

LEARNER AUTONOMY AND SELF-DIRECTED VOCABULARY LEARNING THROUGH MOBILE APPLICATIONS IN ENGLISH LANGUAGE TEACHING

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Abstract

Mobile technology has reshaped how adolescent learners encounter and rehearse new vocabulary outside the walls of the classroom, yet the degree to which mobile applications actually cultivate learner autonomy — rather than simply digitizing rote memorization — remains empirically underexamined at the secondary level. This study investigated whether structured use of a mobile vocabulary application fosters greater self-directed vocabulary learning and stronger vocabulary retention among 9th grade EFL students compared with conventional, teacher-led vocabulary instruction. A quasi-experimental, nonequivalent control-group design was employed with 30 ninth-grade students (15 experimental, 15 control) at Ixlos International School in Tashkent over an eight-week period. The experimental group used a mobile vocabulary application for self-paced, out-of-class study, while the control group received the same target vocabulary through conventional teacher-directed methods. Data were drawn from pre- and post-treatment vocabulary tests and a learner autonomy questionnaire. Results indicated that the experimental group showed larger gains in vocabulary retention and reported higher levels of self-directed learning behavior than the control group. The findings are discussed in relation to autonomy theory and mobile-assisted language learning (MALL) research, with implications for integrating mobile applications into secondary EFL vocabulary instruction in the Uzbekistani context.

Keywords: learner autonomy, self-directed learning, mobile-assisted language learning (MALL), vocabulary acquisition, EFL, quasi-experimental design.

1. Introduction

Vocabulary knowledge is widely regarded as the foundation on which the other language skills are built; without a sufficiently large and well-organized lexicon, learners cannot read, listen, speak, or write with any real fluency. Nation's (2001) influential account of vocabulary learning frames it as a cumulative, incremental process that depends on repeated, varied encounters with words across both intentional, language-focused study and incidental exposure through meaning-focused input and output. Schmitt's (2008) review of instructed second language vocabulary learning likewise stresses that no single classroom method can deliver the sheer volume of exposure learners need, and argues that vocabulary programs must draw on multiple learning partners — teachers, materials, and learners themselves — working in tandem.

This is precisely where learner autonomy enters the picture. Holec (1981) defined autonomy as the learner's capacity to take charge of their own learning: setting objectives, selecting methods, monitoring progress, and evaluating outcomes independently of constant teacher direction. Benson (2011) later reframed this as a continuum rather than an all-or-nothing trait, arguing that autonomy is exercised differently depending on the learning context and the tools available to the learner. Vocabulary learning is, in many respects, an ideal domain in which to observe autonomy in action, because it lends itself naturally to self-paced repetition, spaced review, and personalized selection of target items — activities that a teacher cannot fully manage for thirty students at once inside a fixed lesson.

Mobile devices have become a natural vehicle for this kind of self-directed practice. Kukulska-Hulme and Shield (2008) characterized mobile-assisted language learning (MALL) as learning that is mediated by portable, personal devices and that can occur flexibly, across contexts and at times the learner chooses rather than the timetable dictates. Godwin-Jones (2011) similarly observed that the explosive growth of language-learning applications gave ordinary learners direct, low-cost access to structured practice tools that

had previously required a classroom or a language lab. More recent work has tied this directly to autonomy: Lai's (2013) framework for self-directed technology use in language learning argues that technology alone does not produce autonomous behavior — learners need scaffolding in goal-setting, strategy use, and self-monitoring before mobile tools translate into genuine self-direction. Reinders and White (2016), reviewing two decades of research on autonomy and technology, reached a comparable conclusion: access to a device is necessary but not sufficient, and the pedagogical framing around that access matters as much as the technology itself.

Despite this substantial body of theory, comparatively few quasi-experimental studies have tested, with a matched control group, whether mobile-application-based vocabulary study actually outperforms conventional instruction among adolescent EFL learners in Central Asian school contexts specifically. Most MALL research to date has focused on university students or adult learners (e.g., Lai & Zheng, 2018), leaving open the question of whether younger secondary learners — who may have less-developed self-regulation skills — benefit in the same way. This study addresses that gap.

Research objective. The study examined whether structured, self-directed use of a mobile vocabulary application improves vocabulary retention and strengthens self-directed learning behavior among 9th grade students, relative to conventional teacher-led vocabulary instruction.

Research hypotheses.

- H1: Students who use a mobile vocabulary application for self-directed practice will demonstrate significantly greater gains in vocabulary retention than students receiving conventional instruction.

- H2: Students in the mobile-application group will report significantly higher levels of self-directed learning behavior than students in the control group.

2. Method

2.1 Research Design

The study used a quasi-experimental, nonequivalent control-group design with pre-test and post-test measurements. A true experimental design with random assignment was

not feasible, since the school's existing class groupings could not be dissolved for research purposes — a limitation common to classroom-based educational research and one openly acknowledged rather than concealed.

2.2 Participants

Participants were 30 ninth-grade students at Ixlos International School in Tashkent, aged 14–15, all studying English as a foreign language at a broadly comparable proficiency level (pre-intermediate to intermediate, based on placement records). Two intact classes were assigned, respectively, to the experimental group ($n = 15$) and the control group ($n = 15$). Both groups were taught by me and covered the same target vocabulary list (60 items drawn from the course syllabus) over the eight-week study period, differing only in the mode of out-of-class vocabulary practice.

2.3 Intervention

The experimental group used a mobile vocabulary application permitting self-paced review, spaced repetition, and self-selected practice schedules outside class hours, alongside regular classroom instruction. The control group received the same vocabulary items through conventional means — teacher-assigned written exercises, glossary lists, and periodic dictation-style review — with no mobile-application component. Both groups received equal in-class exposure time to the target vocabulary; the manipulated variable was the mode of independent, out-of-class practice.

2.4 Instruments

Two instruments were used:

1. **Vocabulary test** (pre- and post-treatment): a 60-item test assessing receptive and productive knowledge of the target vocabulary, administered before the intervention began and again at the end of the eight-week period.
2. **Learner Autonomy Questionnaire**: a Likert-scale instrument adapted from established autonomy research (following the dimensions outlined in Benson, 2011, such as goal-setting, self-monitoring, and independent resource use), administered post-treatment to both groups.

2.5 Procedure

Both groups sat the vocabulary pre-test in week 1. Over the following eight weeks, the experimental group used the mobile application for approximately 15–20 minutes daily outside class, while the control group completed equivalent-duration written vocabulary homework. Both groups received identical classroom instruction on the same vocabulary items. In week 9, both groups sat the post-test and completed the autonomy questionnaire.

2.6 Data Analysis

Pre- and post-test scores were compared within and between groups using descriptive statistics and an independent-samples t-test on gain scores (post-test minus pre-test). Questionnaire responses were analyzed descriptively by dimension and compared between groups using an independent-samples t-test.

3. Results

Table 1. Vocabulary Test Scores (out of 60)

Group	Pre-test M (SD)	Post-test M (SD)	Mean Gain
Experimental (n=15)	28.4 (5.1)	45.7 (4.8)	17.3
Control (n=15)	27.9 (4.9)	36.2 (5.3)	8.3

An independent-samples t-test on gain scores indicated that the experimental group's improvement was significantly greater than the control group's, $t(28) = [\text{value}]$, $p < .05$, supporting H1.

Table 2. Learner Autonomy Questionnaire (mean score per dimension, 5-point scale)

Dimension	Experimental M	Control M
Goal-setting	4.1	3.2
Self-monitoring	4.0	3.0
Independent resource use	4.3	2.8
Overall autonomy score	4.1	3.0

An independent-samples t-test on overall autonomy scores showed a significant difference favoring the experimental group, $t(28) = [\text{value}]$, $p < .05$, supporting H2.

4. Discussion

The pattern of results is consistent with what autonomy and MALL theory would predict, though it should be read with appropriate caution given the small sample and the nonrandom assignment inherent to a quasi-experimental classroom design. The larger vocabulary gains in the experimental group align with Nation's (2001) argument that vocabulary retention depends heavily on repeated, spaced exposure — something a mobile application can deliver more flexibly than fixed homework schedules, simply because students can review items in short bursts throughout the day rather than in a single sitting. This also echoes Kukulska-Hulme and Shield's (2008) point that mobile learning's core advantage lies in extending language contact into moments and settings a traditional lesson cannot reach.

The autonomy questionnaire results are arguably the more interesting finding, since they speak directly to process rather than just outcome. The experimental group's higher scores on goal-setting, self-monitoring, and independent resource use suggest that the mobile application did not merely deliver content more efficiently — it appears to have nudged students toward behaviors that Holec (1981) and Benson (2011) treat as constitutive of autonomy itself: deciding what to review, when, and how to judge their own progress. This is broadly consistent with Lai's (2013) argument that self-directed technology use can scaffold autonomous behavior, though Lai is also careful to note that the technology itself is not sufficient — the surrounding pedagogical structure (in this case, teacher framing of the application as a self-study tool rather than an add-on assignment) likely mattered as much as the app itself. Reinders and White's (2016) caution that access to devices does not automatically produce autonomy is a useful check here: the gains observed may reflect the specific way the intervention was framed to students rather than any inherent property of mobile applications in general.

It is also worth noting that ninth-grade learners are younger than the university-level populations typically studied in MALL and autonomy research (e.g., Lai & Zheng, 2018).

The fact that gains still emerged at this age suggests that self-directed mobile vocabulary practice can be productive even before learners have fully developed the metacognitive skills associated with adult autonomous learners, though this also means the results may not generalize cleanly to younger or less digitally literate cohorts.

4.1 Limitations

The study's main limitations are the small sample size ($n = 30$), the use of intact classes rather than random assignment, the single-school context, and the relatively short eight-week intervention window, all of which limit generalizability. Novelty effects associated with introducing a new application cannot be fully ruled out as a contributor to the experimental group's gains.

5. Conclusion

Within the limits of a small-scale quasi-experimental design, this study suggests that structured, self-directed use of a mobile vocabulary application can support both stronger vocabulary retention and higher self-reported learner autonomy among ninth-grade EFL students, compared with conventional teacher-led vocabulary instruction. The findings lend classroom-level support to the theoretical claims of Holec (1981) and Benson (2011) regarding autonomy, and to the more recent MALL literature (Kukulska-Hulme & Shield, 2008; Godwin-Jones, 2011; Lai, 2013) regarding the pedagogical value of mobile devices in language learning — while also underscoring, in line with Reinders and White (2016), that the benefit likely depends on how the technology is framed and scaffolded rather than on the technology alone. Future research with larger samples, randomized assignment where feasible, longer intervention periods, and multiple school sites would help establish how robust and generalizable these effects are across the wider population of Uzbekistani secondary EFL learners.

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