



Sustaining Engagement in Duolingo: Autonomy and the Dynamic Nature of Situational Motivation in Self-Directed Language Learning

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Article Info	Abstract
Received: 2026-04-07 Revised: 2026-05-19 Accepted: 2026-06-30 Keywords: Self-directed learning; Mobile-assisted learning; autonomous learning; learner engagement; Situational motivation; higher education DOI: 10.24256/ideas.v14i1.11279 Corresponding Author: Anggi Purwa Lestarina anggi.lestarina@president.ac.id Social Science and Education Faculty, President University	<i>Mobile-assisted language learning (MALL) offers flexible opportunities for self-directed language learning (SDL), yet how learners sustain engagement outside formal classrooms remains insufficiently understood, especially when motivation interacts with self-regulation and context. This study examined barriers experienced by Indonesian university students using Duolingo and explored how situational motivation related to fluctuations in engagement. A qualitative descriptive case study involved ten university students; the small sample supported in-depth analysis but limited transferability. Data were collected through an open-ended survey and semi-structured interviews and were analyzed thematically using Garrison's (1997) SDL framework. Internal barriers included mood fluctuation, stress and fatigue, time-management difficulties, and limited self-monitoring. External barriers included repetitive or insufficiently challenging materials, dependence on assigned targets, environmental distractions, limited family awareness, and peer influence. Situational motivation emerged as salient because engagement shifted in response to immediate cues, including assignments, deadlines, targets, and peer reminders, rather than remaining stable across situations. The findings add contextual nuance to Garrison's framework by showing that mobile-assisted SDL is shaped by interactions among learner readiness, task design, and social context. Educators and app designers should use structured goals, adaptive challenge, reflection, and social support to sustain engagement. These supports may gradually</i>

1. Introduction

Mobile-assisted language learning (MALL) has become increasingly widespread with the rapid adoption of smartphones and tablets, enabling learners to access language-learning resources anytime and anywhere beyond formal classroom settings (Kukulska-Hulme & Viberg, 2018; Zeng & Fisher, 2024). This flexibility has positioned mobile applications as valuable tools for extending English as a Foreign Language (EFL) learning outside the classroom, allowing learners to engage in language practice at their own pace, time, and learning needs. Among various MALL applications, Duolingo has gained considerable attention because of its gamified learning environment, flexible access, and free subscription model, making language learning accessible to a broad range of learners (Loewen et al., 2019; Zeng & Fisher, 2024). Recent reviews further suggest that MALL has increasingly been recognised not only as a technological innovation but also as a means of fostering learner autonomy and supporting sustainable language learning (Roy & Gandhimathi, 2025).

The growing use of MALL has been closely associated with the promotion of self-directed learning (SDL), in which learners assume responsibility for planning, managing, monitoring, and evaluating their own learning (Garrison, 1997). Rather than viewing SDL solely as independent learning, Garrison's model conceptualises self-directed learning as the interaction of three interrelated dimensions: self-management, self-monitoring, and motivation. Self-management refers to learners' ability to organise learning resources, time, and strategies; self-monitoring involves evaluating learning progress and adjusting learning behaviours; while motivation provides the driving force that initiates and sustains learning efforts. Within mobile-assisted environments such as Duolingo, these dimensions become particularly relevant because learners are expected to regulate their learning with minimal teacher supervision. However, access to mobile technology alone does not necessarily result in successful self-directed learning, as learners may still encounter difficulties in sustaining motivation, managing their learning, and monitoring their progress (Botero et al., 2019).

Existing studies have reported both the potential and the limitations of mobile-assisted language learning. On the one hand, Duolingo offers short and gamified learning activities that encourage frequent practice and increase accessibility for language learners (Loewen et al., 2019; Zeng & Fisher, 2024). On the other hand, empirical findings suggest that maintaining consistent engagement remains challenging. Learners may experience variability in motivation, frustration with instructional materials, limited time for out-of-class practice, and difficulties

in self-management and self-monitoring (Botero et al., 2019; Loewen et al., 2019). In the Indonesian higher education context, recent research has also shown that undergraduate students' self-regulated use of MALL may vary according to learner-related factors such as gender and socioeconomic status (Dewi et al., 2025). These findings indicate that learner autonomy should be understood as a multidimensional process rather than a direct outcome of using mobile applications.

Although research on MALL and self-directed learning has expanded considerably, recent studies and reviews indicate that limited attention has been given to how learners experience self-directed MALL in actual out-of-class contexts (Roy & Gandhimathi, 2025; Zeng & Fisher, 2024). Much of the existing literature has examined learning outcomes, learner autonomy, motivation, or technology use in formal educational settings, while comparatively less attention has been given to how barriers to self-directed learning emerge from the interaction of psychological, pedagogical, and contextual factors during learners' independent learning experiences. This issue is particularly relevant in Indonesian higher education, where recent research has begun to examine undergraduate students' self-regulated use of MALL (Dewi et al., 2025). However, less is known about how learners themselves experience and interpret the barriers that disrupt sustained engagement in self-directed, out-of-class mobile learning.

Motivation represents one of the central components of the SDL framework. While intrinsic and extrinsic motivation describe learners' reasons for engaging in learning activities, situational motivation refers to learners' immediate motivational state toward a specific activity in a particular context and may fluctuate depending on the learning experience itself (Garrison, 1997; Guay et al., 2000). In mobile-assisted language learning, learners may initially possess strong reasons for learning English, yet their willingness to continue using an application such as Duolingo can change from one learning session to another as they respond to task difficulty, enjoyment, feedback, or daily circumstances. Considering this dynamic nature, situational motivation may provide a more context-sensitive explanation for learners' sustained engagement than broader motivational orientations alone.

In response to these gaps, the present study investigates the barriers encountered by Indonesian university students in mobile-assisted self-directed learning through Duolingo using Garrison's self-directed learning framework as the primary analytical lens (Garrison, 1997). By examining the interplay among motivation, self-management, and self-monitoring, this study seeks to explain how pedagogical, psychological, and contextual factors interact to facilitate or hinder sustained engagement in mobile-assisted self-directed learning. The study contributes to the growing body of MALL research by providing contextual evidence from Indonesian higher education and by highlighting the role of situational motivation in shaping learners' engagement and learning consistency.

2. Method

This study adopted a qualitative research approach because it aimed to explore learners' experiences, perceptions, and barriers in using Duolingo for self-directed English learning. Specifically, a descriptive case study design was employed to examine mobile-assisted self-directed learning in its natural context (Merriam, 1998; Sandelowski, 2000; Yin, 2014). This design was considered suitable because the study focused on gaining detailed descriptions of how Indonesian university students experienced Duolingo as a self-directed learning platform, particularly in relation to factors that influenced their motivation, self-management, and self-monitoring.

The participants of this study were ten Indonesian university students enrolled in English courses who had prior experience using Duolingo for English language practice. The participants consisted of male and female students aged between 19 and 23 years. To ensure sufficient exposure to mobile-assisted language learning, all participants had used Duolingo for at least four weeks as part of their self-directed English learning activities. The number of participants was considered sufficient because this qualitative case study prioritised depth of information rather than statistical representation. Data saturation was reached when the later interviews produced repeated patterns and no substantially new information emerged regarding learners' experiences and barriers in using Duolingo for self-directed English learning.

A purposive sampling strategy was employed to obtain rich and relevant data related to the research focus (Creswell, 2014). Participant selection was guided by specific inclusion criteria. The participants had to be Indonesian university students, be enrolled in an English subject, have used Duolingo for English learning for at least four weeks, and be willing to reflect on their self-directed learning experiences. Students who met these criteria were invited to participate in the study. This sampling strategy ensured that the participants could provide meaningful insights into their learning experiences, reasons for using Duolingo, learning management, progress monitoring, and challenges when using Duolingo independently.

Data were collected through an open-ended survey and semi-structured interviews. The survey was used as the initial data source to obtain a general overview of students' experiences in using Duolingo for self-directed English learning. The survey and interview questions were developed based on Garrison's (1997) self-directed learning framework, particularly the dimensions of motivation, self-management, and self-monitoring. At the same time, the questions were organised around three broad areas of inquiry: psychological, pedagogical, and psychosocial factors.

The survey questions were designed to be open-ended so that participants could describe their experiences freely. The psychological questions explored

learners' personal conditions, motivation, and learning regulation. Examples of survey questions included: "What is your general experience of using Duolingo for English learning?"; "What factors influence your motivation to use Duolingo?"; "How do you manage your learning when using Duolingo?"; and "How do you evaluate your learning progress?". The pedagogical questions explored participants' perceptions of Duolingo as a learning platform. Examples included: "What do you think about the learning activities provided in Duolingo?"; "How do Duolingo's features support or limit your English learning?"; and "What aspects of Duolingo make learning easier or more difficult for you?". The psychosocial questions explored social and environmental influences on learners' self-directed learning. Examples included: "How does your surrounding environment affect your use of Duolingo?"; "How do people around you influence your learning process?"; and "What external factors support or prevent you from using Duolingo consistently?".

Semi-structured interviews were conducted after the survey to explore participants' responses in greater depth. The interview prompts were also designed in a general and flexible manner to avoid leading participants toward particular answers. Examples of interview prompts included: "Can you tell me more about your experience of using Duolingo outside the classroom?"; "What usually helps you continue learning with Duolingo?"; "What usually makes it difficult for you to continue learning with Duolingo?"; "How do you organise your learning when using Duolingo?"; "How do you know whether your learning is progressing?"; "What do you think about Duolingo's learning content and features?"; and "What kinds of situations around you affect your learning process?". Follow-up questions were asked based on participants' answers to clarify their experiences and explore the factors that influenced their motivation, self-management, and self-monitoring. Each interview lasted approximately 20 to 30 minutes. With participants' consent, the interviews were audio-recorded and transcribed verbatim for analysis.

Data analysis followed the thematic analysis framework proposed by Braun and Clarke (2006), which consists of six stages: data familiarisation, coding, generating themes, reviewing themes, defining and naming themes, and reporting the findings. In the first stage, the researcher repeatedly read the survey responses and interview transcripts to become familiar with the data. In the second stage, meaningful segments of data were coded. The initial coding was conducted inductively to allow patterns to emerge from participants' responses without forcing the data into predetermined categories.

In the third stage, similar codes were grouped into broader categories. After the initial coding process, the emerging categories were interpreted through Garrison's (1997) self-directed learning framework, focusing on motivation, self-management, and self-monitoring. The categories were then organised into three broader themes: psychological, pedagogical, and psychosocial factors. Psychological factors referred to learners' personal and regulatory conditions that

influenced their learning consistency. Pedagogical factors referred to the learning content, activities, features, feedback, and task structure provided by Duolingo. Psychosocial factors refer to social and environmental conditions that influence learners' engagement in self-directed learning. In the fourth stage, the themes were reviewed by comparing them with the coded data and research questions. In the fifth stage, each theme was clearly defined and named. In the final stage, the findings were reported by presenting the themes and supporting them with relevant participant excerpts.

Both inductive and deductive approaches were employed in the analysis. Inductively, initial codes were generated from participants' responses to capture emerging patterns from the data. Deductively, the codes and themes were interpreted through Garrison's (1997) self-directed learning framework. This combination allowed the researcher to remain open to participants' actual experiences while also using the theoretical framework to explain how different barriers influenced learners' self-directed learning through Duolingo.

To enhance the trustworthiness of the findings, the study applied Lincoln and Guba's (1985) criteria for qualitative rigor, including credibility, transferability, dependability, and confirmability. Credibility was strengthened through data triangulation by comparing information obtained from the survey and interviews. Member checking was conducted by asking participants to review the summary of their interview responses and the researcher's interpretation of their main points. This procedure was used to ensure that the findings accurately represented the participants' intended meanings. Transferability was supported by providing detailed descriptions of the research context, participant characteristics, inclusion criteria, data collection procedures, and instrument focus. Dependability was maintained by documenting the research procedures, interview process, coding steps, and theme development. Confirmability was supported by keeping an audit trail of coding decisions, using participants' actual statements as evidence, and comparing interpretations with the original transcripts.

Researcher reflexivity was considered throughout the research process. The researcher recognised that personal assumptions about the usefulness of mobile applications in language learning could influence the way participants' responses were interpreted. To reduce potential bias, the researcher used open-ended questions, avoided leading questions, allowed participants to express both positive and negative experiences, and continuously compared emerging interpretations with the original data. Reflective notes were also written during the coding process to record analytic decisions and distinguish participants' perspectives from the researcher's assumptions.

Ethical considerations were addressed before data collection. Participants were informed about the purpose of the study, the research procedures, the voluntary nature of their participation, and their right to withdraw from the study at any time without penalty. Informed consent was obtained from all participants

before they completed the survey and participated in the interviews. Participants' identities were protected by using pseudonyms or participant codes in the transcripts and research report. The audio recordings, survey responses, and interview transcripts were stored securely and used only for research purposes.

3. Result

The analysis of survey responses and interview data revealed that students experienced several barriers when using Duolingo for self-directed learning (SDL) outside the classroom. The findings were analyzed using Garrison's SDL framework, which emphasizes three interrelated dimensions: self-management, self-monitoring, and motivation. In this study, self-management refers to students' ability to organize learning conditions, including time, energy, mood, workload, and learning environment. Self-monitoring refers to students' ability to evaluate their learning progress, recognize learning difficulties, and adjust their learning strategies.

The findings show that students' difficulties were more strongly related to managing learning conditions than to independently evaluating and regulating their learning progress. Students were generally able to complete Duolingo tasks, especially when assignments, targets, or deadlines were provided. However, they did not always show consistent evidence of monitoring their progress, reflecting on their learning needs, or adjusting their learning strategies independently.

The barriers were grouped into internal and external categories. Internal barriers were mainly related to psychological and personal learning conditions, including mood fluctuation, stress, fatigue, and time-management difficulties. External barriers consisted of pedagogical factors, such as repetitive materials and dependence on assigned targets, and psychosocial factors, such as environmental distractions, limited family awareness, and peer influence. However, these barriers did not operate separately. Students' engagement in Duolingo-based SDL was shaped by the interaction between internal readiness, task design, and social-learning conditions.

1. Internal Barriers to Self-Directed Learning

Internal barriers refer to challenges that originated from the learners themselves. These barriers were mainly related to students' psychological readiness and ability to manage their own learning conditions. The internal barriers identified in this study included mood fluctuation, stress, fatigue, time-management difficulties, and limited self-monitoring.

Table 1. Internal Barriers to Self-Directed Learning

SDL Dimension	Barrier	Key Issue
Motivation	Mood fluctuation	Students' willingness to practise depended on

SDL Dimension	Barrier	Key Issue
		emotional readiness.
Self- management	Stress and fatigue	Academic workload and tiredness reduced students' energy for autonomous learning.
Self- management	Time-management difficulties	Students struggled to prioritize Duolingo practice among other responsibilities.
Self- monitoring	Limited reflection on progress	Students completed tasks but did not consistently evaluate their learning strategies.

The findings show that students' motivation to use Duolingo was strongly influenced by mood. One participant stated, *"Sometimes when I am in the mood, I open my phone to do it, but when I am not in the mood, I feel too lazy even to open my phone"* (P1). This statement indicates that students' engagement was unstable because practice depended on emotional readiness rather than a fixed autonomous learning routine. When students felt prepared or motivated, they were more willing to practise. However, when they felt tired, bored, or emotionally unprepared, they tended to delay or avoid learning.

This finding reflects both motivational and self-management barriers. The issue was not only whether students had the desire to learn, but also whether they could maintain learning behavior when their mood changed. In this sense, mood fluctuation weakened students' ability to manage themselves as independent learners.

Stress and academic workload also affected students' consistency. One participant explained, *"During the last two weeks, I felt like I had many assignments, so I focused on other tasks first"* (P2). Another participant stated, *"I always do it close to the deadline because I am tired after work"* (P3). These responses suggest that the barrier was not simply lack of time. Rather, students struggled to manage competing academic and personal demands. Duolingo practice was often placed below coursework, assignments, or work responsibilities, which reduced consistency in autonomous learning.

These findings clarify the role of self-management in Duolingo-based SDL. Self-management was reflected in students' ability to arrange time, manage energy, control mood, and maintain regular learning routines. Although Duolingo offers flexible access, flexibility alone did not guarantee consistent practice. Without clear personal planning, students tended to practise only when they felt ready, had enough energy, or were close to a deadline.

The data also provided limited evidence of independent self-monitoring. Although some students recognised potential benefits for vocabulary development or speaking confidence, few responses described deliberate evaluation of whether the activities matched their learning needs, whether their progress was sufficient,

or how their strategies should be adjusted. This suggests that students were more likely to report task completion than systematic reflection on the effectiveness of their own learning. Therefore, the internal barriers were not limited to low motivation. They also revealed a gap between task completion and autonomous learning. Students could complete Duolingo activities, but they had not fully developed the habit of planning, monitoring, and adjusting their learning independently.

2. External Barriers to Self-Directed Learning

External barriers refer to factors outside the learners that affected their SDL practice. These barriers were grouped into pedagogical and psychosocial factors. Pedagogical barriers were related to the learning materials, task design, and assigned learning targets, while psychosocial barriers were related to family awareness, peer influence, and the learning environment.

Table 2. External Barriers to Self-Directed Learning

Category	Barrier	Key Issue
Pedagogical	Basic or repetitive materials	Students felt bored when the materials were too easy or repeated too often.
Pedagogical	Limited task challenge	Engagement decreased when tasks were not cognitively demanding.
Pedagogical	Dependence on assigned targets	Students were more active when tasks or deadlines were provided.
Psychosocial	Noisy learning environment	Distractions reduced concentration and accuracy.
Psychosocial	Limited family awareness	Family support was limited because family members did not fully understand the learning activity.
Psychosocial	Peer influence and reminders	Friends could support consistency through reminders, but social environments could also distract learning.

Pedagogical barriers emerged from students' perceptions of Duolingo's materials and task structure. Some students felt that the materials were too basic. One participant stated, *"In my opinion, the materials during these two weeks were still basic"* (P4). Another participant explained, *"At first, it was boring because the level was basic, but when the level increased, it became more challenging"* (P5). These responses show that students' engagement was affected by the perceived level of difficulty. When the materials were too easy, students became bored. However, when the level became more challenging, the activity became more engaging.

Repetition also reduced students' interest. One participant stated, *"The material is*

the same again and again, so it makes me bored" (P6). Another participant explained, *"I like the speaking part because it has variation, but the repeated parts are less interesting"* (P7). These responses indicate that students did not reject Duolingo as a learning tool, but their engagement depended on *whether* the activities were perceived as varied, useful, and appropriately challenging.

This finding is important because repetition had a double role. Repetition may support language practice, but when it was perceived as too predictable or too easy, it weakened students' motivation. In this study, repetition became a barrier when students did not see clear progress, variation, or challenge in the learning activity.

Another important pedagogical barrier was students' dependence on structured targets. One participant stated, *"If there is no target, maybe I will not do it. It is different when it is assigned; I have to do it"* (P8). Another participant stated, *"I use Duolingo more often when there is an assignment or a certain target"* (P9). These responses suggest that students' autonomous learning was still dependent on external structure. Students did not always practise because of stable independent motivation, but because assignments, deadlines, or targets pushed them to act.

This dependence on assigned targets shows that students' SDL was still developing. On one hand, targets helped students become more consistent. On the other hand, this dependence also showed that their learning behavior was not yet fully self-regulated. Therefore, external structure functioned both as support and as evidence of limited autonomy.

Psychosocial factors also shaped students' consistency. Some students who lived away from their families reported limited family awareness of their Duolingo learning. One participant stated, *"Because I live in a boarding house and stay alone, maybe my parents do not really know how I study on campus"* (P10). This shows that limited family support did not always mean negative support. In some cases, family members simply did not understand the learning activity or were not directly involved in students' independent learning process.

The learning environment also affected students' concentration. One participant stated, *"When the boarding house is noisy, I cannot focus and often make mistakes"* (P10). This statement shows that environmental distraction was not merely an external inconvenience. It directly weakened students' concentration and learning control. Therefore, psychosocial barriers also affected self-management because students had difficulty creating or maintaining a suitable learning environment.

Peer influence had a dual role. One participant stated, *"Sometimes my friends remind me, 'Have you done the two-week task?'"* (P8). Peer reminders helped students maintain consistency, especially when their internal motivation was weak. However, peers could also become a source of distraction when the social environment was noisy or uncondusive. This finding shows that SDL in mobile-

assisted language learning is not purely individual. Students' engagement depended not only on their personal motivation, but also on the social and environmental conditions surrounding them.

3. Interaction Between Internal and External Barriers

The interaction between internal and external barriers shows that students' difficulties in SDL were not caused by one dominant factor. Instead, psychological, pedagogical, and psychosocial barriers overlapped and reinforced one another. Mood fluctuation became more problematic when students encountered repetitive or basic materials. Academic workload and fatigue weakened time management and made students more likely to practise close to the deadline. Noisy learning environments reduced concentration and increased mistakes, which further weakened students' learning control.

Table 3. Interaction Between Internal and External Barriers

Internal Barrier	External Barrier	Interaction Effect	Illustrative Example
Mood fluctuation and low motivation	Basic or repetitive materials	Repetition intensified boredom when students were emotionally unprepared.	Students were less willing to practise when they were not in the mood and the material felt repetitive.
Stress and fatigue	Assigned deadlines and academic tasks	Students prioritized other tasks and delayed Duolingo practice.	Students completed practice near the deadline because they were tired or busy.
Weak self-management	Noisy learning environment	Distraction reduced focus and learning accuracy.	Students made more mistakes when the boarding house was noisy.
Limited self-monitoring	Dependence on targets and peer reminders	Students completed tasks but remained dependent on external structure.	Students practised more consistently when reminded by friends or assigned by the teacher.

The interaction among these barriers explains why students' Duolingo-based SDL should not be understood as a simple matter of motivation or discipline. Low motivation was not only an internal psychological issue. It became stronger when students faced repetitive materials or when the task did not provide enough challenge. Similarly, environmental distraction was not the only psychosocial barrier. It also weakened self-management because students could not control their learning space or maintain concentration.

This interaction also clarifies the emergence of situational motivation. In

this study, situational motivation was interpreted as temporary changes in learners' willingness to engage that appeared in response to immediate conditions, such as assignments, deadlines, targets, and peer reminders. The clearest evidence of situational motivation appeared in students' dependence on targets and reminders. One participant stated, "If there is no target, maybe I will not do it. It is different when it is assigned; I have to do it" (P8). Another participant stated, "I use Duolingo more often when there is an assignment or a certain target" (P9). These responses show that students' engagement was often activated by external situations rather than by stable autonomous learning habits. Peer reminders showed a similar pattern because they helped students complete the task when internal motivation was weak.

This finding adds nuance to Garrison's SDL framework. Motivation, self-management, and self-monitoring remain central to SDL, but the data show that developing autonomous learners may still require structured external support. Students' SDL was strongest when internal readiness, clear task design, and supportive social conditions worked together. Conversely, SDL became weaker when low mood, repetitive materials, academic workload, and distracting environments occurred at the same time. The interaction model in Figure 1 summarizes how internal and external barriers shaped students' Duolingo-based SDL.

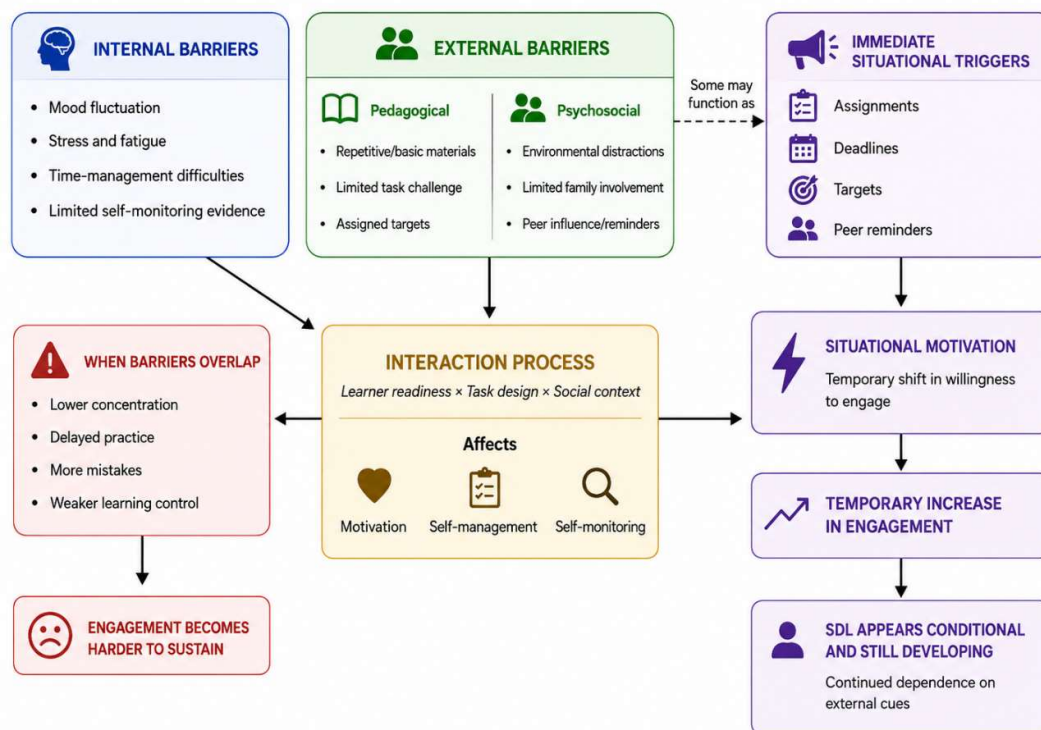


Figure 1. Visual Model of the Interaction Between Barriers in Duolingo-Based Self-Directed

Learning

The model illustrates that internal and external barriers did not operate independently. Learners' internal readiness, including mood fluctuation, stress, fatigue, time-management difficulties, and limited evidence of self-monitoring, interacted with external conditions such as repetitive or insufficiently challenging materials, competing academic demands, environmental distractions, limited family involvement, and peer influence. Some external conditions could also play different roles depending on the situation. For example, peers could distract learning in uncondusive social environments, but peer reminders could also temporarily encourage learners to return to a task.

The model also highlights the role of immediate situational triggers. Assignments, deadlines, targets, and reminders were associated with temporary increases in learners' willingness to engage with Duolingo, particularly when internal motivation or self-management was unstable. These triggers originated from the surrounding learning context but became motivationally salient when they provided immediate structure, urgency, or prompting. Situational motivation was therefore interpreted as a temporary shift in willingness to engage in response to immediate learning conditions.

Overall, the model suggests that Duolingo-based self-directed learning was shaped by the interaction among learner readiness, task design, social context, and immediate situational triggers. Engagement became more difficult to sustain when internal and external barriers overlapped, but sometimes increased temporarily when certain external conditions functioned as triggers. Continued dependence on assignments, deadlines, targets, and reminders also suggested that learners' self-directed learning was still developing rather than fully autonomous.

4. Discussion

The findings of this study indicate that disengagement in mobile-assisted self-directed language learning should not be interpreted simply as a lack of motivation. Rather, learners' engagement was shaped by the interaction among learner readiness, self-regulatory capacity, task design, and social context. Psychological, pedagogical, and psychosocial barriers did not operate separately; they overlapped and reinforced one another within students' learning experiences. This pattern supports Garrison's (1997) conception of self-directed learning as an interaction among motivation, self-management, and self-monitoring. In mobile-assisted contexts, learner autonomy therefore depends not only on access to digital resources but also on learners' capacity to regulate effort, manage learning conditions, evaluate progress, and sustain learning routines beyond classroom structures. This interpretation is consistent with prior research showing that mobile-assisted language learning can support self-directed learning through flexibility, personalization, and out-of-class access, while also demonstrating that these affordances do not automatically lead to sustained engagement (García

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Botero et al., 2019; Lai et al., 2022; Roy & Gandhimathi, 2025).

One prominent pattern within this interaction concerned learners' internal readiness. Students did not necessarily reject Duolingo as a learning tool; instead, their participation fluctuated according to mood, fatigue, competing demands, and their ability to manage learning time. The central issue was therefore not a complete absence of motivation but instability in learners' capacity to regulate their engagement across changing conditions. From the perspective of Expectancy-Value Theory, engagement is influenced by learners' expectations of success and the value attached to a particular activity (Wigfield & Eccles, 2000). When learners faced competing academic responsibilities, Duolingo practice appeared to lose priority, particularly when the activities were also perceived as repetitive or insufficiently challenging. Fatigue and workload further reduced the energy and attention available for regular practice. These patterns are consistent with evidence that technology-assisted self-regulated English learning is associated with self-efficacy, enjoyment, and learning outcomes (An et al., 2021). They also support research emphasizing the interconnected roles of motivation, self-monitoring, and self-management in technology-mediated learning environments (Lei et al., 2022; Zhu & Doo, 2022). Taken together, these findings suggest that engagement difficulties cannot be attributed to a single motivational deficit but emerge from the interaction between affective readiness and regulatory capacity.

An alternative explanation is that reduced participation may also represent a rational response to a mismatch between app-based learning and learners' immediate priorities. Learners may not reduce their use of Duolingo simply because they are unmotivated; they may shift their limited time and energy toward activities perceived as more urgent or valuable. When Duolingo is experienced mainly as routine vocabulary practice and is not clearly connected to course performance, communication needs, or personal goals, other academic and personal responsibilities may take priority. García Botero et al. (2019) similarly found that learners' intention to engage in out-of-class mobile learning did not always translate into consistent practice. The present findings therefore suggest that disengagement should not be reduced to learner weakness. It may also reflect a learning context that does not sufficiently support the transition from initial intention to sustained action.

From a pedagogical perspective, task design also contributed to fluctuations in engagement. Learners described some activities as repetitive, predictable, or insufficiently challenging, suggesting that accessibility and gamification alone may not be enough to sustain meaningful participation. Although participants primarily discussed repetition and limited challenge rather than individual gamification features, these findings raise a broader question about the ability of gamified design to maintain engagement over time. From the perspective of Self-Determination Theory, sustained motivation is more likely when learning environments support autonomy, competence, and relatedness (Ryan & Deci,

2000). Features such as points, streaks, levels, and rewards may create an initial sense of progress, but their motivational value may weaken when learners do not experience sufficient challenge, communicative relevance, or visible development. The issue is therefore not that gamification is inherently ineffective, but that its value may depend on the quality and perceived meaningfulness of the learning experience.

This critical interpretation should be balanced against studies reporting positive outcomes from Duolingo and digital game-based language learning. Previous research shows that app-based learning can support engagement, enjoyment, and language development when activities are perceived as useful, enjoyable, and personally meaningful (Loewen et al., 2019; Shortt et al., 2023; Zeng & Fisher, 2024; Zhou, 2024). Other evidence also indicates that app-based and mobile game-based learning can produce measurable learning gains, particularly when learners participate consistently and activities are aligned with learning goals (Liu et al., 2025; Loewen et al., 2019). The contrast between these positive findings and the present study suggests that effectiveness and sustained voluntary engagement should not be treated as equivalent outcomes. An application may support language practice or learning gains while still struggling to maintain self-directed participation when task variety, challenge, perceived value, or visible progress decline. Thus, the relevant question is not simply whether Duolingo can support language learning, but under what conditions learners continue to perceive sufficient value in using it independently.

Psychosocial conditions further demonstrate that self-directed learning is not equivalent to isolated learning. Environmental distractions and limited family involvement could make consistent practice more difficult, while peer influence played a dual role. In distracting social environments, surrounding conditions could weaken concentration; however, peer reminders sometimes provided an immediate prompt to return to the learning task. This interpretation is consistent with research showing that self-directed language learning with mobile technology involves cognitive, metacognitive, social, and affective strategies and that out-of-class technology-mediated learning is influenced by learner attitudes and support conditions (Lai et al., 2018, 2022). The present findings add nuance by suggesting that the same broader social context may have different functions depending on the immediate situation. Social conditions may disrupt engagement in one moment while a specific reminder from a peer may temporarily encourage participation in another.

A key interpretive contribution of this study concerns the role of immediate situational triggers in learners' fluctuating engagement. The findings showed that overlapping internal and external barriers generally made engagement more difficult to sustain, yet some external conditions could function differently in particular moments. Assignments, deadlines, targets, and peer reminders were sometimes associated with temporary increases in learners' willingness to engage,

especially when internal motivation or self-management was unstable. These triggers appeared to provide immediate structure, urgency, or social prompting rather than stable long-term motivation. Situational motivation can therefore be understood here as a temporary shift in willingness to engage in response to immediate learning conditions. It did not replace learners' broader intrinsic or extrinsic reasons for learning English; rather, it helped explain why participation changed from one situation to another.

The salience of situational motivation in the present findings should not be interpreted as evidence that it was stronger than intrinsic or extrinsic motivation. Rather, it was particularly visible because learners repeatedly described fluctuations in participation in relation to immediate cues and changing learning conditions. This pattern also reveals an important tension in the development of autonomy. External structure could temporarily support participation, but continued dependence on assignments, deadlines, targets, or reminders suggested that learners' self-directed learning remained conditional and still developing. In relation to Garrison's (1997) framework, motivation, self-management, and self-monitoring therefore remained interdependent: immediate triggers could temporarily prompt engagement, but sustained self-directed learning still depended on learners' ability to manage and evaluate their learning beyond those triggers. This interpretation is also consistent with Lai et al. (2024), who show that individual interest and self-regulation jointly shape self-directed language learning with technology beyond the classroom. Autonomy should therefore not be understood as the absence of support, but as a developing capacity to sustain and regulate learning with decreasing dependence on immediate external prompts.

The findings also have implications beyond Duolingo. The broader issue is not whether a single application is effective or ineffective, but how mobile-assisted self-directed language learning is designed and supported. For application designers, the findings suggest the value of adaptive task sequencing, richer feedback, clearer progress indicators, appropriately calibrated challenge, and more meaningful communicative practice. Gamified rewards alone are unlikely to be sufficient when learners do not perceive progress or relevance. For teachers and institutions, students should not simply be instructed to use an application independently. They need support in setting realistic goals, selecting strategies, reflecting on progress, and connecting app-based practice with broader learning objectives. Such scaffolding should be gradually reduced as learners develop stronger goal-setting, self-monitoring, and independent regulation. At the institutional level, mobile-learning policies should therefore integrate app-based learning with clear pedagogical purposes and reflective support rather than treat application use as an isolated requirement.

Hence, the findings show that sustaining mobile-assisted self-directed language learning depends on the interaction among learner readiness, regulatory capacity, task design, social context, and immediate situational conditions. When

internal and external barriers overlap, engagement becomes more difficult to sustain; however, some external conditions may temporarily function as triggers that increase participation. This does not resolve the underlying barriers, and continued reliance on such triggers suggests that autonomy remains conditional and developing. The study therefore contributes to the literature by showing that barriers to mobile-assisted self-directed learning are not merely individual weaknesses but part of a broader interaction among learners, technology, and learning environments. Supporting autonomous learning requires more than technological access; it requires learning designs and social conditions that help learners move from externally prompted participation toward more sustained and reflective self-regulation.

5. Conclusion

This study indicates that engagement in mobile-assisted self-directed language learning is shaped by the interaction among learner readiness, self-regulatory capacity, task design, and social context. Internal and external barriers did not operate independently; when they overlapped, learners found it more difficult to sustain consistent engagement. In relation to Garrison's (1997) framework, the findings add contextual nuance by showing how motivation, self-management, and self-monitoring operate within changing mobile-learning conditions. Learner autonomy therefore appeared not as a fixed attribute, but as a developing capacity shaped by the interaction between internal readiness and surrounding learning conditions.

A key contribution of this study lies in highlighting the relevance of situational motivation for understanding fluctuations in engagement. Assignments, deadlines, targets, and peer reminders sometimes functioned as immediate triggers associated with temporary increases in learners' willingness to engage, particularly when internal motivation or self-management was unstable. Situational motivation did not replace intrinsic or extrinsic motivation; rather, it helped explain why participation changed across situations. Continued dependence on such external cues also suggested that learners' self-directed learning remained conditional and still developing rather than fully autonomous.

Practically, the findings highlight the need for coordinated pedagogical and technological support. Educators can support learners through realistic goal-setting, progress reflection, and gradually reduced scaffolding that encourages more independent regulation. Application designers should provide greater task variation, appropriately calibrated challenge, clearer progress feedback, and meaningful learning activities rather than relying primarily on gamification. Given the small and context-specific sample, the findings should be interpreted as contextually grounded rather than broadly generalizable. Future research could examine situational triggers across larger and more diverse learner groups and over longer periods of mobile-assisted self-directed learning. Sustaining mobile-

assisted self-directed learning therefore requires more than technological access; it requires learning conditions that help learners move from externally prompted participation toward more sustained and reflective self-regulation.

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