and perceived usefulness. The results show that students' overall motivation toward the use of the Alef Platform falls into the Very High category ($M = 4.20$; Very High = 4.21–5.00 on the study's 1.00–5.00 five-point interpretive scale), with intrinsic motivation as the strongest dimension ($M = 4.28$), followed by perceived usefulness ($M = 4.24$) and extrinsic motivation ($M = 4.09$). Qualitative findings reveal that students experienced enjoyment, curiosity, and a sense of achievement while using the platform, while teacher facilitation, grades, and the platform's reward system remained meaningful sources of extrinsic motivation; these qualitative findings converge with and help explain the quantitative results, particularly the comparatively lower extrinsic motivation score. The study concludes that adaptive digital platforms such as Alef are associated with higher motivation in EFL vocabulary learning when implemented consistently and supported by active teacher facilitation.

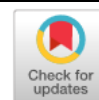
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INTRODUCTION

Advances in digital technology have brought significant change to education systems worldwide, including English language teaching (Juhana et al., 2026; Wahyudin et al., 2025). Within this transformation, vocabulary remains fundamental to the development of the four major language skills: listening, speaking, reading, and writing. However, learning vocabulary requires more than recognising word meanings because students must retain, retrieve, and use new words appropriately across different communicative contexts. Preliminary classroom observations at the research site indicated that many students had difficulty retaining and consistently using newly learned vocabulary, which subsequently affected their reading comprehension and oral communication in the EFL classroom. These challenges indicate the need for learning resources that provide repeated exposure, meaningful practice, and sustained learner engagement.

Beyond cognitive factors, motivation is widely recognized as a decisive factor in students' success in language learning. Motivation determines the level of students' engagement, persistence, and effort throughout the learning process (Bandhu et al., 2024). In vocabulary learning, motivated students are more likely to practise unfamiliar words, respond constructively to errors, and continue learning despite difficulty. In technology-enhanced learning environments, motivation may also be influenced by how students perceive the

usefulness, accessibility, interactivity, and feedback features of the technology. Consequently, investigating students' motivation toward a particular platform requires attention to both their internal and external reasons for learning and their evaluation of the platform's educational value (Surayya & F., 2025).

In this study, students' motivation is conceptualised through three related but distinct dimensions. Intrinsic and extrinsic motivation follow the distinction proposed by Self-Determination Theory (Bandhu et al., 2024), in which intrinsic motivation reflects engagement driven by inherent enjoyment, curiosity, and satisfaction, whereas extrinsic motivation reflects engagement driven by external factors such as grades, rewards, and teacher direction. Perceived usefulness, meanwhile, draws on the Technology Acceptance Model (Pandita & Kiran, 2023), which holds that users' belief in a technology's usefulness is a key determinant of their willingness to adopt and sustain its use. Combining these perspectives enables the study to examine not only whether students are motivated but also whether their motivation arises from enjoyment, external encouragement, or beliefs about the platform's contribution to vocabulary learning. Thus, Self-Determination Theory and the Technology Acceptance Model provide complementary rather than competing explanations of students' motivation toward the Alef Platform.

One adaptive learning platform implemented at the research site is the Alef Platform. The platform provides interactive content, adaptive exercises, immediate feedback, gamified features, and tools for monitoring students' learning progress. In vocabulary learning specifically, Alef allows students to encounter, practise, and review target words through multimodal and interactive activities (Surayya & F., 2025). These features may make vocabulary practice more engaging and responsive to individual learning progress than conventional exercises alone. Nevertheless, the availability of such technological features does not automatically ensure that all students will perceive them as motivating or educationally useful.

Several prior studies have reported positive outcomes associated with using the Alef Platform in English language learning. (Surayya & F., 2025), through a qualitative phenomenological study involving ten Grade 9 students in North Sumatra, found that Alef's gamified and multimodal features supported students' motivation and vocabulary retention. Their findings also identified technical difficulties and limited teacher interaction as factors that could restrict the platform's effectiveness. Similarly, (Rifa'i, 2025) reported improvements in learning motivation, vocabulary mastery, and English communication following the implementation of Alef at an Indonesian Islamic senior secondary school. Although these studies demonstrate the potential of Alef in the Indonesian EFL context, they approached motivation primarily as part of students' general experiences or as one indicator of the platform's overall effectiveness.

Existing research therefore leaves several important questions unresolved. First, students' motivation toward Alef has not been sufficiently differentiated into intrinsic motivation, extrinsic motivation, and perceived usefulness, making it difficult to determine which motivational mechanism is most prominent. Second, previous Alef studies have not systematically connected Self-Determination Theory with the Technology Acceptance Model to explain both students' reasons for engagement and their evaluation of the platform's educational value. Third, limited attention has been given to whether students' questionnaire responses are consistent with their reported experiences and observable classroom behaviours. A convergent mixed-methods investigation is therefore needed to generate theoretically differentiated, empirically integrated, and context-sensitive evidence about students' motivation toward Alef-assisted vocabulary learning.

Against this background, the present study addresses a conceptual, methodological, and contextual gap in the existing literature. Conceptually, it integrates intrinsic motivation and extrinsic motivation from Self-Determination Theory with perceived usefulness from the Technology Acceptance Model. Methodologically, it moves beyond either general effectiveness measurement or students' self-reported perceptions by integrating questionnaire results, semi-structured interviews, and classroom observations within a convergent mixed-

methods design. Contextually, it provides evidence from junior secondary EFL students in Bengkulu Province, a setting that remains underrepresented in research on Alef-assisted English vocabulary learning. The novelty of this study therefore lies not merely in examining whether students are motivated to use Alef, but in identifying the relative strength of different motivational dimensions, explaining the experiences underlying those dimensions, and determining the extent to which numerical and qualitative evidence converge or diverge. Accordingly, the study addresses the following research questions: (1) What is the overall level and relative pattern of students' motivation toward the use of the Alef Platform for EFL vocabulary learning across intrinsic motivation, extrinsic motivation, and perceived usefulness? (2) How do students perceive and experience the motivational affordances and challenges of using the Alef Platform for vocabulary learning? and (3) In what ways do the interview and classroom observation findings converge with, complement, or diverge from the quantitative questionnaire results?

METHOD

Research Design

This study employed a convergent mixed-methods design, in which the quantitative and qualitative strands were given approximately equal priority, conducted within the same data-collection period, analysed independently, and integrated after the separate analyses had been completed (Creswell & Plano Clark, 2018). This design was selected because the study sought both to quantify students' levels of motivation across intrinsic motivation, extrinsic motivation, and perceived usefulness and to understand how students experienced and interpreted the use of the Alef Platform in vocabulary learning. The questionnaire provided a broad numerical description of students' motivational profiles, whereas the interviews and classroom observations provided contextual explanations of the experiences and behaviours underlying those profiles. Neither type of evidence was considered sufficient on its own to address the research objectives comprehensively.

The quantitative and qualitative components were conducted concurrently in the sense that both were implemented during the same fieldwork period rather than in two sequential research phases. However, the two strands remained methodologically independent during data collection and initial analysis. The questionnaire responses were not used to modify the interview questions, and the emerging interview findings were not used to alter the questionnaire or its analysis. Quantitative data were analysed statistically, while interview and observation data were analysed thematically. The two sets of findings were subsequently merged through a joint display and side-by-side comparison to identify convergence, complementarity, and divergence. Thus, the qualitative strand was used to elaborate and contextualise the quantitative patterns, while the quantitative strand indicated the prevalence and relative strength of the three motivational dimensions.

Research Participants and Context

The study was conducted during the 2025/2026 academic year at an anonymised junior secondary school in Bengkulu Province, Indonesia. English was taught as a foreign language, and the Alef Platform had been integrated into regular English instruction, including vocabulary-learning activities, for approximately [state the duration, for example, one semester]. At the time of the study, students used the platform approximately [state the frequency] during English lessons. Therefore, the participants had prior experience using its vocabulary exercises, immediate-feedback functions, and learning-progress features before participating in the study.

The target population consisted of 189 Grade [VII/VIII/IX] students distributed across six intact classes. Cluster random sampling was used because the students were administratively organised into existing classes and the Alef-assisted instruction was delivered at the class level. The six classes were first listed, and two classes were randomly selected using [state the actual randomisation procedure, such as a computer-generated random selection or lottery]. The selected classes comprised 70 participating students, all of whom completed the questionnaire.

The participants were approximately [age range] years old and included [number] male and [number] female students. Their previous English-learning background was broadly comparable because they followed the same school curriculum, received the same level of English instruction, and had been exposed to the Alef Platform within the same instructional programme.

Nine students from the two selected classes were purposively recruited for individual interviews using maximum-variation sampling. Three students represented relatively high, three represented moderates, and three represented relatively low motivational profiles. These preliminary profiles were identified before the questionnaire findings were analysed, based on the English teacher's prior records and observations of students' participation, persistence, task completion, and engagement during Alef-assisted vocabulary lessons [adjust these criteria to reflect the actual selection procedure]. This independent selection procedure allowed the qualitative data to be collected concurrently with the questionnaire data rather than making the qualitative sampling dependent on the quantitative results. All 70 students in the two selected classes were included in the classroom observations, while the nine purposively selected students participated in the interviews.

Research Instruments

Three instruments were used to collect complementary evidence about students' motivation toward Alef-assisted vocabulary learning. The quantitative instrument was a 24-item questionnaire using a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). It measured three dimensions: intrinsic motivation (8 items), extrinsic motivation (8 items), and perceived usefulness (8 items). The intrinsic- and extrinsic-motivation items were adapted from motivational measures reported by Luele (2023), whereas the perceived-usefulness items were adapted from instruments grounded in the Technology Acceptance Model, including (Pandita & Kiran, 2023). The wording of the items was contextualised to students' use of the Alef Platform for English vocabulary learning.

The second instrument was a semi-structured interview guide containing 12 open-ended questions. The questions explored students' enjoyment and interest, reasons for using the platform, perceptions of its usefulness, experiences with feedback and rewards, difficulties encountered, and the role of teacher support. Follow-up questions were used when clarification or further explanation was required. The third instrument was a classroom observation checklist containing 24 behavioural indicators related to students' engagement during Alef-assisted vocabulary activities, including attention, persistence, voluntary participation, response to feedback, task completion, help-seeking, and observable affective responses. Field notes were also recorded to capture contextual and non-verbal information that could not be represented adequately by checklist scores.

Procedures

Data collection was conducted during [state the month and duration] and followed three stages. First, formal permission was obtained from the school principal, and the researcher coordinated the research schedule with the English teacher. Because the participants were minors, written parental or guardian consent and students' assent were obtained before data collection. Participants were informed that their involvement was voluntary, their identities would remain confidential, and they could withdraw without academic consequences. Codes rather than students' names were used in the research database and report.

Second, the quantitative and qualitative data were collected within the same fieldwork period. The questionnaire was administered in printed form to all 70 students in the two selected classes during a regular English lesson and required approximately 30–35 minutes to complete. During the same data-collection period, the researcher observed two Alef-assisted vocabulary-learning sessions in each selected class. The observation checklist and field notes were used to document students' behavioural engagement, participation, persistence, and responses to the platform's features.

The nine purposively selected students were interviewed individually in a quiet room at the school. Each interview lasted approximately 40–50 minutes and was conducted in Indonesian language to allow the students to express their experiences clearly. With their consent, the interviews were audio-recorded and transcribed verbatim. Relevant excerpts were subsequently translated into English and checked against the original transcripts to preserve their intended meaning. Importantly, neither the questionnaire findings nor the preliminary interview interpretations were used to change the collection of data in the other strand.

Third, after data collection, the quantitative and qualitative datasets were processed and analysed separately. Only after both analyses had been completed were the findings integrated. This procedure maintained the analytical independence of the two strands while enabling systematic comparison during the final interpretation.

Instrument Validity and Reliability

To ensure the robustness of the data, all instruments underwent a systematic validation process. The student questionnaire was adapted from established scales on speaking motivation and engagement, then reviewed by two experts in applied linguistics and educational technology to establish content validity. A pilot test with 15 vocational students (not included in the main study) was conducted, and Cronbach's alpha was calculated to examine internal consistency. The reliability coefficient reached 0.87, indicating a high level of reliability. Observation checklists were aligned with CEFR-based descriptors of speaking performance, and inter-rater reliability was established through two trained raters who reached 92% agreement after a calibration session. The semi-structured interview guides were developed based on themes emerging from the literature on AI-assisted language learning and were reviewed by an expert panel to enhance construct validity. Triangulation across instruments further strengthened the credibility and trustworthiness of the findings.

Data Analysis

Quantitative questionnaire data were analysed using descriptive statistics mean, standard deviation, and percentage to summarise students' motivation for each of the three dimensions (intrinsic motivation, extrinsic motivation, and perceived usefulness) as well as the overall motivation level, processed with IBM SPSS Statistics version 26. Mean scores were categorised into five interpretive bands Very High (4.20–5.00), High (3.40–4.19), Moderate (2.60–3.39), Low (1.80–2.59), and Very Low (1.00–1.79) adapted from [Mackiewicz \(2018\)](#), and comparative analyses examined differences across the three motivational dimensions and their constituent items. Qualitative data from the semi-structured interviews and classroom observations underwent thematic analysis following [Byrne \(2022\)](#) six-phase framework, comprising data familiarisation, initial coding, theme generation, theme review, theme definition, and production of a coherent analytic narrative aligned with the research questions. Trustworthiness of the qualitative findings was strengthened through member checking, in which summaries of interview findings were shared with selected participants to verify interpretive accuracy; triangulation across interview, observation, and questionnaire data; and periodic peer debriefing with the research supervisor ([Ahmed, 2024](#)). Data integration occurred at the interpretation stage using a joint-display, side-by-side comparison ([Kopac & Hlebec, 2020](#)) to identify areas of convergence, complementarity, or divergence between the quantitative and qualitative strands. This integrative approach enhanced interpretive validity and enabled the study to address all three research questions holistically.

FINDINGS AND DISCUSSION

This section presents the findings and discussion in direct alignment with the study's objectives: (a) to identify the level of students' motivation toward the use of the Alef Platform in vocabulary learning; (b) to report the dimensions of motivation intrinsic motivation, extrinsic motivation, and perceived usefulness as reflected in students' use of the Alef Platform; and (c) to report students' perceptions of the use of the Alef Platform in supporting

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their vocabulary learning. The findings integrate questionnaire statistics, semi-structured interviews, and classroom observations with students to provide a comprehensive account of outcomes and mechanisms.

The Level and Dimensions of Students' Motivation

The questionnaire data show a consistently high level of motivation across all three dimensions, with an overall mean score of 4.20 (Very High). Table 1 presents the mean scores for each motivational dimension.

Table 1. Mean Scores per Motivational Dimension

Dimension	Number of Items	Mean Score	Category
Intrinsic Motivation	8	4.28	Very High
Extrinsic Motivation	8	4.09	High
Perceived Usefulness	8	4.24	Very High
Overall Motivation	24	4.20	Very High

As shown in Table 1, the overall motivation mean of 4.20 falls into the Very High category, with intrinsic motivation ranked highest (M = 4.28), followed by perceived usefulness (M = 4.24) and extrinsic motivation (M = 4.09). These results indicate that students at Senior high school in Bengkulu Province are strongly motivated to use the Alef Platform for vocabulary learning, driven primarily by internal enjoyment and satisfaction rather than external pressure alone.

This pattern reinforces Self-Determination Theory (Bandhu et al., 2024), which links stronger motivation to the fulfilment of autonomy, competence, and relatedness needs supported here through independent learning (Salami & Althaqafi, 2023), adaptive feedback (Patton et al., 2024), and continued teacher involvement (Ushioda, 2025). The high perceived-usefulness score is likewise consistent with the Technology Acceptance Model (Mukhemar et al., 2022) and with prior Alef Platform studies (Rifa'i, 2025; Surayya & F., 2025). The comparatively lower, more widely spread extrinsic-motivation score particularly for the item on teacher requirement suggests that external drivers such as grades and teacher instruction remain influential but are experienced less uniformly than intrinsic enjoyment, consistent with the internalization process described by (Bandhu et al., 2024), in which externally regulated behavior gradually becomes more self-directed.

Students' Qualitative Perceptions of the Alef Platform

Thematic analysis of the interviews, corroborated by classroom observation, produced four interrelated themes summarized in Table 2.

Table 2. Summary of Qualitative Themes

Theme	Key Indicators
Intrinsic Motivation and Enjoyment	Enjoyment, curiosity, satisfaction, voluntary engagement
Extrinsic Motivation and Social Influence	Grades, teacher direction, peer competition, reward system
Perceived Usefulness and Vocabulary Development	Retention, effectiveness, relevance, feedback utility
Positive Affective Responses toward the Platform	Enthusiasm, novelty, confidence growth

Interviews revealed that students experienced deep engagement while completing vocabulary exercises, marked by losing track of time and voluntarily retrying items they had answered incorrectly in order to improve their results. As student 5 explained, she often did not notice how much time had passed “because the exercises were so engaging,” while Student 9 described how the platform “immediately shows when an answer is wrong and lets me try again,” prompting her to keep retrying until she got it right. This was corroborated by observation data, where more than 70% of students displayed spontaneous positive affective responses without teacher prompting.

At the same time, teacher instruction, grades, and the platform's reward system remained meaningful extrinsic drivers of engagement. More than 90% of students accessed the platform immediately after teacher direction, and several participants described this initially externally driven behavior gradually turning into a stronger sense of personal responsibility over time. Student 3 account illustrates this shift directly: "At first it was because my teacher told us to, then because of grades, but eventually I wanted to do it myself." Similarly, student 5 noted that she felt "more motivated when there was a reward or praise from the teacher," underscoring how recognition from teachers and peers continued to reinforce engagement alongside students' growing self-direction.

Participants also consistently attributed their vocabulary retention and growing confidence in using English to the platform's immediate feedback and repeated exposure to new words, a pattern reflected in more than 65% of students actively reviewing and correcting their answers during observation sessions rather than moving on immediately after a mistake. Students 5 described noticing her own progress once "it became easier to understand my English lessons and exercises," while student 9 simply stated that the platform "helps me understand and remember new vocabulary," reflecting the sense of practical usefulness voiced across the interviews.

These qualitative findings converge with the quantitative results for the Intrinsic Motivation and Perceived Usefulness dimensions and are complementary for the cross-cutting theme of positive affective response. For Extrinsic Motivation, however, a partial divergence emerged: although the questionnaire rated teacher requirement fairly highly, several interviewees described it as a routine trigger rather than a genuine motivator, and were observed working independently even without active teacher monitoring. This is consistent with Self-Determination Theory's distinction between external and identified/introjected regulation (Ryan & Deci, 2000) and adds nuance rather than contradicting the overall conclusion that motivation toward the Alef Platform is very high.

Taken together, these findings suggest that the Alef Platform's effectiveness in fostering motivation depends not on its adaptive features alone, but on the interplay between platform design, active teacher facilitation, and individual learner characteristics implying that successful implementation requires sustained pedagogical support rather than technology deployment in isolation.

Challenges and Limitations in Alef Platform Implementation

Despite the high motivation students reported, the findings also show that practical conditions affected how consistently they could use the Alef Platform. Not all students had equal access to devices or stable internet at school, which made it harder for some to use the platform as much as they wanted, especially outside class time. This matches what Nikolopoulou et al. (2023) found about connectivity and device access being major barriers to mobile learning, and what (Stockwell & Reinders, 2019) warned about that unreliable infrastructure can wear down learners' persistence over time. In short, consistent access to devices and internet is a basic requirement if the Alef Platform is going to reach its full motivational potential.

Digital literacy was another factor that varied. Several students said they needed time to get comfortable with the platform's features, which lines up with one interview describing early struggles that faded with practice. (Hendricks & Mwapwele, 2024) make a similar point that fair adoption of ed-tech depends on teachers actively scaffolding the learning process, since students don't all start with the same digital skills. Sabah et al. (2025) agrees, stressing that guided onboarding matters most in settings where students aren't yet very aware in technology.

Students also responded differently to these obstacles. Most adjusted quickly and treated early difficulties as a normal part of learning something new. But the mixed results seen earlier in the extrinsic motivation data suggest a smaller group of students needed more outside encouragement to stay engaged when technical problems came up. This fits Ushioda (2025) point that motivational resilience isn't evenly spread across EFL learners, and Stockwell &

Reinders (2019) observation that persistence with tech-based learning depends a lot on students' ability to self-regulate when things go wrong.

Across all of this, teacher support consistently made the biggest difference in helping students participate equally by fixing technical problems, showing students how to use unfamiliar features, and keeping an eye on progress during lab sessions. This matches Sabah et al. (2025) finding that teacher facilitation is key to fair tech adoption, and Nikolopoulou et al. (2023) finding that structured teacher support helps students overcome infrastructure and technical problems, especially in schools with limited resources. This reinforces a pattern already seen in the motivation results: teachers aren't a side factor here they're central to making sure platforms like Alef work for everyone, not just the students who adapt easily.

All of this points to a need for stronger institutional support enough devices, reliable internet, and ongoing training for teachers to make Alef Platform use match the broader goals of independent, competency-based English teaching. This aligns with the (Prihatin & Sutangsa, 2025) call to match institutional resources with digital learning policy, and with this study's own recommendation that school leaders and curriculum designers provide adequate infrastructure and sustained teacher training. That kind of systemic support isn't just about maintaining the strong motivation seen in this study it's what would make it possible to scale that motivation across classrooms consistently.

CONCLUSIONS

This study investigated students' motivation toward using the Alef Platform for English vocabulary learning in senior high schools in Bengkulu Province. The convergent mixed-methods findings revealed very high overall motivation ($M = 4.20$), with intrinsic motivation ranking highest, followed by perceived usefulness and extrinsic motivation. Qualitative findings explained this hierarchy through students' deep absorption, voluntary exploration, vocabulary retention, and growing confidence. Enjoyment and platform interactivity encouraged sustained engagement, while concrete vocabulary learning experiences reinforced perceptions of usefulness. Although grades, teacher encouragement, and rewards supported extrinsic motivation, their influence appeared to diminish as students developed greater intrinsic engagement. These findings suggest that the Alef Platform can support cognitive vocabulary development, affective engagement, and autonomous learning behavior when accompanied by sustained pedagogical support. However, the small, single-school sample, cross-sectional design, and limited interview pool restrict generalizability. Future longitudinal studies involving diverse educational contexts and platforms are needed to examine whether motivational patterns persist and translate into lasting improvements in vocabulary proficiency.

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