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Exploring EFL Students' Perceptions of Using Online Tools for Vocabulary Learning: A Case Study at Tan Tien Secondary School in Dong Nai

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Abstract

Online Vocabulary Learning Tools (OVLs) have spread rapidly among adolescent learners, yet the evidence base is concentrated on university populations and Western settings, leaving the self-directed practices of Vietnamese lower secondary students undocumented. This study describes the habits, attitudes and perceived effectiveness of OVLs among Grade 7 and Grade 8 students at a provincial public school in Dong Nai, Vietnam. A quantitative-dominant mixed-methods design was used. A researcher-developed questionnaire — which separates dedicated vocabulary applications from general-purpose platforms repurposed for vocabulary learning, and separates perceived usefulness from perceived effectiveness at the measurement stage — was administered to four intact classes (172 distributed, 165 valid, 95.9%), and nine students were interviewed. Of the respondents, 145 (87.9%) reported prior OVL use. General-purpose platforms dominated: online dictionaries (82.8%), YouTube (71.7%) and TikTok (64.8%) were used more widely than the leading dedicated application, Quizlet

(58.6%), and significantly more often ($M = 3.88$ vs 3.27 ; Wilcoxon $z = 5.47$, $p < .001$, $r = .53$). Sessions were short: 71.7% of users typically studied for 15 minutes or less. Attitudes were positive on all three facets — perceived usefulness ($M = 3.96$), perceived ease of use ($M = 3.92$) and affective attitude ($M = 3.86$) — yet frequency was only moderate and correlated weakly with attitude ($r = .21$). Perceived effectiveness was ordered efficiency ($M = 3.86$) > retention ($M = 3.79$) > academic improvement ($M = 3.65$), and rose with usage frequency ($r = .46$, $p < .001$). Contextual conditions were consequential: digital distraction was the highest-rated contextual item ($M = 3.88$) and 20.6% of respondents lacked unrestricted device access. The findings position the teacher, rather than the tool, as the pivot between abundant informal exposure and deliberate vocabulary learning, and illustrate the limits of the Technology Acceptance Model when applied to early adolescents.

Keywords: Online Vocabulary Learning Tools, MALL, Lower Secondary Students, Learner Attitudes, Perceived Effectiveness, Vietnam

1. Introduction

Vocabulary knowledge underpins every language skill: learners with an insufficient word store can neither comprehend others nor express their own meanings, however secure their grammar (Nation, 2013; Schmitt, 2020) [16, 25]. For Vietnamese lower secondary learners, who are expected to reach Level 2 of the national foreign language competency framework by the end of Grade 9 (MOET, 2008) [14], building that store remains difficult. Đào (2017) [4], studying 216 Grade 6 students in Hanoi, found that correct awareness of the importance of vocabulary correlated only weakly with actual memorisation skill, and that it was interest — not awareness — that most strongly predicted outcomes. Rote memorisation of word lists, still the dominant classroom practice, is widely experienced as tedious (Nguyen, 2024) [18].

Against this background, Computer-Assisted and Mobile-Assisted Language Learning have altered where and how vocabulary is met. Online Vocabulary Learning Tools (OVLs) — applications and platforms supporting vocabulary learning through digital flashcards, spaced repetition, gamified quizzes and progress tracking — now reach learners outside any classroom mandate (Sanosi, 2018; Stockwell, 2010) [24, 26]. The research base, however, is skewed. In their review of 31 studies, Raw and Ismail (2021) [23] concluded that the evidence is weighted towards tertiary learners in Western contexts and called explicitly for research on younger learners elsewhere. The same imbalance holds in Vietnam, where studies of OVLs have involved

undergraduates (Nguyen *et al.*, 2025; Tran, 2021) [20, 27] or upper-secondary students (Nguyen & Hoang, 2020; Nguyen, 2024) [17, 19].

This matters because lower secondary students occupy a distinctive position: they already own or share the devices, but their capacity for self-regulated study is still forming. Whether findings established with undergraduates transfer downward is therefore an empirical question, not an extrapolation. The study addresses three research questions:

1. What are lower secondary students' habits in using OVLTs?
2. What are their attitudes toward these tools?
3. How do they perceive the effectiveness of these tools for vocabulary learning?

2. Literature Review

2.1 Two categories of online vocabulary learning tool

A recurring difficulty in this literature is that the term OVL is used for two different things: applications designed for vocabulary learning (Quizlet, Duolingo, Memrise, Anki, TFlat) and general-purpose platforms that learners repurpose for vocabulary (online dictionaries, YouTube, TikTok, social media, games, subtitled media). The distinction is consequential because the two categories differ in intent: use of the first is normally deliberate, while contact with the second is often incidental. Cojocnean (2016) [2], surveying 1,239 Romanian high school students, found that dedicated vocabulary applications were among the least used digital resources, trailing far behind dictionaries, media and social platforms. Zainal and Rahmat (2020) [29] report the same dominance of social media. Yet most instruments aggregate the two categories into a single technology-use score, which conceals the difference rather than measuring it. The instrument used here separates them and measures frequency for each.

2.2 Acceptance, motivation and the attitude-behaviour gap

The Technology Acceptance Model (Davis, 1989) [5] explains adoption through perceived usefulness and perceived ease of use, later extended with external variables (Venkatesh & Davis, 2000) [28]. Applied to OVLs, TAM-based studies consistently report positive attitudes, including among young learners (Hassan & Hashim, 2021) [8]. Gamification is the most frequently invoked explanation for their appeal (Deterding *et al.*, 2011) [6]. Llerena Medina and Rodríguez Hurtado (2017) [12] found that 95% of students enjoyed classroom Kahoot! games, and Nguyen (2024) [19] identified leaderboards, badges and immediate feedback as the primary motivators named by Vietnamese Grade 12 students. Okkan and Aydın (2020) [22], however, caution that gamified tools raise situational engagement more reliably than underlying motivation.

The most consequential finding across contexts is a gap between favourable evaluation and actual use. Nguyen *et al.* (2025) [20] found that Vietnamese undergraduates held positive attitudes toward OVLs while using them infrequently, attributing the gap to workload, habit and weak institutional integration. Köse *et al.* (2016) [10] observed the complementary pattern: structured weekly Quizlet assignments generated substantial voluntary activity, implying that engagement is teacher-contingent. Nguyen (2024) [19] reported that Quizlet use frequent at school

dropped to occasional at home. Whether the same gap appears in learners with even less developed self-regulation is untested.

2.3 Perceived effectiveness and its limits

Studies of OVL effectiveness divide into outcome-measured and perception-based designs, and the two are frequently conflated. Sanosi (2018) [24] and Dhaifi *et al.* (2024) [7] measured vocabulary gains directly; the larger body of work, including most Vietnamese studies, measures what learners believe the tools do for them. Perception is a legitimate object of study — beliefs sustain use and receptivity — but it is not evidence of learning. A related measurement problem is that perceived usefulness is often worded in outcome terms ("helps me learn better"), which makes it nearly indistinguishable from a self-reported effectiveness measure and renders any correlation between the two tautological. This study therefore operationalises perceived usefulness as general value and fit, and perceived effectiveness exclusively as outcome-referenced self-assessment, and tests the separation empirically rather than assuming it.

2.4 Contextual conditions

Four conditions recur as constraints. Digital distraction is the most consistently documented: the devices that enable anywhere-anytime learning enable anywhere-anytime interruption (Cojocnean, 2016; Lru & Phạm, 2025) [2, 13]. Freemium economics shape tool choice, with Vietnamese learners strongly preferring free versions (Nguyen *et al.*, 2025) [20]. User-generated content carries accuracy risks that younger learners are least equipped to detect. Finally, device ownership, connectivity and home conditions stratify what is possible (Muryani & Yunus, 2024) [15]. These conditions are usually invoked in discussion sections rather than measured; here they were measured directly, for the whole sample including non-users. Fig 1 summarises the framework guiding the study.

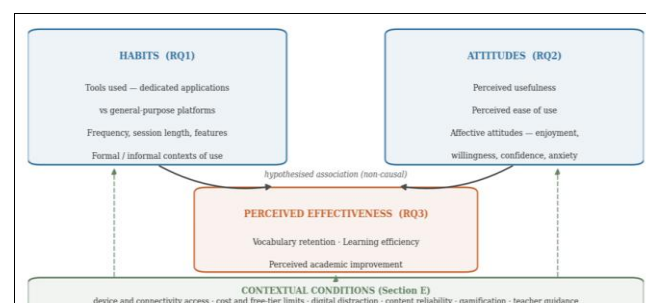


Fig 1: Conceptual framework of the study

3. Methodology

3.1 Research design and setting

The study used a quantitative-dominant, concurrent embedded mixed-methods design (Creswell, 2014) [3], descriptive and non-experimental: it documents self-directed use as it occurs rather than testing an intervention. The site was a public lower secondary school in Tam Hiep, Bien Hoa, Dong Nai, enrolling 956 students, of whom 533 were in Grades 7 and 8. Students may not use personal devices during the school day unless a teacher authorises it, so virtually all OVL use occurs beyond teacher supervision — a condition that aligns closely with the study's focus.

3.2 Participants

Four intact classes were selected by cluster sampling in consultation with the school (two of five Grade 7 classes, two of seven Grade 8 classes). All 172 students on the class registers received the questionnaire and 165 valid responses were obtained (95.9%); seven were discarded because the student was absent or left more than 20% of items blank. Table 1 reports the achieved sample. Nine students (S1–S9) were then interviewed, selected purposively to represent high, moderate and low usage profiles.

Table 1: Characteristics of the achieved sample (N = 165)

Characteristic	n	%	Characteristic	n	%
Grade 7	78	47.3	Own device	131	79.4
Grade 8	87	52.7	Device shared with family	20	12.1
Female	84	50.9	No device	14	8.5
Male	80	48.5	Home internet stable	118	71.5
Gender not stated	1	0.6	Internet slow or unstable	38	23.0
Prior OVL T users	145	87.9	No home internet	9	5.5
Non-users	20	12.1	First heard of OVL T s: teacher	62	42.8

Note: Among the 145 users, the remaining routes to a first encounter were friends (28.3%), own searching (15.2%), family (11.0%) and other (2.8%).

Table 2: Instrument structure, scale reliability and descriptive statistics

Section / subscale	Items	n	M	SD	α
B. Habits — habit practices (index)	B5–B10	145	3.49	0.61	0.67
C. Attitudes — perceived usefulness	C1–C4	145	3.96	0.68	0.84
Perceived ease of use	C5–C8	145	3.92	0.66	0.79
Motivation and engagement	C9–C12	145	3.86	0.64	0.77
D. Perceived effectiveness — retention	D1–D3	145	3.79	0.72	0.81
Learning efficiency	D4–D6	145	3.86	0.69	0.76
Perceived academic improvement	D7–D9	145	3.65	0.74	0.80
E. Contextual conditions (index)	E1–E8	165	3.47	0.52	0.58

Note: Section A (7 background items, n = 165), the tool and frequency items B1–B4 (n = 145) and Section F (2 items, n = 20) carry no scale statistics. The B5–B10 and E1–E8 blocks are heterogeneous indices, not reflective scales; they are reported item by item and no composite inference is drawn from either.

3.4 Procedure and ethical considerations

Written permission was obtained from the school, informed consent from parents and written assent from students. To reduce social desirability bias arising from the researcher's position as a teacher at the site, the questionnaire was administered by a colleague following a written protocol, the researcher was absent, and completed forms were returned to a sealed box rather than handed to an adult. Administration took 25–30 minutes per class. Interviews were conducted in Vietnamese outside class time, audio-recorded with consent, transcribed verbatim and analysed thematically following Braun and Clarke (2006) [1], with a second coder independently coding two transcripts.

3.5 Data analysis and measurement quality

Analyses were run in SPSS 26. Because whole classes were sampled, intraclass correlations and design effects were computed for the principal scales; ICCs ranged from .00 to .04, giving design effects of 1.00 to 2.47 and an effective sample as low as 59 for the attitude scale, which is taken into account when interpreting borderline results. Skewness and kurtosis for all composite scales fell within ± 1 , so parametric tests were retained. Exploratory factor analysis of the 29 Likert items (principal components, varimax rotation) was factorable, KMO = .85, Bartlett's $\chi^2(406) = 1540.56$, $p < .001$. The Kaiser criterion over-extracted (eight components); the scree plot showed a clear elbow after the

3.3 Instrument

The questionnaire was developed for this study, informed by Hassan and Hashim (2021) [8], Nguyen *et al.* (2025) [20] and Cojocnean (2016) [2], and administered in Vietnamese with back-translation verification by two English teachers. It comprises six sections (Table 2). Two design decisions are central. First, tools and frequency are recorded separately for dedicated applications (Category 1) and general-purpose platforms (Category 2). Second, perceived usefulness (Section C) contains no item referring to learning or remembering words, and perceived effectiveness (Section D) contains no item referring to the general worth of the tools. Students reporting no prior OVL T use were routed past Sections B–D, so all habit, attitude and effectiveness statistics describe the same 145 users, while Section E was completed by all 165 respondents and Section F by the 20 non-users. All Likert items use a five-point scale. The instrument was piloted with approximately 40 students from two non-participating classes; median completion time stayed within the 30-minute limit and no subscale fell below the acceptance threshold ($\alpha \geq .70$; Nunnally, 1978) [21], so it was carried forward unchanged.

fifth eigenvalue (7.58, 2.33, 1.77, 1.68, 1.66, then 1.23) and the five-factor solution, explaining 51.8% of variance, was the interpretable one. Critically, the C1–C4 and D1–D9 blocks loaded on separate factors with no cross-loading above .40, confirming the discriminant-validity separation described in 3.3. Two features qualify the solution: the remaining attitude blocks also separated cleanly (C5–C8; C9–C12), but the nine effectiveness items formed a single factor rather than the three specified a priori, so retention, efficiency and academic improvement are treated below as facets of one construct. Harman's single-factor test returned a first factor accounting for 26.1% of variance, below the 50% threshold.

4. Findings

4.1 Habits in using OVL T s

Tools used. Category 2 dominated Category 1 at the top of the list (Fig 2). Online dictionaries and translation applications were the most widely used of all tools (82.8%), followed by YouTube (71.7%) and TikTok (64.8%), with subtitled music and film (55.9%), online games (44.1%) and Facebook/Instagram (40.7%) close behind. Quizlet led the dedicated applications (58.6%) ahead of Duolingo (46.9%), Kahoot/Quizizz (33.8%), TFlat (26.9%), Memrise (6.2%) and Anki (2.8%). One figure deserves separate notice: 24.1% of users ticked none of the dedicated applications, meaning that for almost a quarter of the user group all online

vocabulary contact runs through general platforms.

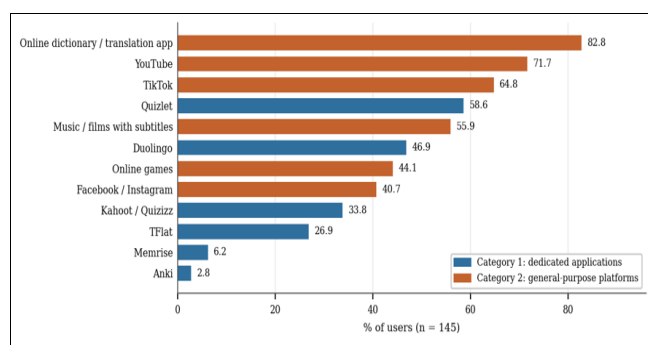


Fig 2: Tools used by participants, by category (n = 145)

Frequency of use. Use of dedicated applications was moderate (B3: $M = 3.27$, $SD = 1.04$) and significantly lower than use of general platforms (B4: $M = 3.88$, $SD = 0.96$). A Wilcoxon signed-rank test on the 106 non-tied pairs confirmed the difference, $z = 5.47$, $p < .001$, $r = .53$. Two thirds of users (66.2%) used general platforms often or daily, against 39.3% for dedicated applications (Table 3). This comparison is the empirical payoff of separating the categories at the measurement stage; aggregating them, as most previous instruments do, would have concealed it.

Table 3: Frequency of use by tool category (n = 145)

Response	B3 n	B3 %	B4 n	B4 %
Never	7	4.8	2	1.4
Rarely	23	15.9	9	6.2
Sometimes	58	40.0	38	26.2
Often	38	26.2	52	35.9
Daily	19	13.1	44	30.3

Note: B3 = dedicated applications; B4 = general platforms. 1 = never ... 5 = daily.

Session length and practices. Micro-learning was the norm: 71.7% of users reported typical sessions of 15 minutes or less (33.8% under 10 minutes), and the short-session item averaged $M = 3.61$. The rank order of habit practices tells a coherent story: incidental learning through entertainment media was the most frequent (B8: $M = 3.94$), followed by

pre-test revision (B7: $M = 3.86$), teacher-assigned use (B6: $M = 3.38$), fully self-initiated study (B5: $M = 3.12$) and combining digital tools with paper notebooks (B10: $M = 3.05$). The most common contact is informal and unplanned; the most common deliberate use is exam-driven; autonomous, curriculum-independent study is the least established habit.

4.2 Attitudes toward OVLTs

Attitudes were positive on all three facets, ordered perceived usefulness ($M = 3.96$, $SD = 0.68$, $\alpha = 0.84$) > perceived ease of use ($M = 3.92$, $\alpha = 0.79$) > affective attitude ($M = 3.86$, $\alpha = 0.77$). Enjoyment was the highest-rated single item in the questionnaire (C9: $M = 4.21$), and the gamification item in Section E pointed the same way (E7: $M = 3.79$). Three item-level results qualify this picture (Table 4). Willingness to continue (C10: $M = 3.90$) ran below enjoyment, suggesting that fun does not automatically convert into commitment. Clarity of in-app instructions was the weakest ease-of-use item (C7: $M = 3.71$), consistent with English-medium interfaces imposing a mild comprehension cost. And digital confidence was the lowest attitude item (C11: $M = 3.58$), even though students agreed that app-based practice felt safer than speaking in class (C12: $M = 3.73$) — comfort without full confidence.

4.3 Perceived effectiveness

Students perceived the tools as effective in the order efficiency ($M = 3.86$, $\alpha = 0.76$) > retention ($M = 3.79$, $\alpha = 0.81$) > academic improvement ($M = 3.65$, $\alpha = 0.80$) — a gradient running from the most directly experienced benefit to the most distal. Rapid revision was the highest effectiveness item (D5: $M = 4.08$) and improved test results the lowest (D7: $M = 3.48$); students credited the tools with growing their vocabulary (D9: $M = 3.81$) more confidently than with raising their grades. The weakest efficiency item was knowing which words still need practice (D6: $M = 3.55$), and the feature data corroborate it: while 74.5% of users used flashcards and 63.4% used matching games, only 30.3% ever built their own word lists and 24.1% looked at their progress records. The metacognitive affordances of these tools are largely unused.

Table 4: Item-level descriptive statistics for attitudes (C) and perceived effectiveness (D), n = 145

Attitude item	M	SD	% ag.	Perceived effectiveness item	M	SD	% ag.
C1 Worthwhile use of study time	3.95	0.82	71.0	D1 Remember words longer	3.84	0.83	66.2
C2 Complements classroom learning	3.98	0.83	71.7	D2 Remember spelling and meaning	3.91	0.83	69.0
C3 Fits the way I like to learn	4.05	0.81	75.2	D3 Can recall words when needed in class	3.62	0.87	55.9
C4 Would recommend to classmates	3.86	0.84	66.9	D4 Learn more words in less time	3.95	0.82	71.0
C5 Easy to use	4.02	0.83	73.8	D5 Revise many words quickly	4.08	0.82	75.9
C6 Can work out a new app quickly	3.95	0.82	71.0	D6 Shows which words still need practice	3.55	0.87	52.4
C7 Instructions and buttons are clear	3.71	0.88	60.0	D7 Test results are better	3.48	0.87	49.0
C8 Can use it without help	4.00	0.82	73.1	D8 Understand lessons better	3.66	0.88	57.9
C9 Learning words online is fun	4.21	0.81	80.0	D9 Know more English words now	3.81	0.88	64.1
C10 Want to keep using them	3.90	0.83	69.0				
C11 Feel confident practising with an app	3.58	0.87	53.8				
C12 Less afraid of mistakes than in class	3.73	0.83	61.4				

Note: 1 = strongly disagree ... 5 = strongly agree; "% ag." is the share choosing 4 or 5. Subscales: C1–C4 perceived usefulness, C5–C8 perceived ease of use, C9–C12 motivation and engagement; D1–D3 retention, D4–D6 efficiency, D7–D9 academic improvement.

4.4 Association between use and perceived improvement

Usage frequency correlated positively and moderately with perceived academic improvement, $r = .46$, $p < .001$; the Spearman coefficient, computed because B3 is a single ordinal item, agreed closely ($r_s = 0.43$). Perceived usefulness ($r = .58$), affective attitude ($r = .49$) and ease of use ($r = .41$) were all associated with overall perceived effectiveness, and attitude as a whole correlated strongly with it ($r = .66$). Notably, however, usage frequency correlated only weakly with attitude ($r = .21$, $p = .012$): students who liked the tools were not reliably the students who used them (Table 5, Fig 3).

Table 5: Correlations among the principal scales (users, $n = 145$)

Scale	1	2	3	4	5	6	7	8
1. Frequency, dedicated apps	1.00							
2. Frequency, general platforms	.32	1.00						
3. Perceived usefulness	.13	.25	1.00					
4. Perceived ease of use	.13	.17	.37	1.00				
5. Motivation / affect	.21	.14	.40	.25	1.00			
6. Attitude (composite)	.21	.25	.80	.72	.73	1.00		
7. Academic improvement	.46	.45	.47	.28	.38	.50	1.00	
8. Perceived effectiveness	.43	.47	.58	.41	.49	.66	.87	1.00

Note: Pearson r . $|r| \geq .17$ is significant at $p < .05$ and $|r| \geq .27$ at $p < .001$ (two-tailed). Retention ($r = .33$ with 1) and efficiency ($r = .32$ with 1) are omitted; both are components of scale 8.

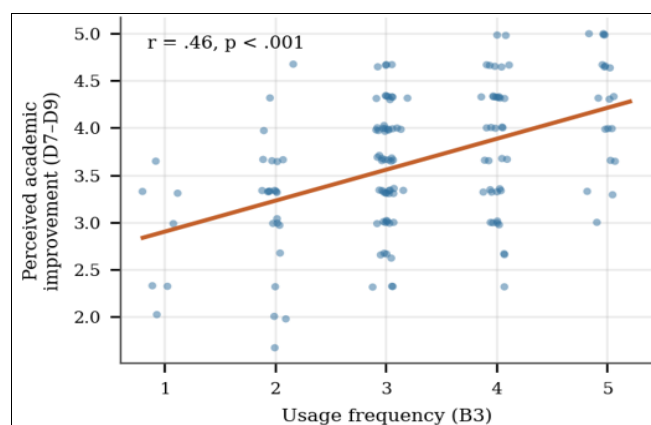


Fig 3: Usage frequency and perceived academic improvement ($n = 145$)

4.5 Contextual conditions and non-users

Section E was completed by all 165 respondents (Table 6). Digital distraction was the highest-rated item (E1: $M = 3.88$; 64.8% agreement). Access was materially uneven: 12.1% of respondents shared a device with family and 8.5% had none, 23.0% reported slow or unstable internet, and only 46.7% agreed that they could use a device whenever they wanted to study (E5: $M = 3.42$). On cost, 38.8% had stopped using an application or lost access to part of one because it demanded payment (E2: $M = 3.21$), while 55.2% judged the free tier sufficient (E3: $M = 3.64$) — most students appear to have adjusted their expectations to the free tier rather than experiencing the paywall as deprivation. Content reliability was the least salient condition (E6: $M = 2.87$; 26.7% agreement), but the low detection rate may indicate limited detection capacity as much as low error frequency, since spotting a lexical error presupposes the knowledge being learned.

Table 6: Contextual conditions, full sample ($N = 165$)

Item	M	SD	% agree
E1 Distracted by messages or other videos	3.88	0.97	64.8
E7 Points and competition keep me practising	3.79	1.00	61.2
E3 The free parts are enough for my needs	3.64	1.03	55.2
E4 My internet is good enough for studying	3.55	1.03	52.1
E5 I can use a device whenever I want	3.42	1.03	46.7
E8 My teacher has shown us how to use them	3.36	1.04	44.8
E2 Stopped using an app that asked for payment	3.21	1.04	38.8
E6 I have found mistakes in online material	2.87	1.03	26.7

Note: Completed by all respondents, including the 20 non-users.

The 20 students who had never used OVLTs are analytically important because user-only samples cannot identify them. Their reasons were dominated by material access and simple unawareness rather than rejection: no device ($n = 10$, 50%), did not know any application ($n = 9$, 45%), prefer books ($n = 7$, 35%), no home internet ($n = 6$, 30%), not interested ($n = 6$, 30%), no teacher had suggested one ($n = 6$, 30%) and parental restriction ($n = 5$, 25%). Twelve of the twenty (60.0%) said they would like to try. Ten of the fourteen students in the whole sample with no device at all fall in this group.

4.6 Grade and gender comparisons

Nine of the ten grade-level comparisons were non-significant, including usage frequency (Grade 7 $M = 3.21$ vs Grade 8 $M = 3.32$, $p = .549$) and every perceived-effectiveness subscale (all $p \geq .62$, $|d| \leq 0.08$). The single exception was total attitude, slightly higher in Grade 7 ($M = 4.01$) than Grade 8 ($M = 3.83$), $t(131.1) = 2.13$, $p = .035$, $d = 0.36$. Three considerations argue against making much of it: the effect is small, the attitude scale is the one scale with non-trivial class clustering ($ICC = .042$, $deff = 2.47$, so its effective sample is about 59 rather than 145, and adjusting for the design effect removes significance), and the difference does not propagate to behaviour or perceived outcomes. No gender comparison reached $p < .05$, and prior OVLT use was independent of both gender ($\chi^2 = 1.16$, $p = .281$) and grade ($\chi^2 = 0.96$, $p = .328$). The patterns reported above therefore characterise the cohort as a whole rather than a subgroup.

5. Discussion

5.1 A two-layer usage ecology

Students' OVLT world consists of a broad informal layer — dictionaries, YouTube, TikTok — and a narrower formal layer centred on Quizlet, activated chiefly by teachers and tests. The tool hierarchy replicates Cojocnean's (2016) [2] Romanian findings closely, and Quizlet's relative strength is best explained by teacher mediation: interviewees traced their use to teacher-created study sets, and 42.8% of users first met such tools through a teacher, echoing the school-anchored usage documented by Köse *et al.* (2016) [10] and Nguyen (2024) [19]. Neither layer alone matches the autonomous digital learner image found in parts of the MALL literature. Together they position the teacher as the switch between exposure and deliberate learning, and the present data extend that teacher-contingent pattern downward from upper secondary and tertiary samples to Grade 7–8 learners, where it is, if anything, more pronounced.

5.2 Acceptance without engagement: A boundary condition for TAM

Attitudes were uniformly positive while frequency remained moderate. This replicates the attitude-behaviour gap Nguyen *et al.* (2025) ^[20] reported among Vietnamese undergraduates, in a younger population. The correlational pattern sharpens the point: attitude correlated strongly with perceived effectiveness ($r = .66$) but only weakly with actual frequency ($r = .21$). Within TAM's own terms, this is the external-variables problem that Venkatesh and Davis (2000) ^[28] identified: acceptance beliefs describe attitudinal readiness, not behaviour. For early adolescents the path from favourable belief to sustained practice appears to run through external structure — teacher assignment, entrenched routine, device access — rather than through attitude alone. The useful conclusion is not that TAM fails, but that its predictive claim weakens precisely where self-regulation is least developed, which argues for pairing it with structure-oriented constructs in this age group.

5.3 Perceived effectiveness: real, ordered and bounded

Students credited the tools most for efficiency, moderately for retention and least for grades, and perceived benefit rose with use ($r = .46$). Three cautions govern interpretation. First, the design is correlational: greater use may generate perceived benefit, perceived benefit may sustain use, or both may reflect general motivation (Đào, 2017) ^[4]. Second, the magnitude is moderate rather than strong, which suggests that how tools are used matters as much as how often (Zarei & Asadi Amani, 2018) ^[30]; the fact that only 24.1% of users consult their own progress records is a concrete instance. Third, and most importantly, these are perceptions. The study administered no vocabulary test, so it establishes what students believe the tools do for them, not measured lexical gain — the distinction that outcome-measured designs such as Sanosi (2018) ^[24] and Dhaifi *et al.* (2024) ^[7] are needed to close. Read this way, the ordering itself is informative: students rate most highly the benefit they can directly experience (fast revision) and most cautiously the one mediated by many other factors (test scores), which is a calibrated rather than a naive pattern of self-assessment. Multimodal presentation, which interviewees credited for faster memorisation, is consistent with the dual-coding account of online vocabulary activities (Kalyuga *et al.*, 2013) ^[9], while the reduced fear of error in private practice matches the affective filter argument (Krashen, 1985) ^[11].

5.4 Context as a constitutive condition

Distraction, cost, content reliability and unequal access are usually treated as background. Measured directly, they explain the shape of the other findings. Distraction ($M = 3.88$, the highest contextual item) mediates the central paradox of the habit data: the platforms that deliver the widest vocabulary exposure also erode the deliberate practice that consolidation requires. Universal free-tier use means the adaptive and personalised functions of these tools are, for this population, functionally nonexistent. And the access gap is not marginal: one in five respondents could not use a device freely, while half of the non-user group cited having no device at all. Within a single provincial school, students differ not in whether they value OVLs — attitudes were uniform across grade and gender — but in whether their material circumstances let them act on that valuation. This gives local, measurable form to the digital-divide

concerns that the MALL literature usually raises in the abstract.

5.5 Pedagogical implications

Three implications follow for teachers. First, because deliberate use at this age is teacher-contingent, teachers should deliberately occupy the switch role the data reveal: curating unit-aligned study sets, assigning short and regular app-based revision rather than occasional large tasks, and explicitly teaching the progress-tracking features that currently go unused. Second, the informal layer should be harnessed rather than fought: guiding students toward reliable vocabulary channels on platforms they already inhabit, and teaching simple consolidation routines such as noting incidentally met words for later review, converts existing exposure into learning. Third, because young learners cannot audit user-generated content, teachers must check shared sets themselves, and should prefer cooperative or self-referenced gamification over public ranking, which both the literature and the present interviews flag as a stressor for some students. For schools, the finding that half the non-user group simply lacks a device and 45% do not know of any application suggests that low-cost measures — supervised use of existing school equipment outside lesson time, and a short awareness session — could reach most of that group.

5.6 Limitations of the study

Six limitations bound these findings. The study was conducted in one provincial school, and in four classes of its Grade 7–8 population of 533, so the results are not generalisable to other schools or regions. All measures are self-reported; perceived effectiveness in particular must not be read as measured learning gain. All constructs were measured with one instrument on one occasion, a design condition known to inflate correlations — Harman's test suggests the inflation is not severe, but it cannot be excluded. Whole classes rather than individuals were sampled, so responses within a class are not fully independent, and the sampling fractions differed by grade, leaving Grade 7 over-represented (47.3% of the sample against 37.7% of the school's Grade 7–8 population). The design is correlational and supports no causal claim. Finally, the researcher teaches at the site; independent administration and anonymous return mitigated but cannot be assumed to have eliminated social desirability bias.

6. Conclusion

Lower secondary students at a provincial Vietnamese public school have already brought technology into their vocabulary learning: they use these tools widely, enjoy them markedly, and attribute concrete benefits to them, particularly efficient revision and multimodal memorisation. But that contact is largely incidental, brief and unguided; deliberate use appears mainly when a teacher or a test prompts it; and a fifth of students cannot act on favourable attitudes because they lack reliable access to a device or a connection. The pedagogical question in this context is therefore not whether to introduce technology — students have introduced it themselves — but how teachers can give structure to digital vocabulary contact that is currently frequent, fragmentary and largely unguided. Four directions follow for further research: longitudinal work on whether these habits deepen or decay across lower secondary; quasi-

experimental designs testing whether the perceived benefits correspond to measurable gains; studies pairing objective vocabulary tests with perception instruments to quantify the perceived-actual gap; and research on AI-assisted vocabulary features, which are entering the very tools these students already use with a cost stratification this population is least able to absorb.

7. Declarations

Ethics approval. The study was approved by the school administration; written parental consent and written student assent were obtained for all participants.

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Conflict of interest. The authors declare no conflict of interest.

Data availability. The anonymised dataset, codebook and analysis syntax are available from the corresponding author on reasonable request.

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