INTERACTION: Jurnal Pendidikan Bahasa Vol. 13, No. 3; September 2026
P-ISSN: 2406-9558; E-ISSN: 2406-9566

1The Role of Mobile Assisted Language Learning (MALL) Applications in Supporting Vocational High School Students' English Learning Consistency

M. Alfath Zuhri Wafa
2210631060133@student.unsika.ac.id

Sidik Indra Nugraha
sidik.indranugraha@staff.unsika.ac.id

Universitas Singaperbangsa Karawang

ABSTRACT

This study explores the perceptions of vocational high school students regarding the use of Mobile Assisted Language Learning (MALL) applications in supporting their English learning consistency, and the factors students report as supporting or hindering that consistency. Using a qualitative descriptive design, data were gathered through semi structured interviews in Bahasa Indonesia with five Grade XI students at a vocational high school in West Java, Indonesia, purposively selected to represent diverse study programs. Interview data were supported by non participant classroom observation conducted across three sessions. Thematic analysis following Braun and Clarke (2006) revealed that student perceptions of MALL varied: some students responded positively due to gamification features and scheduling flexibility, while at least one student preferred direct teacher led instruction. Three in app mechanisms were reported as consistency triggers: gamification elements (streaks and leaderboards), push notifications, and flexible access. Students reported that internal factors, particularly career related goals and enjoyment, and external factors, academic requirements and peer competition, shaped their engagement patterns. Key barriers included technical constraints (internet costs and device storage) and personal challenges (fatigue, content repetition, and time management). As a small scale, cross sectional qualitative study, findings reflect the reported experiences of five participants and should not be generalised. These results suggest that MALL may support self reported consistency, but its integration requires pedagogical strategies that address students' individual barriers alongside technical access.

Keywords: Mobile Assisted Language Learning; Learning Consistency; Student Motivation; Gamification; Vocational High School

INTRODUCTION

The use of digital technology in language education has expanded opportunities for students to practise English beyond the classroom. Mobile Assisted Language Learning (MALL) refers to language learning supported by portable devices such as smartphones and tablets (Kukulska-Hulme & Shield, 2008). Applications such as Duolingo, Quizizz, and Memrise allow students to access learning activities at

times and places that suit their schedules. This flexibility can be useful when classroom time is limited or when students want additional practice with vocabulary and other language skills (Stockwell, 2010). In Indonesian secondary education, these applications can complement teacher instruction by giving students opportunities to practise independently. Their availability, however, does not necessarily mean that students will use them regularly.

Maintaining regular engagement is a central challenge in the use of MALL. Students may initially be interested in an application because it is new, convenient, or enjoyable, but that interest may decline as other academic and personal demands compete for their time. Hockly (2013) notes the difficulty of sustaining engagement with mobile learning tools beyond initial use. This issue matters because learning a language requires repeated exposure and practice over time (Ellis, 2015). A student who downloads an application but rarely returns to it may receive little benefit from its features. For this reason, it is necessary to examine how students understand learning consistency and what encourages them to continue using MALL applications after their initial interest has faded.

Application features may influence students' willingness to return, but students can respond to the same feature in different ways. Reminders may help one student remember to study, while another may ignore them. Points, rankings, and daily streaks may make practice enjoyable for some students, yet create pressure or lose their appeal for others. Students' reasons for learning English may also affect their engagement. Some may practise because they enjoy the activities, whereas others may use an application to complete an assignment or prepare for future employment. Technical and personal circumstances, including internet access, device capacity, available time, and fatigue, can further shape whether regular use is possible. Examining these factors together can provide a clearer account of consistency than simply asking whether students like a particular application.

The vocational high school context makes this question especially relevant. Vocational students study English alongside subjects connected to their chosen fields and may also participate in workplace internships, known in Indonesia as *Praktik Kerja Lapangan* (PKL). Their schedules and learning needs may therefore differ from those of students in general academic programmes. English can be relevant to vocational activities, such as understanding technical terms, following instructions, or communicating in a workplace. At the same time, school assignments and internship responsibilities may leave students with limited energy for independent practice. The flexibility of MALL could help students fit short learning sessions into their routines, but its usefulness depends on the conditions under which they use it.

Previous studies in Indonesia have examined MALL in relation to learning outcomes such as vocabulary development (Pratama & Jupri, 2022) and students' responses to gamified learning tools (Wijaya & Santosa, 2021). These studies provide useful insights into what students may learn and how they feel about

particular applications. Less attention has been given to how vocational high school students perceive the role of MALL in maintaining regular English practice and to the factors they identify as helping or preventing that practice. This study addresses that gap by exploring students' reported experiences rather than treating application access as evidence of consistent use. Specifically, it examines how vocational high school students perceive MALL applications in supporting their English learning consistency. It also investigates the factors they report as supporting or hindering their continued use of these applications for English learning.

LITERATURE REVIEW

MALL and Gamification

MALL has been recognised for its capacity to support flexible and personalised language learning environments (Stockwell, 2010; Kukulska-Hulme, 2012). A defining feature of contemporary MALL applications is the incorporation of gamification, the application of game design elements, including points, badges, leaderboards, and daily use streaks, to non game contexts (Kapp, 2012). These mechanisms are designed to sustain user engagement through immediate reward and social comparison. Empirical work suggests that gamified features can positively influence motivation and reported frequency of use in language learning contexts (Zainuddin et al., 2020; Shortt et al., 2023), though effects vary across individual learners and platforms.

In the Indonesian context, Quizizz and Duolingo have been studied for their motivational effects on secondary school learners (Pratama & Jupri, 2022; Wijaya & Santosa, 2021). However, these studies focus primarily on affective responses and learning outcomes rather than on consistency of independent use as a sustained behavioural pattern. The mechanisms through which gamification features support, or fail to support, habitual MALL engagement remain underexplored, particularly among vocational learners.

Motivation and Learning Consistency

Learning consistency is theoretically linked to motivation. Self Determination Theory (SDT; Ryan & Deci, 2000) proposes a continuum of motivational regulation ranging from external regulation (behaviour driven by external reward or pressure) through identified and integrated regulation (behaviour aligned with personal values or goals) to intrinsic motivation (behaviour that is inherently enjoyable). In language learning research, Dörnyei's (2005) L2 Motivational Self System complements SDT by foregrounding the role of the learner's 'Ideal L2 Self', a future oriented vision of oneself as a proficient second language user, as a driver of sustained effort.

Applied to MALL, these frameworks suggest that students whose engagement is driven by external requirements alone (e.g. teacher assigned tasks) may be less

likely to sustain independent use than those whose use is integrated with personal or professional goals. It is important, however, to distinguish motivation types analytically rather than by surface features: career related goals, for instance, can represent identified or integrated regulation rather than intrinsic motivation (Ryan & Deci, 2000), and the same application feature (such as a streak) may function as an intrinsic challenge for one learner and an extrinsic obligation for another. This study draws on both frameworks to analyse students' reported reasons for engagement and non engagement with MALL.

METHOD

Design and Sample

This study adopted a qualitative descriptive design (Sandelowski, 2000) to explore students' perceptions and reported experiences in depth. This approach is appropriate when the aim is to describe a phenomenon as it is understood by participants, without imposing experimental control or seeking causal explanation. The study was conducted at a state vocational high school (Sekolah Menengah Kejuruan, SMK) in the Karawang regency, West Java, Indonesia. Five Grade XI students (approximately 16 to 17 years of age) were selected through purposive sampling to ensure variation in study programme, reported MALL experience, and attitude towards English learning. Participants were enrolled in the following programmes: Network Engineering (TKJ), Accounting, Multimedia, Marketing, and Automotive Technology. All five participants had used at least one MALL application (Duolingo or Quizizz) in the preceding academic semester, either through teacher assignment or independent initiative. Participants are referred to using codes S1 to S5 to preserve anonymity. The small sample size is consistent with the information power principle for qualitative inquiry (Malterud et al., 2016): given the focused research questions, specific participant characteristics, and dense data collection strategy, five participants provided sufficient data for the purposes of this study.

Instrument and Procedures

Two instruments were used. First, a semi structured interview guide was developed to address both research questions. The guide covered five thematic areas: (1) general perceptions of MALL, (2) reported patterns of application use, (3) in app features perceived as supporting consistency, (4) internal and external motivational factors, and (5) barriers to sustained use. Interviews were conducted individually in *Bahasa Indonesia* by the first author, lasted approximately 30 to 45 minutes each, and were audio recorded with participant consent. Recordings were transcribed verbatim in *Bahasa Indonesia* and subsequently translated into English by the first author, with translation accuracy reviewed by a bilingual colleague.

Second, a structured observation sheet guided three non participant observation sessions (approximately 45 minutes each) in which participants interacted with

MALL applications during a designated self study period. The observation sheet recorded indicators in four domains: learning initiation (time to open application, unprompted versus prompted start), focus level (sustained engagement versus switching to other applications or activities), distraction management (response to notifications, peer interaction), and affective responses to application features (observable reactions to streaks, rankings, or notifications). The observer (first author) did not interact with participants during observation sessions. Field notes were written immediately following each session.

Ethical approval was obtained from the relevant institutional authority. Written permission was granted by the school principal prior to data collection. Informed consent was obtained from each participant's parent or guardian, and student assent was confirmed verbally and in writing before the study commenced. Participants were informed that participation was voluntary and that withdrawal at any point would have no effect on their academic standing, teacher relationships, or internship evaluation. All interview recordings, transcripts, observation notes, and identifying details were stored on a password protected device accessible only to the research team and will be destroyed upon completion of the study. Participant codes (S1 to S5) replaced all real names in transcripts and notes prior to analysis.

Data Analysis

Data were analysed using reflexive thematic analysis as described by Braun and Clarke (2006), which involves six phases: familiarisation with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report. Both interview transcripts (in English translation) and observation field notes were coded in parallel. Initial codes were generated inductively from the data without imposing a predetermined framework; themes were developed iteratively through repeated review of the coded data and discussion between both authors. Where codes from interview data and observation field notes converged, this was noted as a point of consistency; where they diverged (e.g. a participant reported high motivation in interview but showed low initiation in observation), the divergence was treated as an analytic finding rather than resolved by privileging one source. Reflexivity was maintained through a research journal in which the first author recorded assumptions and interpretive decisions throughout the process. Negative cases, instances where participant data did not fit emerging themes, were actively sought and incorporated into theme revision.

RESULT AND DISCUSSION

Analysis produced five themes. Themes 1 and 2 address RQ1 (perceptions of MALL and consistency supporting mechanisms); Themes 3, 4, and 5 address RQ2 (factors reported as supporting or hindering consistency). Table 1 and Table 2 present supporting quotations for each theme; all quotations are translated from *Bahasa Indonesia*.

Perceptions of MALL and Consistency Supporting Mechanisms

Varied Perceptions of MALL Applications

Participants did not hold uniform views of MALL. Three students (S1, S3, S5) reported positive perceptions, describing their preferred applications as engaging and practically useful. S1 valued Duolingo for vocabulary building and its appealing interface; S3 preferred Quizizz because its competitive, game like format made studying feel enjoyable rather than effortful; S5, who was concurrently undertaking a workplace internship (PKL), valued the ability to complete short learning sessions at flexible times. By contrast, S2 expressed a clear preference for teacher led instruction, reporting confusion and reduced confidence when using applications independently. S4's general perception was more neutral: S4 did not express strong enthusiasm or aversion but reported using applications primarily when instructed to do so.

In App Mechanisms Reported as Consistency Triggers

All participants identified at least one application feature that encouraged them to return to the application. Three sub themes emerged. (a) *Gamification elements*: S1 reported that the streak feature created a daily obligation she did not want to break, sustaining engagement even on days when motivation was low. S3 reported that leaderboard rankings stimulated competitive engagement with peers, prompting repeated attempts to improve scores. These two students exemplify different functional roles of the same gamification category: for S1, the streak operated as an internally directed commitment device; for S3, it was primarily a social comparison mechanism. (b) *Push notifications*: S4 identified application notifications as the primary external prompt that prompted re engagement on days she might otherwise have forgotten. (c) *Scheduling flexibility*: S5 reported that the absence of fixed scheduling requirements allowed him to sustain engagement across irregular internship work hours, using brief sessions before sleep.

Factors Reported as Supporting or Hindering Consistency

Internal Factors (Identified and Integrated Regulation, Intrinsic Motivation)

Internal factors were reported as powerful consistency drivers. Two sub themes emerged. (a) *Career related goals*: S1 (Network Engineering), S4 (Marketing), and S5 (Automotive) each articulated a clear connection between English proficiency and their anticipated professional environments, citing the prevalence of English language tutorials, client communication, and technical terminology in their respective fields. This awareness represented what SDT would classify as identified or integrated regulation: behaviour aligned with personally endorsed goals rather than immediate enjoyment. (b) *Intrinsic enjoyment and challenge*: S3 reported engagement driven primarily by the enjoyment of the gamified challenge itself,

including the satisfaction of accumulating points and competing on the leaderboard. This more closely reflects intrinsic motivation in the SDT sense.

External Factors (External Regulation)

External factors also shaped reported consistency patterns. (a) *Teacher assigned tasks*: S2, who reported no internal motivation to use MALL independently, identified teacher requirements and the prospect of grades as the sole driver of application use. Observation of S2 confirmed this: she was seen hesitating before opening the application and was more easily distracted than other participants during the observation session, consistent with a pattern of externally regulated rather than self directed engagement. (b) *Peer competition*: S3 reported that awareness of peers' scores motivated repeated attempts to improve his own ranking. Observation confirmed this: S3 checked the leaderboard immediately upon opening the application and repeated quiz attempts unprompted.

Hindering Factors

Participants identified both technical and personal barriers. (a) *Technical and access barriers*: S3 reported that the cost of mobile data when school Wi Fi was unavailable discouraged use outside school; S4 reported that limited device storage required periodic deletion of applications, interrupting consistency. These barriers reflect a persistent digital equity issue that application design alone cannot resolve. (b) *Personal and psychological barriers*: S1 reported that heavy assignment loads caused her to forget to open the application; S2 reported boredom with repetitive content, indicating that the application's content design did not sustain her interest beyond required tasks; S5 reported fatigue after internship hours as the primary obstacle, noting that physical tiredness sometimes overrode his intention to study.

Table 1. Summary of Findings for RQ1: Perceptions of MALL and Consistency Supporting Mechanisms

Theme	**Sub-theme**	**Illustrative Quotations (translated from Bahasa Indonesia)**
Theme 1: Varied Perceptions	1a. Positive (engaging & flexible)	*"I like using Duolingo. I think the app is good for adding vocab. The display is also attractive." (S1) "I like Quizizz the most. It's fun like a game, there's a ranking. So it doesn't feel like studying." (S3) "Very helpful. Since I'm at an internship... I can't take courses. Using Duolingo, I can study for 10 minutes before bed." (S5)*
	1b. Negative (prefers	*"I don't really like it. I prefer being taught directly by the teacher. With an app, I sometimes get confused." (S2)*

Theme	Sub-theme	Illustrative Quotations (translated from Bahasa Indonesia)
	teacher led instruction)	
	1c. Neutral (task dependent use)	*"I only open the app when there is a task or the teacher tells me to." (S4)*
Theme 2: In-App Consistency Triggers	2a. Gamification (streak as commitment; ranking as social comparison)	*"What makes me consistent is the streak feature. I don't want my streak to break, so I force myself to open it every day, even if just for 5 minutes." (S1) "It's precisely because it's like a game that I become consistent. I don't want to lose the ranking to others." (S3)*
	2b. Push notifications	*"This app sends reminder notifications. That's what makes me remember to open it again." (S4)*
	2c. Scheduling flexibility	*"This really supports consistency because I can study anytime, not tied to a schedule." (S5)*

Table 2
Summary of Findings for RQ2: Factors Reported as Supporting or Hindering Consistency

Theme	Sub-theme	Illustrative Quotations (translated from Bahasa Indonesia)
Theme 3: Internal Factors (Identified/Integrated Regulation & Intrinsic Motivation)	3a. Career-related goals	*"I want to be able to speak English for work later. My major (TKJ) has many tutorials in English. So the motivation is from myself." (S1) "I realise I need English for Marketing. So this is my personal target." (S4) "Work needs. I realise in the (automotive) workshop there are many English terms. I must be able to." (S5)*
	3b. Intrinsic enjoyment and challenge	*"The motivation is because it's fun, there's a challenge, you get points." (S3)*
Theme 4: External Factors (External Regulation)	4a. Teacher-assigned	*"No internal motivation. I use it only for assignments... The external motivation is,*

Theme	Sub-theme	Illustrative Quotations (translated from Bahasa Indonesia)
	tasks and grades	*well, grades from the teacher. If I wasn't told to, I wouldn't download it." (S2)*
	4b. Peer competition and social comparison	*"Definitely from friends (peers). We often compare scores. The teacher also sometimes gives extra points if our score is high." (S3)*
Theme 5: Hindering Factors	5a. Technical and access barriers	*"Quota. If there's no school WiFi, it's very costly." (S3) "My phone's memory is full. Sometimes I have to delete other apps." (S4)*
	5b. Personal and psychological barriers	*"The biggest barrier is when there are many school assignments or practicals, so I forget to open the app." (S1) "Boring. The material is just repetitive. I'd rather watch YouTube." (S2) "Tired. After returning from the internship (PKL), I'm sometimes too lazy to think... even if I have the intention, I sometimes fall asleep." (S5)*

The findings offer a nuanced picture of how vocational high school students perceive and report their engagement with MALL. Several observations are discussed below in relation to the existing literature. First, the variation in participant perceptions confirms that MALL is not uniformly effective across learner types. S2's preference for teacher led instruction and her pattern of application use only under external compulsion align with findings by Hockly (2013), who observed that learners with low autonomous motivation are unlikely to sustain MALL engagement without structural support. S4's neutral, task dependent use similarly suggests that access to an application does not automatically produce self directed learning behaviour. These patterns are consistent with the lower end of the SDT motivational continuum and indicate that MALL adoption by schools does not guarantee independent use.

Second, gamification features were reported as consistency triggers, but their function differed across participants. For S1, the streak mechanism appeared to function as an internalised commitment device, a form of self regulation in which the desire to avoid breaking a streak sustained daily engagement even when situational motivation was low. For S3, the leaderboard operated as an externally oriented social comparison tool. This distinction matters for application design: Kapp (2012) argues that gamification mechanisms motivate differently depending on whether a learner is more autonomy oriented or competitiveness oriented. The

observation data for both S1 and S3 were consistent with their self reports, providing some confidence in these interpretations.

Third, the internal factors associated with reported consistency warrant careful theoretical framing. Career related goals (S1, S4, S5) should not be classified as intrinsic motivation in the strict SDT sense; rather, they represent identified or integrated regulation, engagement that is personally endorsed and goal directed but not inherently enjoyable in the moment (Ryan & Deci, 2000). This form of regulation is theoretically associated with sustained, volitional behaviour and aligns with Dörnyei's (2005) concept of the Ideal L2 Self: students who can articulate a specific, personally meaningful vision of future English use appear to draw on this vision as a resource for maintaining engagement. Intrinsic motivation in the stricter sense was apparent only in S3, whose engagement was driven by the enjoyment of the gamified activity itself rather than its instrumental outcomes. This distinction has pedagogical implications: fostering career goal awareness and vision building may be as important as making applications enjoyable.

Fourth, the barriers identified point to structural limitations that pedagogical intervention alone cannot fully address. The cost of mobile data and limited device storage reflect digital access inequalities that affect learners unequally depending on their socioeconomic circumstances (Stockwell, 2010). Personal barriers, particularly S5's fatigue and S2's boredom, suggest that content repetition and physical workload interact with MALL engagement in vocational contexts in ways that have not been extensively explored in the literature. Alternative explanations for these patterns should be acknowledged: S2's disengagement may reflect the novelty wearing off rather than a stable motivational orientation; S5's fatigue is context specific to the internship period and may not characterize his engagement year round. These possibilities cannot be resolved with cross sectional data.

The findings suggest several tentative implications for educators in vocational secondary contexts. Teachers who assign MALL applications without connecting their use to students' study programmed goals or future career contexts may find that engagement remains externally regulated and shallow, as observed with S2. Strategic integration, for instance, framing Quizizz leaderboards as a collaborative goal setting exercise for students like S3, or explicitly linking Duolingo vocabulary to industry specific English for students like S1 and S5, may support deeper and more autonomous engagement. Schools in contexts of limited device access should consider providing Wi Fi during designated self study periods to reduce the cost barrier identified by S3 and S4. These implications are exploratory and should be tested in larger, more varied samples before adoption.

This study has several significant limitations. The sample of five participants from a single school in West Java cannot support generalisation to other vocational schools, regions, or school types. Data are cross sectional and rely primarily on retrospective self report; no application usage logs, learning diaries, or longitudinal observation were available to verify reported consistency as a measured

behavioural pattern. The three observation sessions were brief and researcher arranged rather than naturalistic, which may have introduced observer effects. Participants used different applications (Duolingo and Quizizz) under different conditions of use (teacher assigned versus independent), limiting comparability across cases. Translation of interview data from *Bahasa Indonesia* introduces a further layer of interpretive mediation. The first author's dual role as researcher and student at the same institution may have introduced social desirability bias in participant responses, despite efforts to establish a non evaluative interview environment. Finally, the unpublished source cited in earlier versions of this paper (Warman, 2025) has been removed from the analysis as it does not meet the standard of verifiable scholarly literature.

CONCLUSION

This study examined how five vocational high school students in West Java, Indonesia perceived MALL applications in relation to their reported English learning consistency, and what factors they identified as supporting or hindering that consistency. Findings indicate that consistency, as a self reported pattern rather than a measured outcome, is shaped by an interplay of in app design features, students' motivational orientations, and practical constraints in their daily lives. The most consistent reporters of MALL engagement were those who could connect application use to personally endorsed career goals (identified/integrated regulation) or who found the gamified activity inherently enjoyable (intrinsic motivation). Students who lacked this connection relied on teacher requirements as their primary driver, and their self reported and observed engagement was correspondingly lower. Technical barriers related to data costs and device storage present equity challenges that application design and school level policy should jointly address. These conclusions are appropriately bounded by the study's qualitative, small scale, cross sectional design. Future research in this area would benefit from larger samples across multiple schools and regions, mixed methods designs incorporating application log data, and longitudinal designs capable of documenting consistency as a behavioural pattern over extended periods.

REFERENCES

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3 (2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Dörnyei, Z. (2005). *The psychology of the language learner: Individual differences in second language acquisition*. Routledge. https://doi.org/10.4324/9781410612473

Ellis, R. (2015). *Understanding second language acquisition (2nd ed.)*. Oxford University Press.

Hockly, N. (2013). Mobile learning. *ELT Journal*, 67 (1), 80–82. https://doi.org/10.1093/elt/ccs064

Kapp, K. M. (2012). *The gamification of learning and instruction: Game-based methods and strategies for training and education*. Pfeiffer. https://doi.org/10.1002/9781118257988

Kukulska-Hulme, A. (2012). Mobile-assisted language learning. In C. A. Chapelle (Ed.), *The encyclopedia of applied linguistics*. Wiley-Blackwell. https://doi.org/10.1002/9781405198431.wbeal0768

Kukulska-Hulme, A., & Shield, L. (2008). An overview of mobile assisted language learning: From content delivery to supported collaboration and interaction. *ReCALL*, 20 (3), 271–289. https://doi.org/10.1017/S0958344008000714

Malterud, K., Siersma, V. D., & Guassora, A. D. (2016). Sample size in qualitative interview studies: Guided by information power. *Qualitative Health Research*, 26 (13), 1753–1760. https://doi.org/10.1177/1049732315617444

Pratama, R. A., & Jupri. (2022). Exploring Indonesian high school students' motivation in using Duolingo for English learning. *Journal of English Language Teaching and Linguistics*, 7 (1), 123–135. https://doi.org/10.21274/jeltl.v7i1.5173

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55 (1), 68–78. https://doi.org/10.1037/0003-066x.55.1.68

Sandelowski, M. (2000). Whatever happened to qualitative description? Research in Nursing & Health, 23 (4), 334–340. *https://doi.org/10.1002/1098-240X(200008)23:4<334::AID-NUR9>3.0.CO;2-G*

Shortt, M., Tilak, S., Kuznetcova, I., Martens, B., & Akinkuolie, B. (2023). Gamification in mobile-assisted language learning: A systematic review of Duolingo literature from public release of 2012 to early 2020. *Computer Assisted Language Learning*, 36 (3), 517–554. https://doi.org/10.1080/09588221.2021.1933540

Stockwell, G. (2010). Using mobile phones for vocabulary activities: Examining the effect of the platform. *Language Learning & Technology*, 14 (2), 95–110. http://hdl.handle.net/10125/44201

Wijaya, K., & Santosa, I. (2021). Students' perception on the use of Quizizz as a gamification tool in English learning. *Indonesian Journal of English Education*, 8 (2), 205–218. https://doi.org/10.15408/ijee.v8i2.22238

Zainuddin, Z., Shujahat, M., Haruna, H., & Chu, S. K. W. (2020). The role of gamified e-quizzes on student learning and engagement: An interactive gamification solution for a formative assessment system. *Computers & Education*, 145, 103729. https://doi.org/10.1016/j.compedu.2019.103729