Unveiling the Multifaceted Dance of Distractions: Thumbing Through the On-Screen Distractions Throughout Memrise MALL Experience

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ABSTRACT

The detrimental impact of screen distractions, including heightened cognitive-emotional engagement and reduced concentration spans, remains to be fully explored. This case study investigates EFL students' perceptions of screen distractions in mobile-assisted language learning (MALL) and explores their potential implications on learning outcomes. The study employs a descriptive methodology and purposively samples 46 first-year university students who are not majoring in English as participants. During a two-week trial, the participants use the Memrise English learning app to complete Beginner's levels (A1 and A2). Screen recordings, user account credentials, and interview excerpts are collected from shared Google Drive folders and focus-group sessions. Thematic data analysis is conducted to gain insights into the participants' perception of screen distractions. Results reveal that social networks and entertainment apps (63.43%) are the primary sources of distraction, followed by web browsing (22.29%), incoming notifications and pop-up messages (11.45%), and incoming calls (2.83%). Participants perceive these distractions as driven by a psychological impulse to avoid missing updates. While the participants demonstrate an impressive aptitude for adapting to and navigating Memrise MALL resources, they lack necessary support to manage distractions, resulting in a failure to meet learning objectives. The study emphasizes the importance of incorporating set times for learning and optimizing screen learning to be distraction-free. Furthermore, it highlights the negative consequences of multitasking and interruptions on students' MALL performance, underscoring the need for structured use of social media to enhance engagement and academic achievement. Students' perception of Memrise MALL is generally positive, with reported benefits such as improved recall, concentration, motivation, and engagement. However, distraction management and material connection are essential contributors in successful MALL experience.

1. Introduction

EFL students, in the present-day context, demonstrate notable adaptability and skill in employing technological resources, regardless of demographic variables such as age and gender (Hoang et al., 2022). The widespread integration of technology in contemporary life has given rise to a generation of tech-savvy students (Pedro et al., 2018). To effectively cater to these students' needs and interests, educators must develop a pedagogical framework for mobile learning while considering the technical capabilities and limitations of various devices in use. However, it has been observed that only some applications provide the necessary supports to manage distractions posed by interactive screens, consequently falling short of meeting learning objectives (Attia et al., 2017; Kay et al., 2017; McCoy, 2020).

Mobile-assisted language learning (MALL) holds promise in language education, but it is susceptible to disruptions caused by distractions such as notifications, calls, texts, and non-learning device usage (Castellano & Arnedillo-Sánchez, 2016; Hollis & Was, 2016; McCoy, 2020; Winter et al., 2010). To address this issue, educators must incorporate designated learning periods on mobile devices and optimize screen learning to be distraction-free. Additionally, developers should prioritize visual information to reduce distractions and enable students to focus on content (Lewandowska et al., 2022). While these methods have shown to promote mobile learning effectively, studies (Aagaard, 2015; Rozgonjuk et al., 2019; Sana et al., 2013; Synnott, 2015) suggest that students perceive screen distractions as a hindrance to their learning outcomes. Students have reported challenges in controlling device usage

(Hayashi & Nenstiel, 2021), feelings of addiction to devices (Kuznekoff et al., 2015), and difficulties in maintaining focus due to distractions (Attia et al., 2017). Lissak (2018) has further linked screen distractions to decreased engagement, motivation, and language learning. Conversely, some studies (Dingler et al., 2017; Rosen et al., 2013) propose that screen distractions can enhance language learning, with students exposed to such distractions demonstrating higher proficiency levels than those who were not.

Recent investigations (Ansari & Khan, 2020; Giunchiglia et al., 2018; Li & Chan, 2021) have explored the impact of screen distractions, specifically social media notifications and pop-ups, on memory, cognition, and concentration span, resulting in consistent findings. Notably, smartphones in educational settings have been found to significantly distract students, particularly through instant messaging and scrolling social media (Anshari et al., 2017; Shakoor et al., 2021; Throuvala et al., 2021). However, the full extent of the negative consequences of mobile phone distractions remains to be fully ascertained. Some studies (Chu et al., 2021; Lissak, 2018; Twenge & Campbell, 2018) suggest that screen distractions may increase cognitive-emotional engagement with screen behaviors while decreasing users' concentration spans. Nonetheless, individuals with high attention control may be better equipped to manage their screen activities and maintain focus. Additionally, related studies (Hayashi & Nenstiel, 2021; Lee et al., 2018; López-Gil & Ramirez Osorio, 2020) highlighted the reduced efficiency in task completion associated with intensive multitasking.

In light of previous investigations that have delved into the impact of screen distractions on memory, cognition, and concentration span, particularly in MALL-integrated settings, a significant gap in the existing literature emerges. While previous studies have consistently shown that smartphones, with their social media notifications and pop-ups, significantly distract students, the full extent of the negative consequences remains to be fully ascertained. These studies suggest that phone screen distractions may increase cognitive-emotional engagement with screen behaviors but decrease users' concentration spans. However, the role of individual differences, especially high attention control, in managing screen activities and maintaining focus warrants further exploration. Additionally, the implications of intensive multitasking on task efficiency remain a focal point in related studies.

The present study aims to understand the perceptions and distraction management strategies in the context of MALL among EFL students. Building upon previous research that highlights the negative impact of digital distractions, such as notifications and social media, on language learning outcomes, this study investigates how EFL students deal with screen distractions during MALL activities. To address the research problem and contribute to the existing literature, this study employs a descriptive case study design, focusing on 46 first-year university students who are not majoring in English. The participants engage in a two-week trial using the Memrise English learning app, specifically completing levels A1 and A2. Thematic data analysis is applied to gain insights from the participants' perceptions of on-screen distractions (OSD) and how they have dealt with distraction management strategies. By exploring the participants' experiences and perceptions of distraction management strategies, this study proposes the development of effective approaches to reduce or eliminate distractions during MALL activities. Furthermore, it seeks to enhance the design and implementation of MALL initiatives by providing practical recommendations to educators and language learning app developers.

The findings of this study have the potential to reconstruct the MALL integration in EFL instructional settings. By highlighting the importance of distraction management in optimizing the effectiveness of MALL, this study pinpoints some user-based experience strategies that can create a distraction-free mobile learning environment and improve students' ability to concentrate on screen learning tasks. Ultimately, the primary objective of this study is to augment language learning outcomes and elevate student engagement within the context of MALL through the proficient management of on-screen distractions. The subsequent sections of this paper will delve into a more comprehensive literature review, discussing the potential benefits of the Memrise MALL application and its alignment with current language learning trends, while also presenting the study.

2. Literature Review

2.1 Cognitive loads, attentional shifts, and OSD in MALL

Cognitive Load Theory posits that students possess limited cognitive processing capacity, a crucial factor in instructional design aimed at enhancing learning outcomes (Skulmowski & Xu, 2022). This theory extends to MALL, where it elucidates the detrimental impact of on-screen distractions on learning effectiveness (Lee et al., 2018). When cognitive resources are diverted towards distractions, it diminishes the available capacity for germane cognitive load, ultimately hampering learning. To optimize MALL, instructional designers should adhere to cognitive load principles by simplifying learning materials and offering explicit, step-by-step instructions, thereby reducing extraneous cognitive load (Hashim et al., 2017).

Similarly, Attentional Shift Theory (AST) suggests that the use of mobile phones and other gadgets in MALL can hinder learning progress (Krashen, 1981). The presence of such devices can lead to attentional

shifts away from learning activities, resulting in reduced engagement and progress (Latifi et al., 2013). Distractions like games, messaging apps, and social networks on mobile screens can overwhelm students, leading to a lack of focus and confusion, potentially diverting them from learning materials (Krashen, 1981). Numerous studies have reported that on-screen distractions adversely affect students' cognitive processes due to divided attention (Corkin et al., 2021; Kay et al., 2017; Lee et al., 2018; McCoy, 2020). These distractions result in lower information recall, decreased engagement, and reduced work quality (Attia et al., 2017; Blasiman et al., 2018; Hollis & Was, 2016). To mitigate these adverse effects, Meyer and Eklund (2020) recommend providing distraction-free environments, engaging activities, and frequent feedback to enhance the learning experience and improve learning outcomes.

2.2 OSD in smartphone-based English learning

Recent studies have underscored the significance of studying on-screen distractions in smartphone-based English learning (Metruk, 2022; Yu et al., 2022). (Salmerón et al., 2023) discovered that students exposed to on-screen distractions during learning activities scored lower on standardized reading comprehension tests compared to those without distractions. This aligns with Aroline and Brown (2020), who observed significantly higher cognitive loads among students with on-screen distractions. Furthermore, Chen et al. (2019) found that students with on-screen distractions reported lower motivation levels, while Lee et al. (2018) noted reduced concentration and focus in such students. Collectively, these findings emphasize the detrimental impact of on-screen distractions on MALL experience. Other studies (Kaminske et al., 2022; Luo & Watts, 2022; Quan et al., 2022; Xodabande & Hashemi, 2022; Xue, 2022) have also explored the influence of on-screen distractions on MALL among students and academics. For instance, Kay et al. (2017) investigated distracting behaviors in bring-your-own-device (BYOD) secondary school classrooms. Their study included 181 secondary school students across three Canadian schools, revealing that 80% of students considered themselves on task when using mobile devices in class.

However, they also frequently engaged in distracting activities such as emailing, web surfing, social media use, instant messaging, and gaming. Female students were more inclined towards social media, while male students favored gaming. Pattermann et al. (2022) also surveyed 201 participants and found that students primarily used computers for course-related activities and smartphones for non-course-related activities. Most students recognized the disruptive effects of non-course-related activities on their own learning outcomes, although they seemed less aware of how their actions could negatively affect others' learning experiences.

3. Method

This descriptive case study accounted complex issues of screen distractions in participants' whole Memrise MALL experience in their natural settings. This particular method was considered under the following circumstances; non-invasive as well as non-manipulative to participants' personal conditions or situations (Creswell, 2014; Nassaji, 2015). Procedures, such as installation and account setups, were established before the implementation of the Memrise MALL to ensure compliance and anticipate potential technical issues.

The focus of this study was to investigate how the participants perceive on-screen distractions during the Memrise MALL experience. The study also examined the participants' overall satisfaction with the Memrise MALL experience and its impact on their English language learning. The study also explored the participants' overall impressions of experiencing the Memrise MALL and any potential issues they encountered along the process.

3.1 Participants

This study case focused on 46 Indonesian first-year university students implementing a purposive sampling (Campbell et al., 2020; Klar & Leeper, 2019). There were 113 applicants signed up for the program but only 46 participants (16 males and 30 females) passed the following inclusion criteria: being non-English majored first-year students who enrolled in EFL class and having no prior experience with an smartphone-based MALL. The participants were registered in the EFL 2 course at the time of the study. They were required to upgrade to premium accounts with monthly subscriptions and share their personal, private details of the Memrise MALL experience for research purposes only. All participants were provided informed consent prior to the study.

3.2 Instruments and procedures

The MALL initiative, spanning a duration of two weeks, utilized the android-based Memrise English learning app (version 2021.9.8.0). Within this period, participants were tasked with completing 25 learning units, encompassing a total of 948 target vocabularies. These units were categorized into two proficiency levels: A1 and A2. The initial five days of the trial were dedicated to the attainment of Level A1, with the subsequent seven days allocated for the completion of Level A2. Each day, participants were expected to accomplish one lesson, comprising five learning units.

Additionally, they were provided explicit instructions to record their learning process, noting any encountered screen-based distractions while learning through the application. These recordings were subsequently uploaded to designated, shared Google Drive folders.

Upon completion of the MALL initiative, participants were required to furnish links to their respective Google Drive folders, along with screenshots of their account profile page. Subsequent to this, focus-group sessions were convened to engage participants in discussions pertaining to their on-screen behaviors and the challenges posed by distractions. Through these sessions, participants also furnished insights regarding their satisfaction with the app, as well as the impact of prevailing distractions on their Memrise overall MALL experience.

3.3 Data analysis

The data collected from the focus-group sessions were analyzed using thematic analysis, both descriptive and qualitative analysis methods, which also involved color-coding and categorizing the data to identify patterns and themes. The researcher looked for recurrent words, phrases, and ideas in the data and then categorized these to develop a classification of the topic or issue under study. The most relevant comments to the themes were listed as group representatives. The researcher also used the identified patterns and themes to develop a deeper understanding of the topic or issue under study.

4. Results

This study focused on understanding the impact of on-screen distractions on the effectiveness of android-based Memrise MALL. The study adopted a descriptive case study design, targeting 46 first-year EFL university students. The participants engaged with Beginner's levels of A1 and A2, providing a rich corpus of data through screen recordings, user account credentials, and interview excerpts. The thematic analysis of this data illuminated the prevalence and impact of various distractions, notably social networks and entertainment apps, web browsing, incoming notifications, and calls, on the overal Memrise MALL experience.

Table 4.1 illustrates the achievement levels of participants in completing the 948 target vocabularies at both A1 and A2 levels. Specifically, 48% of the participants (*N*=22) successfully completed all target vocabularies. Meanwhile, 41% of the participants (*N*=19) achieved a commendable percentage of 90% or more, while approximately 11% (*N*=5) completed around 80% of the vocabularies. Regarding the duration of Memrise MALL experience, it was noteworthy that 35% of the participants (*N*=16) completed the program in less than 600 minutes, which roughly translates to approximately 7 days. In contrast, 11% of the participants (*N*=5) took a slightly longer period of 10 days to complete the program. Additionally, 13% (*N*=6) spent 800 minutes, 20% (*N*=9) invested 700 minutes, and 22% (*N*=10) dedicated more than 600 minutes within an 8-day span.

Table 4.1. Participants' Memrise MALL descriptives

|	N	Min	Max	Mean Statistic	SD	SD
Vocabulary Gains	46	792	948	914.02	6.961	47.21
Total Time Spent	46	408	995	686.67	23.490	159.32
Screen Distractions	46	16	1935	361.26	60.349	409.31
Time Wasted	46	1	226	48.22	7.878	53.43

In sum, the documented screen recordings reveal a total accumulation of 31,587 minutes across all participants' experiences.

The investigation into on-screen distractions during Memrise MALL activities shed light on the significant impact of various distractions on participants' learning experiences. Figure 4.1 provides an overview of the total number of distractions documented from participants' screen recordings, revealing a staggering 16,539 instances of distractions. Among these distractions, social networks and entertainment apps constituted the majority, accounting for 63.43% of the documented cases. Participants were frequently drawn to platforms like Facebook, Instagram, and YouTube during their MALL sessions, indicating that the allure of social media and entertainment content can divert their attention away from language learning tasks. Web browsing distractions accounted for 22.29% of the total distractions, often resulting from participants' search for supplementary examples or information related to their language learning materials. While seeking additional information can be beneficial, it also poses the risk of sidetracking students with irrelevant content, leading to a loss of focus on their primary learning objectives. Additionally, incoming notifications and pop-up messages constituted 11.45% of the distractions, with participants attending to messages from apps like WhatsApp and Telegram. The need to promptly respond to personal messages could disrupt the flow of MALL activities, affecting concentration and comprehension. Despite being a minor source of

distractions, incoming calls were still observed to interrupt the learning process, with participants feeling compelled to attend to calls from family members, often perceived as potential emergencies. This behavior highlights the challenge in managing the boundary between personal and educational activities during MALL sessions. The cumulative wastage of 2,220 minutes (7.03% of the total MALL time) due to distractions throughout the Memrise MALL experience raises concerns about the overall efficiency of screen learning. These distractions not only consume valuable learning time but also hinder the consolidation of memory and impede language learning progress.
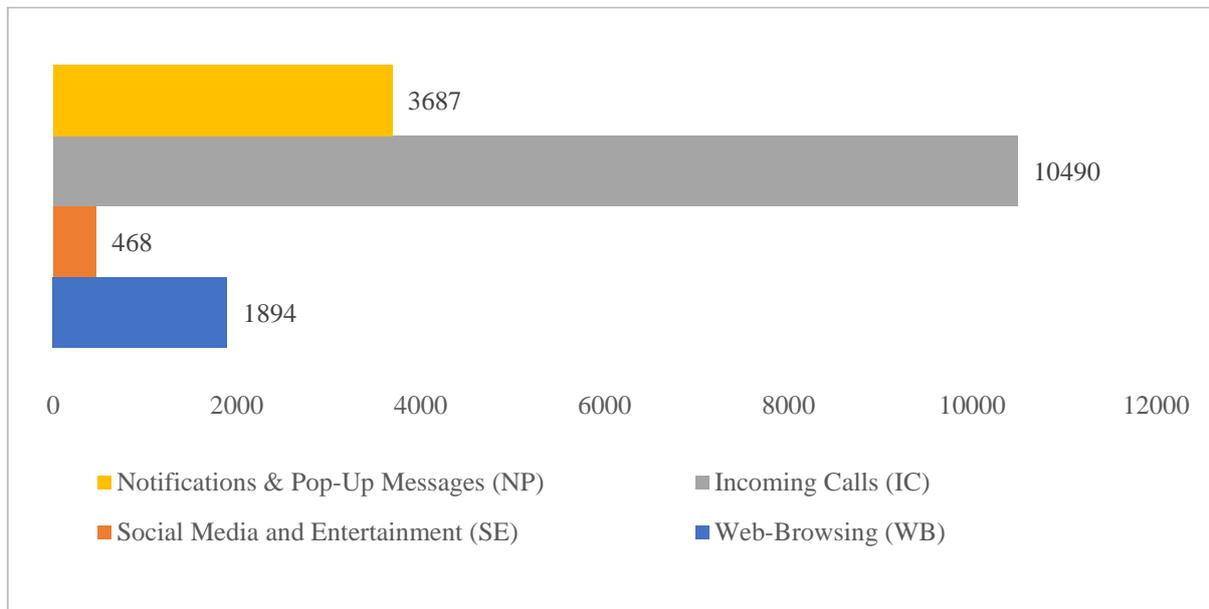
Figure 4.1. Total present on-screen distractions attended by the participants

Drawing parallels with the preceding findings, an in-depth analysis of participant responses provided additional valuable insights into distraction management and focus in MALL activities. A majority of participants (58.69%, *N*=27) showcased an understanding of the need to activate Silent Mode before engaging in MALL, thus indicating their cognizance of how their actions influence the learning environment. Concurrently, 26.09% (*N*=12) of participants appeared to be positively reinforced by the knowledge that their peers expected them to take ownership of their learning journey. This mutual accountability fosters a culture of commitment to learning and suggests that peer support can encourage proactive attitudes towards managing distractions.

Moreover, 10.87% (*N*=5) of participants demonstrated an enhanced awareness of their peers' expectations regarding social media attendance, reinforcing the notion that social dynamics play a role in distraction management during language learning. The significance of focus and efficiency in the learning process was evident in the responses of a smaller percentage (4.35%, *N*=2) of participants, highlighting the need for sustained concentration during MALL activities. The themes discussed in Figure 4.1, encompassing social media distractions, interruptions, multitasking, peer control, and commitment to learning, collectively emphasize that technology, such as MALL applications, can both enhance and hinder language learning practices. The participants' acknowledgement of the importance of peer control and collaboration in the learning process, combined with the challenges of multitasking, strengthens the argument for giving due attention and focus to the learning task at hand. Furthermore, the expressed desire for a focus feature that eliminates notifications and other intervening activities suggests that participants recognize the potential for technology to assist in managing distractions effectively. The following are the representative comments from the participants reproduced in English:

> "Kalau yang saya ingat itu selalu *ji* saya aktifkan mode diam atau bebas gangguan sebelum saya belajar di hp. Cuma ya ... memang selalu *ka* cek *ki* kalau ada pesan atau telpon yang masuk. Jangan sampai ada pesan masuk dari mamaku atau saudara-saudaraku, harus *toh* saya balas. Biasa juga saya buka aplikasi lain untuk googling, *anu* juga telpon pasti saya angkat kalau dari mamaku."

> "As long as I can recall, I always *activate the silent mode or do not disturb feature* before joining MALL sessions. But... I admit that I still *check on incoming messages and calls* in case my parents or my relatives sent me messages I should pay attention to. I also *switch-screen to web-browse* more examples from Google and *answer phone calls* if it was from my mother."

Excerpt 1, p. 25

"Saya paham *ji kasian* harus fokus pas buka Memrise kalau lagi ada sesi. Cuma memang susah sekali *kasian* kalau tidak cek juga Whatsapp sama Instagram. Siapa tahu ada pesan atau hal penting lain yang harus dicek, kan kita tidak pernah tahu. Kalau bosan *ka* juga ya pasti saya cek notifikasiku. Tidak pernah *ja* nonton Youtube seperti temanku itu (sebut nama).."

"I know that we must focus on Memrise when joining meeting sessions but it is just my bad that I *can't miss Whatsapp and Instagram*. There might be some important messages or emergency that I should attend to, I don't know. When I felt bored, I surely *check the notifications*. I do *not watch Youtube*, though, like my friend (mentioned a name) here."

<div align="right">Excerpt 2, p. 46</div>

"Selalu ka cari definisi kata atau buka kamus online sambil saya buka ini Memrise. Cuma memang ini Instagram sama Whatsapp susah dihindari. Saya biasa buka untuk selingan *ji* tapi saya komitmen selesaikan target sebelum selesai sesinya."

"I *search for definitions* and *open an online dictionary* all the time, even while learning from Memrise. But I should admit that *Instagram and Whatsapp are addicting*. I *check on them* for some minutes *as interludes*, but I am still *committed to finishing my units* before meeting time is over."

<div align="right">Excerpt 3, p. 35</div>

"Pemberitahuan aplikasi dari atas layar yang sering mengganggu. Jadi pas saya mau pin aplikasinya Memrise itu susah sekali. Baiknya ini aplikasi fokus sama fitur yang itu, kalau bisa pas dibuka jangan ada panggilan atau pesan masuk, begitu juga sama pemberitahuannya supaya tidak ganggu kita pas belajar. Susah rasanya pindah aplikasi. Bahkan itu Google Translate saya tidak pernah buka."

"*Notifications from the top bar* are annoying. Swiping them to put the Memrise app on top is tiring. I really hope Memrise would put focus feature in their app. No messages, calls, notifications, or other intervening activities while screen learning takes place. I *hate to multitask* when I learn. I *don't even open Google Translate* in the meeting sessions."

<div align="right">Excerpt 4, p. 30</div>

Excerpts from participants' responses indicated that 67.39% (*N*=31) perceived the need for peer support and guidance to stay focused and engaged in their language learning journey. This highlights the importance of fostering a sense of community and motivation among students. Additionally, 76.09% (*N*=35) of the participants recognized social media as a potential source of distraction from their language learning materials. Participants reported various temptations while using social media platforms, including clicking on notifications, browsing through posts, and indulging in unrelated activities like listening to music or watching YouTube videos. Such distractions hindered their focus and negatively impacted their learning experiences. Browsing for music and videos to relax were also identified as additional sources of distraction. Strategies were proposed to address the challenges of using social media for language learning. These included developing time management skills and setting limits on social media use to prevent it from hindering their learning progress. Moreover, providing guidance on how to attend multimedia contents constructively was emphasized to enhance the learning experience while using social media.

The finding establishes a clear contrast in participants' perceptions regarding the impact of social media on language learning. While a significant portion recognized the need for peer support and guidance, an equal number identified social media as a potential distraction from their learning materials. This underscores the importance of striking a balance in utilizing social media as a supportive tool while managing its potential distractions. The following four translated excerpts are the most relevant of participants' responses in regard to dealing with screen distractions:

"Kalau pemberitahuan Whatsapp pasti saya klik, terutama kalau dari grup keluarga sebab jangan sampai ada hal penting. Iye, saya memang nonton Youtube atau cek postingan Instagram kalau sudah lama kerja Memrise. Kayaknya memang saya butuh teman untuk bantu saya fokus belajar."

"I would *click on any notification on Whatsapp*. Family group notifications are in particular since there might be some emergencies. Yes, I also *watch some Youtube videos or Instagram posts* after spending a few minutes in Memrise. I think I *need a peer to focus* more on learning."

<div align="right">Excerpt 5, p. 4</div>

"Kadang memang saya lupa lanjut belajar Memrise kalau sudah terima telepon. Sama juga pas selesai main sosmed. Sulit memang tidak buka aplikasi medsos atau jawab telepon dari teman-teman."

"Sometimes I *forget to continue my unit learning* on Memrise *after receiving calls*. The same thing happens when I *scroll for social media posts*. It is really *hard not to switch to social media apps or answering incoming calls* from friends."

<div align="right">Excerpt 6, p. 18</div>

Kalau saya, sulit memang belajar tanpa musik. Sambil buka Memrise dengar lagu juga. Memang saya selalu buka aplikasinya, paling tidak skip lagu, dan saya akui cukup mengganggu fokus belajar. Saya pasti *pantengi* itu aplikasi baru sadar kembali ke Memrise. Kadang juga saya cek lagu di Youtube. Paling cuma tujuh atau sepuluh menit saya bisa fokus di Memrise setelah 30 menit belajar. Apalagi sambil tidur-tiduran."

"For me, I *can't learn without some music*. I learn through Memrise while listening to music. Yes, I admit that *switching to music player*, even just to play next item on my playlist, is really distracting. I would *stay on that screen for some minutes* before returning to Memrise. Sometimes, I would even *check for video clips on Youtube*. For thirty minutes screen activities, I

might *only focus on Memrise screen learning for seven to ten minutes*. Lying on the bed makes it harder not to be *distracted by Youtube videos*."

Excerpt 7, p. 21

The participants' suggestions provided valuable insights for further improvement to the app. Specifically, 41.30% of the participants (*N*=19) proposed reducing repetitive content in the app to minimize distractions and increase engagement. A similar sentiment was echoed by 32.60% of the participants (*N*=15), who emphasized the significance of smooth transitions between media to enhance the learning experience. Additionally, 26.10% of the participants (*N*=12) acknowledged the app's limitations and its potential for refinement, suggesting that addressing these aspects could optimize the overall learning experience. When examining the reflective perceptions of the participants, it became evident that the Memrise MALL experience facilitated engagement with words and phrases, allowing them to acquire new vocabulary and comprehend and pronounce unfamiliar words effectively. This was particularly valuable in the context of an EFL classroom, where students could apply the acquired language skills. The findings indicated that the app should offer a wider range of materials to accommodate diverse learning styles and incorporate more media for users to interact with.

Moreover, the identified issues related to force close problems need to be addressed to improve the app's overall user experience. By aligning content with individual learning styles and interests, the Memrise MALL application can enhance engagement and promote long-term knowledge retention. The positive feedback from participants underscores their satisfaction with the app, as it motivated them to expand their knowledge and language abilities, suggesting its potential for promoting effective language learning in diverse instructional settings. Translated representative comments from the participants indicated overall satisfaction to the Memrise MALL experience:

> "Saya terinspirasi untuk latihan berbicara saat saya belajar di aplikasi. Ada beberapa cara pengucapan yang agak susah ditiru tetap tetap saya usahakan. Saya bisa paham kapan saya bisa pakai ungkapan yang saya pelajari. Cuma kalau boleh saran, materinya jangan terlalu sering diulang-ulang."

> "This app inspires me to *practice speaking*. I found some models in the clips are hard to mimick but I continue to *practice my pronunciations*. I *can relate to how words or phrases are expressed*, though. The only suggestion I can give is the materials should *not be too repetitive*."

Excerpt 8, p. 33

> "Mantap *ki* medianya dan halus animasinya. Banyak kata yang baru saya tahu dari aplikasi, tidak pernah saya pelajari sebelumnya. Ada *sih* beberapa yang biasa

saya lihat tapi tidak tahu cara bacanya. Nah, dari aplikasi *mi* itu saya belajar."

> "I love the media that is presented and they have *smooth transitions*. I learn *a lot of vocabularies* from the app, some more that I have never heard before. There are some words that are familiar, but I do not know how to pronounce them. The app *helps me greatly* in that."

Excerpt 9, p. 45

> "Banyak topik yang mirip dengan materi di kelas bahasa Inggris. Banyak malah yang sudah saya pelajari jadi gampang saya mengerti. Saya suka *download file-nya* pas di kampus terus nanti dipelajari di rumah. Oh iya, awalnya *toh* sering keluar sendiri ini aplikasi jadi saya pakai hpnya kakakku untuk instal ulang jadi ga jadi masalah *mi*. Aplikasinya, sama juga kuis dan permainannya, asyik sekali jadi saya suka. Tapi lebih bagus lagi kalau bisa sesuai dengan gaya belajar."

> "The topics being discussed are *similar to those* that my lecturer taught us *in the EFL class*. Some of them I have *learned many times*, so I can understand the context very well. I used to *download the files* while campus and reopen them when I got home. Oh, at first, I *experienced force close* but I *reinstalled the app* on my sister's phone and it runs well. The app and its features such as *quizzes and games* are really fun and I love them. But I think *it has to be improved* in some ways to facilitate more learning styles."

Excerpt 10, p. 37

Participants in the study identified various effective strategies to improve material memorization. These strategies included breaking down large tasks into manageable chunks and employing spacing, interleaving, and chunking techniques. Additionally, they emphasized the importance of repetition and pattern recognition in successful learning. Furthermore, participants suggested using lexical tasks to learn new words and phrases. However, the study also revealed some challenges faced by participants. Approximately 36.96% of the participants (*N*=17) mentioned difficulties in understanding pronunciations, complexity, and repetition of materials. Moreover, 34.78% of participants (*N*=16) expressed the need for collaborative learning in offline mode, indicating the importance of accommodating students with limited internet access. On the other hand, 10.87% of participants (*N*=5) expressed satisfaction with the user experience of the app, highlighting its potential as a valuable language learning tool.

Some participants (6.52%, *N*=3) recommended feature upgrades to enhance the app further. These suggestions included improving audio quality and adding a handwriting feature for writing practice. Despite the challenges, translated representative comments from participants highlighted the app's strengths, particularly its sentence construction exercises. Participants also critically analyzed the issues they encountered when using the Memrise

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MALL application and categorized them into four main themes: difficult pronunciations, repetitive materials, technical issues, and writing features. To address these challenges, they proposed various solutions. For instance, breaking down repetitive materials into smaller subunits and simplifying complex content can make the app more user-friendly and improve comprehension. Additionally, increasing user engagement and embedding peer-to-peer learning in local networking can foster a sense of community and support among students. Enhancing the app's audio quality can elevate the overall learning experience, ensuring clarity in pronunciation exercises. Furthermore, incorporating a handwriting feature for writing practice can provide the participants with opportunities to reinforce their language skills in a more interactive manner. The following most relevant comments (translated from Indonesian) were given by the participants:

"Banyak model pengucapan yang susah saya ikuti. Kayaknya juga ini earphone-ku bermasalah tapi sering *ji* juga saya pakai dengar musik. Contoh di klip itu banyak yang terlalu cepat caranya bicara. Oh iya, saya kasi tahu *ki* kalau ada materi yang terlalu diulang-ulang. Harusnya simpel *mi* saja. Banyak materinya untuk satu unit belajar jadi sarannya ya kalau bisa dibagi lagi supaya lebih sedikit agar mudah kita hapal kata-katanya."

"Some pronunciations I found *too hard to follow*. Maybe it is my earphone, but I am not sure because I use it to listen to music. Some models in the clips *speak too fast*. Oh, I should tell this, some materials are *displayed too repetitively*. I think it should be simplier. There are too many materials from a unit learning. It should be broken down into *smaller subunits* to ease us *memorize the vocabularies* being learned."

<div align="right">Excerpt 11, p. 6</div>

"Saya suka topik bahasannya. Sering malah kita diskusikan di kelas. Waktu Dosen sarankan pakai ini aplikasi, langsung saya instal karena pasti ada materi kelas di situ. Saran saya *ya* kalau bisa main berdua pakai jaringan lokal saja. Apalagi pas internet mati. Itu lah saja."

"I love the topics. We *discussed them* in the class, by the way. When my lecturer recommended the app, I did *not think twice* because it must be *class-related materials*. My only suggestion to the app that it should *embed peer-to-peer learning* in local networking. Particularly when the Internet is down. That is all."

<div align="right">Excerpt 12, p. 13</div>

"Selalu *ka* gagal instal aplikasi pakai hp lamaku. Kayaknya tidak cocok karena aplikasinya lancar *ji* di hp baruku. Aplikasinya sudah bagus secara umum. Daftar katanya sama dengan yang dipelajari di kampus. Kalau boleh saran, tingkatkan saja kualitas suaranya. Agak lambat suaranya pas lagi pakai speaker terpisah."

"I have *failed many times installing the app* on my previous phone. It seems the app does not support it because the *app runs smooth in my newest phone*.

Overally, the *app is really good*. The vocabulary list is the same as that of my lecturer on campus. If I may suggest, the app should *enhance its audio quality*. There is *a delay in audio output* if I use external speaker."

<div align="right">Excerpt 13, p. 16</div>

"Saya kira aplikasi ini fokusnya melatih berbicara, bagus lah. Saya suka saja latihan berbicara bisa dipelajari tanpa harus ada teman latihan. Saya belajar kata baru setiap hari, ada beberapa sudah dipelajari di kelas dan dimintal hapal sama Dosennya. Kalau bisa, ditambahkan fitur latihan menulis, tidak hanya susun kata di layar."

"I think the *app focuses on speaking* and that is fine. I love the way that *speaking is stimulated in the independent mode* even without a partner to practice. I learn *new vocabulary every day* and some of them are on the list that our lecturer asked us to memorize. If only the app added *handwriting feature* to practice writing by not just rearranging the scrambled words."

<div align="right">Excerpt 14, p. 19</div>

"Yang paling saya suka dari aplikasi ya susun-menyusun kata jadi kalimat. Yang paling tidak saya suka itu video klipnya terlalu pendek dan susah diikuti. Iya, ini juga termasuk kata yang diulang-ulang, mengganggu sekali. Harusnya ditampilkan di akhir unit saja atau buat kategori kata yang belum dipelajari jadi kita bisa catat baik-baik."

"Thing I love the most from the *app is putting scrambled words into a correct sentence*. Thing I hate the most is the *clips are too short* so it is *hard for me to follow the pronunciation*. Oh yes, the *repetitive display* of missed vocabularies *is really annoying*. It should be *listed at the end of the unit*; in the separate section of failed vocabulary so that we can *take notes*."

<div align="right">Excerpt 15, p. 20</div>

Student's perception of Memrise MALL experience were affected by a multitude of screen distractions such as multitasking, interruptions, social media, notifications, multimedia distraction, social media posts and incoming calls, and interference. Multitasking, in the current study, involved simultaneously managing MALL and other screen activities such as messaging, calling, and searching, and acted as a major barrier to effective screen learning. Interruptions had been proven as potentially debilitating screen distractions, as the need to attend to notifications and posts on social media was found to be highly distracting and focus consuming.

5. Discussion

The primary objective of this study is to gain insight into the perceptions and strategies employed for managing screen distractions throughout Memrise MALL experience. This investigation specifically centered on discerning how participants perceive on-screen distractions while engaging with the Memrise MALL platform. Additionally, the study delved into

the participants' holistic contentment with their Memrise MALL experience and its influence on their acquisition of the EFL vocabularies. Furthermore, the study endeavors to probe into the participants' comprehensive impressions of their encounter with Memrise MALL, as well as any potential challenges they may have encountered throughout the process.

The results concluded that participants' completion rates varied, with 48% successfully completing all target vocabularies, 41% achieving commendable scores of 90% or more, and 11% completing around 80% of the vocabularies. Distractions, primarily from social networks and entertainment apps (63.43%), web browsing (22.29%), notifications or pop-up messages (11.45%), accounted for 7.03% of total MALL time, raising concerns about screen learning efficiency. Participants' strategies for distraction management included activating *Silent Mode*, peer influence, and social dynamics. Suggestions for improvement included reducing repetitive content (41.30%), enhancing transitions (32.60%), addressing app limitations (26.10%), and providing diverse materials. Challenges included difficulties in understanding pronunciations (36.96%) and the need for collaborative offline learning (34.78%). Despite these challenges, some participants found the app's user experience satisfying (10.87%) and recommended feature upgrades (6.52%).

The documented distractions led to a cumulative wastage of screentime, raising concerns about their impact on language learning outcomes. The participants' perception of distractions and strategies for management was also explored, shedding light on the importance of self-directed learning and peer support in maintaining focus during MALL sessions. Despite distractions, participants reported positive learning gains, increased motivation, improved language skills, and enhanced familiarity with learning materials. The interactive features of the Memrise MALL application, such as quizzes and games, were identified as enjoyable and effective tools in facilitating language learning. These findings align with previous studies highlighting the detrimental impact of social media usage on academic performance from a cognitive loading perspective (Hameed et al., 2022). Moreover, studies examining technology usage and academic performance have emphasized the negative influence of digital distractions on learning outcomes (Navarro-Martinez & Peña-Acuña, 2022). Strategies to manage and mitigate distractions, such as temporarily blocking or limiting access to distracting apps and notifications, can help optimize students' engagement and enhance the effectiveness of MALL (Brady et al., 2022). Overall, addressing screen distractions in MALL is crucial to improving EFL teaching and learning in mobile and digital environments.

Recent studies have also maintained that multitasking while learning can be detrimental to students' learning performance. (Shakoor et al., 2021)

concluded that students who engaged in multitasking while learning had significantly lower academic performance compared to those who did not multitask. Similarly, Pattermann et al. (2022) found that students who experienced interruptions while learning were more likely to have lower academic performance than those who did not experience any interruptions. These findings were in agreement that multitasking and interruptions are major impediments to effective screen learning and can lead to decreased student performance in language acquisition.

Regarding the impact of social media, (Ansari & Khan, 2020) found that, when used in a structured manner, social networking sites can increase student engagement and improve academic performance. Previously, Rosen et al. (2013) examined the use of social media in education and found that it can be beneficial in providing students with both motivation and support. Both of these studies highlight the importance of using social media in a structured way to ensure that it does not become a distraction from the learning process. Furthermore, they demonstrate the potential for social media to be used as an effective tool for learning and academic achievement. Social media, while potentially addictive and a prolific source of distraction, can also act as a source of support (Abidin, 2023; Ansari & Khan, 2020; Giunchiglia et al., 2018; Hameed et al., 2022; Lissak, 2018). However, the current study found that multimedia distraction from social media browsing could be an issue, as participants were easily diverted away from MALL by videos and social media posts. Additionally, social media posts and incoming calls present a tendency to switch away from unit learning. Moreover, interference was also a major issue, as participants often find themselves devoting more time to non-academic activities than actual study.

However, the positivity of participants' perception on Memrise MALL was seen in their willingness to demonstrate responsibility by switching their devices to Silent Mode before MALL sessions, to avoid distraction. Similarly, peer pressure was indicated to be a strong motivator, encouraging students to attend social media events related to screen learning. In addition to this, the commitment of the student was found to be essential, as they need to stay focused and dedicated to their language learning goals and objectives, in order to keep up with their peers. Regarding the issue, current discussion in the field have shown that students who use Memrise MALL report a higher level of satisfaction than those who use traditional language learning methods (Dyah & Lulud, 2019; Shortt et al., 2021; Van & Thanh, 2022). Furthermore, this satisfaction is further enhanced when students are able to engage with peers and share experiences, as they are more likely to remain motivated and focused (Fathi et al., 2018; Pea & Sharples, 2022). Moreover, an effective MALL system requires the full commitment of the student, as they have to be willing to invest time and effort in order to reach their language

learning goals (Zhang & Pérez-Paredes, 2021). Therefore, it is essential that students are provided with the right incentives to remain focused and dedicated to their language learning objectives.

The present study revealed that the majority of participants understood the importance of activating *Silent Mode* before engaging in MALL activities, recognizing the influence of their actions on the learning environment. This finding aligned with Jeong (2022), emphasizing the significance of self-directed learning. Additionally, participants were also motivated by their peers' expectations, demonstrating a positive attitude towards taking ownership of their learning, which resonates with Jeong (2022). Moreover, only a small number of participants were aware of their peers' expectations regarding social media attendance. This finding supports Shane-Simpson and Bakken (2022)'s exploration of fear of missing out (FOMO) and in-class social media use. The participants' acknowledgment of the importance of peer control and collaboration, as well as the challenges of multitasking during learning sessions, align with Zhang et al. (2022)'s emphasis on managing cognitive load. The themes identified, including social media distractions, multitasking, peer control, and commitment to learning, suggest that technology in MALL can have both positive and negative impacts. This finding is consistent with the previous studies (Jeong, 2022; Shane-Simpson & Bakken, 2022; Zhang et al., 2022), highlighting the significance of self-directed learning, managing social media distractions, and optimizing cognitive load. Participants also expressed a desire for a focus feature that eliminates notifications, supporting Pritandhari and Rosa (2022)'s analysis of mobile screen learning utilization in an instructional context.

The present study also maintained that Memrise MALL was perceived to be beneficial for students' EFL learning. In an agreement to the statement, Taebenu and Katemba (2021) found that using Memrise MALL allowed for better recall of English vocabulary words compared to traditional language learning methods. Abidin (2023) and Fathi et al. (2018) also showed that students using Memrise MALL experienced improved concentration, as well as increased motivation and engagement. These findings suggest that Memrise MALL provides a valuable supplement to traditional language learning, enabling students to focus on the material, maintain their motivation, and make connections between classroom materials and those found on the platform. However, the findings in the current study have noted that distraction management was an important factor in successful language learning, and students often require a peer assistance to help them stay focused. Furthermore, material connection was of great importance, as it allows students to make links between the materials they find on Memrise and those found in their EFL classroom. Thus, it was clear that there were a number of different ways in which students' perception on Memrise MALL can be seen in their screen learning behaviors.

Furthermore, the Memrise MALL application provided a range of features that motivated the participants to practice and learn. Specifically, participants noted that the pronunciation feature was instrumental in helping them better understand and pronounce words they were unfamiliar with. Additionally, the app was found to have enhanced their EFL classroom lectures, with features such as quizzes and games providing a fun and enjoyable learning experience. Furthermore, the vocabulary list mirrored that of their lecturer, allowing for downloading and re-opening of files both on campus and at home. In a constructive review conducted by Zhang (2019), it was found that the Memrise language learning provided a number of benefits to its users, including an improved pronunciation feature and an enhanced classroom experience. Additionally, they found that the app's vocabulary list mirrored the lecturer's, allowing for convenient downloading and re-opening of files. In Japanese learning context, Paradhina and Myrna (2021) found that the Memrise app aided their participants in increasing their language proficiency and provided a fun and interactive learning experience. Furthermore, they have noted that the pronunciation feature was particularly helpful, as it provided an understanding of unfamiliar words. Both studies thus demonstrate the effectiveness of the Memrise MALL application in helping users learn and practice a language.

The present study reveals numerous learning gains experienced by participants, including increased motivation, improved language skills, and enhanced familiarity with the learning materials. These gains enabled students to actively engage with words and phrases, expand their vocabulary, comprehend and pronounce unfamiliar words, and effectively incorporate the acquired knowledge in an EFL classroom setting. Notably, the interactive features, such as quizzes and games, were found to be enjoyable and effective in facilitating language learning (Abidin, 2023; Bueno-Alastuey & Nemeth, 2020; Ngọc & Phuong, 2022; Shortt et al., 2021). Furthermore, participants appreciated the ability to download files and interact with fellow users, thereby enriching their overall learning experience. In line with the participants' reflective perceptions, it was suggested that reducing repetitive content, ensuring smooth transitions between media, and recognizing the app's limitations for potential improvements can significantly reduce distractions and enhance engagement. These findings emphasize the importance of providing diverse materials that cater to different learning styles, incorporating a range of media options, and addressing technical issues to optimize the user experience.

Moreover, these findings are consistent with previous research conducted in the field of MALL in EFL education. Van and Thanh (2022) emphasized the positive impact of MALL on vocabulary acquisition

and student perspectives, aligning with the current study's findings. Dagdeler and Demiröz (2022) also explored instructors' perceptions of MALL in higher education, further supporting the notion that mobile technology can effectively enhance language learning experiences. Additionally, Ngọc and Phuong (2022) investigated the use of game-based MALL in vocabulary retention, reinforcing the positive outcomes observed in this study. Collectively, these studies contribute to the growing body of evidence that highlights the effectiveness of MALL in EFL education. Moving forward, it is crucial for educators and app developers to consider the implications of these findings. Providing tailored materials that accommodate diverse learning styles, incorporating varied media options, and resolving technical issues will contribute to a more engaging and satisfactory MALL experience.

Concerning the language skills, recent studies have further explored the utility of Memrise in language learning, with a study by Łuczak (2017)'s finding that the app had a beneficial effect on their participants' pronunciation accuracy. Meanwhile, a study by Paradhina and Myrna (2021) found that the app improved the participants' lexical productivity, with their ability to construct sentences out of scrambled words increasing significantly. These findings are in line with the current study which showed that the app was useful for EFL learning, as it offers an enjoyable and effective way of memorizing vocabularies and improving lexical tasks. While the students found the app to be generally useful, they suggested that the app should be broken down into smaller, more manageable units to facilitate better memorization of the vocabularies and provide adaptability in the face of material enhancement. They reported using the app to help construct correct sentences out of scrambled words in order to enhance their lexical tasks. Overall, this study found that Memrise offered a great MALL experience that was perceived as beneficial and enjoyable for the participants. Overall, the students' perception of Memrise MALL experience was positive. They reported finding the app enjoyable, recognizing its potential for improvement, and noted the enthusiasm it had driven in them. Nonetheless, there were difficulties reported in understanding the pronunciations, complexity, and repetition of the materials. Additionally, the students suggested that the app should have the ability to enable collaborative learning even in offline mode, and feature upgrades in installation, audio quality, and user experience.

6. Conclusions

This study looked into the impact of on-screen distractions in Memrise MALL on students' language learning outcomes while emphasizing the need for a pedagogical framework tailored to students' needs and device limitations. It explored the adverse effects of multitasking and interruptions on screen-based learning performance. Nevertheless, it acknowledged the potential benefits of screen distractions in specific MALL contexts and delved into the advantages and drawbacks of social media use, highlighting the importance of structured usage to avoid distractions. The study also noted the positive perception of the Memrise MALL application, showcasing its potential to improve vocabulary recall, motivation, and engagement. Consequently, educators and developers are urged to create distraction-free environments, offer explicit mobile device usage instructions, and implement strategies like simplification, visual prioritization, and engaging activities to enhance MALL effectiveness. The present study underscored the importance of fostering conducive screen learning environments, mobile technology usage, and student commitment to language learning goals. In conclusion, this study sheds light on screen distractions during Memrise MALL activities, emphasizing the need for effective distraction management strategies. Addressing distractions and employing effective learning strategies can enhance the MALL experience, ultimately benefiting language students in mobile and digital environments.

5. Acknowledgement

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