Educational and Humanities
ISSN Print: 3104-4352
ISSN Online: 3104-4360
CD ISSN: 3104-4379
https://doi.org/10.63313/EH.9063

Enhancing English Reading Comprehension Through Mobile-Assisted Extensive Reading (Maer) In A Government University In Guizhou Province, China

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How to cite this paper: Yang, X. Y. (2026). Enhancing English reading comprehension through mobile-assisted extensive reading (Maer) in a government university in Guizhou Province, China. Educational and Humanities, 3(1), 111 - 121. ISSN Print: 3104-4352; ISSN Online: 3104-4360.
https://doi.org/10.63313/EH.9063
Published: 2026-04-30

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Abstract

Mobile-Assisted Extensive Reading (MAER) leverages digital platforms to increase learners' exposure to English texts. This study investigated the effects of a MAER program on the English reading comprehension of 300 EFL undergraduates at Qiannan Normal University in Guizhou, China. Using a descriptive-correlational design, data on students' reading comprehension performance and their assessment of the MAER program (covering frequency, text variety, comprehension, consistency, and motivation) were gathered and analyzed. Results indicated that students had a "Proficient" level of reading comprehension (M = 2.86) and rated the MAER program as "Effective" in terms of frequency, but "Slightly Effective" in other dimensions. No significant differences in comprehension or program assessment were found based on age, sex, or year level. However, a significant strong negative correlation was found between overall program assessment and reading comprehension performance. These findings suggest that while MAER fosters a supportive reading environment, its design must strategically prioritize deep cognitive engagement over mere activity metrics to effectively enhance comprehension. An implementation program is proposed based on these results.

Keywords

Mobile-Assisted Extensive Reading (MAER); English reading comprehension; EFL learners; mobile learning readiness; higher education

1. Introduction

The landscape of language learning has been reshaped by the ubiquity of smartphones, prompting educators to explore mobile-assisted language learning (MALL) for English as a Foreign Language (EFL) instruction. Mobile-assisted extensive reading (MAER) adapts the classic principles of extensive reading—large

volumes of easy, enjoyable texts and learner choice—through the affordances of mobile technology, enabling ubiquitous access, multimodal input, and integrated analytics (Wang et al., 2022). In tertiary contexts, where classroom contact hours are often limited, MAER offers a scalable intervention to build reading fluency and vocabulary by coupling high-quantity reading with low-stakes, formative feedback (Janah, 2022; Liu et al., 2023).

The cognitive mechanisms supporting MAER include increased exposure to varied lexical items, fostering vocabulary depth and automaticity crucial for fluent reading (Mihaylova et al., 2022). Platforms can accelerate this exposure by recommending leveled texts and offering in-app glosses, which scaffold meaning-making (Hou, 2022). Empirical studies indicate that learners using MAER apps demonstrate larger gains in reading comprehension tests compared to peers using paper-only materials (Wang et al., 2022; Guo, 2022). However, digital affordances also present challenges, such as screen-induced reading patterns that favor scanning, potentially undermining deep processing unless pedagogy integrates tasks requiring summarization and inference (Hou, 2022).

Crucially, the effectiveness of MAER is mediated by instructional design. Programs embedding guided reflection, teacher scaffolding, and peer interaction report larger effects on inferential comprehension than those relying on passive reading alone (Koleini, 2024; Liu et al., 2023). Digital literacy and learner readiness are also key; students with underdeveloped digital strategies cannot automatically convert time-on-task into improved comprehension (Wang et al., 2022). Equity in access and the need for targeted digital reading strategy induction remain critical for successful implementation (Liu et al., 2023).

A review of the evidence base reveals consistent positive effects of well-designed MAER on reading fluency, vocabulary, and comprehension (Mihaylova et al., 2022; Xodabande, 2023). However, research gaps persist, calling for more studies that are longitudinal, use controlled designs comparing mobile and traditional ER, and employ mixed methods to explore the process of digital meaning-making (Wei, 2023; Wang et al., 2023). Within this context, the present study aims to determine the enhancement of Chinese EFL undergraduate students' English reading comprehension through a MAER program. Specifically, it seeks to answer the following questions:

1. What is the demographic profile of the student respondents?
2. What is the performance of the student respondents in their reading comprehension?
3. Is there a significant difference in reading comprehension performance when grouped by demographic profile?
4. What is the students' assessment of their EFL class's MAER program?
5. Is there a significant difference in the assessment of the MAER program when grouped by demographic profile?

6. Is there a significant relationship between reading comprehension performance and the assessment of the MAER program?2. Ease of Use (Heading 2)

2. Introduction

2.1. Mobile-Assisted Language Learning and Extensive Reading

Mobile-assisted language learning (MALL) has gained considerable traction in higher education due to its accessibility and potential to enhance the learning process through synchronous and asynchronous exchanges (Lamb & Arisandy, 2025; Wrigglesworth, 2025). Research confirms that MALL promotes self-directed learning and increases motivation, making it a suitable tool for fostering out-of-class reading practices (Botero et al., 2024; Tavakoli et al., 2024). Extensive reading (ER), a pedagogical approach that emphasizes reading large quantities of materials for pleasure and general understanding, is foundational for developing reading fluency (Nation & Waring, 2025). MAER merges these two paradigms, using mobile devices to make ER more accessible and engaging. Digital libraries and e-books offer 24/7 access and customizable features that can increase student motivation (Huang, 2023; Milliner & Cote, 2025). Studies have found that mobile-based ER programs lead to quantifiable improvements in reading rates and more positive learner attitudes compared to traditional approaches (Bui & Macalister, 2021; Lin, 2024).

2.2. Affordances and Challenges of MAER

The technological affordances of MAER platforms, including adaptive reading pathways and multimodal scaffolds (audio narration, clickable glosses), can reduce cognitive load and support emergent readers in accessing challenging texts within their zone of proximal development (Mihaylova et al., 2022; Guo, 2022). Features like progress dashboards and reading logs facilitate self-regulated learning and allow teachers to monitor development at scale (Wang et al., 2023). However, the medium also introduces challenges. Prolonged screen use can lead to eye strain and attention fatigue, while digital distractions are a constant threat to sustained focus (Huang, 2023; Mesureur, 2023). Eye-tracking studies reveal that mobile screen reading can alter reading strategies, favoring scanning over deep processing (Hou, 2022). Therefore, successful MAER programs must leverage mobile affordances while compensating for their limitations through sound pedagogical design that includes chunking texts and integrating structured reflection prompts (Wang & Yuizono, 2021).

2.3. The Role of Learner Affect and Pedagogical Scaffolding

Learner motivation, autonomy, and consistency are central to MAER's success. Social and gamified features can increase engagement and reading frequency, but their transfer to deeper comprehension requires guided reflection and metacognitive prompts (Suryati, 2021; Wang et al., 2022). Teacher facilitation proves decisive, with

studies showing that teacher scaffolding—setting clear goals, modeling summarization, and providing formative feedback—amplifies the positive effects of MAER on higher-order comprehension (Mihaylova et al., 2022). Purely autonomous implementations show smaller, more variable gains. Blended designs that combine mobile reading autonomy with teacher-led reflection are therefore emphasized (Wang et al., 2022; Guo, 2022). This body of research collectively argues that MAER is an instructional design challenge, not merely a change of medium, where the quality of pedagogical integration is the most significant predictor of learning outcomes.

3. Theoretical Framework

Before This study is grounded in the Mobile Learning Readiness (MLR) perspective, an integrative model that defines a learner's preparedness to productively engage in mobile-assisted learning (Xu, 2024). The model synthesizes technology acceptance constructs (perceived usefulness, ease of use), social/organizational facilitators, and self-directed/self-regulated learning (SRL) dispositions (self-efficacy, goal setting, reflection). The MLR framework is uniquely suited for MAER research because success in digital ER depends not only on access to texts but also on learners' dispositions to self-regulate, their attitudes toward mobile tools, and enabling institutional conditions (Baars & Viber, 2022; Boroughani et al., 2023).

Within this model, SRL processes are the personal engine that converts mobile access into learning. Learners who possess strong SRL strategies are better able to use mobile app features to manage their reading, monitor comprehension, and reflect on their learning, yielding improved outcomes over time (Hou, 2022; Boroughani et al., 2023). Technology acceptance variables (perceived usefulness, ease of use) indirectly influence comprehension by increasing reading volume and frequency (Lin & Yu, 2023). Digital literacy functions as a critical mediator, determining how successfully learners transform mobile exposure into gains (Feng, 2024). Social affordances and institutional facilitating conditions act as external enablers that, when favorable, amplify the positive pathways from personal readiness to MAER practice and comprehension (Teng et al., 2024; Wang et al., 2023).

Methodologically, the MLR framework implies measuring multiple constructs—including SRL, digital literacy, and technology acceptance—and evaluating their effects on reading quantity, engagement depth, and comprehension outcomes. By adopting MLR as the theoretical lens, this study obtains a comprehensive, testable framework that links personal readiness, technological and social supports, and MAER engagement to enhanced English reading comprehension.3.1. Abbreviations and Acronyms

Define abbreviations and acronyms the first time they are used in the text, even after they have been defined in the abstract. Abbreviations such as IEEE, SI, MKS, CGS, sc, dc, and rms do not have to be defined. Do not use abbreviations in the title or heads unless they are unavoidable.

4. Methodology

4.1. Research Design

This study employed a descriptive-comparative-correlational methodology. This integrated approach enables the numerical analysis of variables, comparison across demographic groups, and exploration of relationships between them (Johnson & Wallace, 2022; Miller & Grant, 2023; Roberts & Cunningham, 2024). The design was chosen to investigate the students' reading comprehension performance and their assessment of the MAER program, and to determine the significant differences or relationships among these variables.

4.2. Research Locale and Respondents

The study was conducted at Qiannan Normal University in Guizhou Province, China. The respondents were 300 undergraduate students selected using purposive sampling, including two sections from each grade level (Years 1-4) who were using a MAER program. The program utilized the Xiaohongben Intelligent English platform, which features a memory engine and synchronized textbook learning solutions.

4.3. Research Instrument

Data were gathered using a researcher-made questionnaire divided into three parts:
-Part I: Demographic profile of respondents (sex, age, year level).
-Part II: A 10-item multiple-choice reading comprehension test to measure performance. Scores were interpreted on a scale from 1.00-1.50 (Not Proficient) to 3.51-4.00 (Very Proficient).
-Part III: A 45-item assessment of the EFL class's MAER program across five dimensions: Frequency of Mobile Reading Practice, Variety of English Texts Accessed, Comprehension of Reading Materials, Consistency of Reading Habits, and Motivation to Read through Mobile Platforms. A 4-point Likert scale was used (1 = Not True to 4 = Very True of Our EFL Class).
The instrument was subjected to content and face validation by experts. A pilot test yielded an overall Cronbach's Alpha of 0.857, indicating high statistical reliability.

4.4. Data Gathering and Analysis

After obtaining ethical clearance and informed consent, the questionnaire was administered face-to-face. Data were tallied and processed using the Statistical Package for Social Sciences (SPSS). The following statistical tools were employed: frequency counts and percentages for demographic profiles; weighted means for reading comprehension performance and MAER assessment; one-way ANOVA with post-hoc analysis (Scheffe) for significant differences; and Pearson's r for correlations.

5. Results

5.1. Profile of the Respondents

The sample was evenly distributed across six age groups (⩽15 to >18 years old), ensuring balanced perspectives. The majority were female (59.7%), and Year 4 students constituted the largest group (44.7%), followed by Year 2 (18.7%), and Years 1 and 3 (18.3% each).

5.2. Performance in Reading Comprehension

Overall, students demonstrated a Proficient level of reading comprehension (Composite Mean = 2.86, SD = 0.26), as shown in Table 1.

Table 1. Summary of Reading Comprehension Performance

Skill	Mean	SD	Interpretation
1. Identifying explicitly stated facts	3.12	1.03	Proficient
2. Understanding implied information	3.03	1.18	Proficient
3. Identifying main and supporting details	2.93	0.92	Proficient
4. Identifying author's belief	2.98	1.16	Proficient
... (10 items in total)	...	...	...
Composite Mean	2.86	0.26	Proficient

The highest performance was in "identifying an explicitly stated fact or achievement" (M = 3.12), reflecting strong literal comprehension. The lowest was "recognizing how items are classified" (M = 2.68), indicating that analytical and organizational skills were less developed.

5.3. Assessment of the EFL Class's MAER Program

The overall assessment of the MAER program was Slightly Effective (Overall Mean = 2.41, SD = 0.35). The summaries for each dimension are presented in Table 2.

Table 2. Summary Assessment of the MAER Program

Dimension	Mean	SD	Interpretation
1. Frequency of Mobile Reading Practice	2.56	0.39	Effective
2. Consistency of Reading Habits	2.42	0.42	Slightly Effective
3. Variety of English Texts Accessed	2.40	0.52	Slightly Effective
4. Comprehension of Reading Materials	2.37	0.38	Slightly Effective
5. Motivation to Read through Mobile Platforms	2.29	0.71	Slightly Effective
Overall	2.41	0.35	Slightly Effective

Among the indicators, "classroom culture supports frequent English reading" (M=3.24) and "students can explain and discuss what they read" (M=3.22) were rated highest. Conversely, the lowest-rated indicators included "mobile reading activities are scheduled consistently in lessons" (M=1.61) and "motivation is stronger when supported by mobile tools" (M=1.61).

5.4. Differences in Reading Comprehension and MAER Assessment

One-way ANOVA tests revealed no statistically significant differences in reading comprehension performance or in the assessment of the MAER program when respondents were grouped by age, sex, or year level. All p-values were above the 0.05 significance threshold, indicating that the benefits and perceptions of the program were uniform across the student population.

5.5. Relationship Between Comprehension and MAER Assessment

A significant relationship was found between reading comprehension performance and all dimensions of the MAER assessment. The details of the correlations are presented in Table 3.

Table 3. Correlation Between Reading Comprehension and MAER Assessment

MAER Dimension	Computed r	Sig.	Interpretation
Frequency of Mobile Reading Practice	0.226	.000	Weak Positive Correlation
Variety of English Texts Accessed	-0.402	.000	Moderate Negative Correlation
Comprehension of Reading Materials	-0.490	.000	Moderate Negative. Correlation
Consistency of Reading Habits	-0.685	.000	Strong Negative Correlation
Motivation to Read through Mobile Platforms	-0.747	.000	Very Strong Negative Correlation
Overall MAER Assessment	-0.641	.000	Strong Negative Correlation

Positioning All correlations were statistically significant. The only positive correlation was with Frequency of Mobile Reading Practice. All other dimensions, especially Motivation and Consistency, showed strong to very strong negative correlations with actual reading comprehension scores.

6. Discussion

The study's results paint a complex picture of MAER's role in supporting EFL reading comprehension at a Chinese government university. Students generally perceive the program positively, particularly the supportive classroom culture and the high frequency of use. However, the shift from this positive perception and activity to measurable gains in higher-order comprehension is not straightforward, as evidenced by the pervasive negative correlations.

The finding that students excelled in identifying explicit facts but struggled with classification tasks aligns with the developmental nature of reading skills. Literal comprehension, or "reading the lines," is often easier for EFL learners than inferential or analytical skills that require deeper cognitive processing. The MAER program's strengths in fostering discussion (M=3.22) are a solid foundation upon which to build these higher-order skills through more structured tasks like text comparison and analysis (Koleini, 2024).

Intriguingly, the more students rated the program highly on aspects like motivation and consistent habits, the lower their comprehension scores tended to be. The very strong negative correlation for motivation (r = -0.747) is particularly telling. It suggests that a high level of self-reported motivation may be linked to engagement

with surface-level features, such as gamification or task completion, rather than the deep cognitive work required for comprehension. Students might feel motivated and actively participate in routines without engaging critically with the text, a phenomenon where positive affect masks a lack of deep learning (Hou, 2022). Similarly, an over-emphasis on rigid "consistency" might inadvertently promote quantity of reading over quality of engagement.

The only positive, albeit weak, correlation with reading performance was for Frequency of Practice. This supports the fundamental principle of ER: mere exposure to large volumes of text has a small but direct, beneficial effect on language development. It validates that the core mechanism of MAER—increasing time-on-task—works, but its effect size is limited when isolated from cognitive strategy development. The negative correlations in other areas suggest that these elements, as currently implemented, may not be effectively channeled toward comprehension. For instance, an overwhelming variety of texts without difficulty-level guidance might increase cognitive load rather than reduce it, thus showing a negative correlation with performance.

The lack of significant differences across demographic groups suggests that the MAER program, as implemented, has an equitable reach. It does not favor a particular sex, age group, or year level. This uniformity is a strength in terms of institutional implementation, as it indicates that a common baseline exists from which to design differentiated interventions. The challenge for educators is not to segment the audience but to enhance the pedagogical design universally, perhaps by offering choices within a structured framework (e.g., choice in text topic but within a prescribed difficulty level).

7. Conclusions and Recommendations

Based on the findings, several conclusions are drawn. First, the student respondents possess a proficient foundational level of reading comprehension, with a particular strength in literal understanding. Second, the existing MAER program is effective in building a supportive culture and maintaining a baseline frequency of practice, but is less effective in ensuring variety of text, structured comprehension support, habit consistency, and deep-seated motivation. Third, the relationship between MAER engagement and reading comprehension is significantly negative, indicating that higher engagement, as currently structured, does not equate to better reading outcomes. This strongly implies that the quality and cognitive focus of MAER activities are more critical than the quantity of engagement.

In light of these conclusions, the following recommendations are made:

1. For Pedagogy: Teachers must move beyond encouraging mere frequency and motivation. MAER tasks should be strategically aligned with explicit comprehension goals. This involves embedding pre-reading, during-reading, and post-reading activities that guide students from literal to inferential and analytical skills, such as

summarizing, predicting, and questioning.

2. For Text Selection: A balanced, leveled text library is needed. While variety is important, it should not overwhelm learners. A curated pathway that introduces complexity gradually can optimize exposure and prevent cognitive overload.

3. For Learner Support: Targeted training in digital reading and self-regulated learning strategies is essential. Workshops on using annotation tools, managing digital distractions, and employing metacognitive strategies (planning, monitoring, evaluating) can equip students to convert their mobile reading time into meaningful learning.

4. For Program Design: The consistency of reading should be fostered through flexible routines rather than rigid, demotivating schedules. Habits are better reinforced through engaging follow-up activities (e.g., book clubs, peer recommendations) than through simple tracking mechanisms. The MAER Implementation Program proposed in the original study, which includes components on teacher training, curated text selection, and structured comprehension activities, provides a practical blueprint for operationalizing these recommendations.

8. Proposed MAER Implementation Program (Synopsis)

Based on the study's findings, a structured implementation program was developed with the following key result areas and activities:

. Frequency & Consistency: Schedule regular, but not daily, in-class mobile reading sessions and set weekly flexible goals, tracking progress through digital logs rather than time-based mandates.

• Text Variety: Curate a rotating selection of short stories, articles, and academic texts specifically leveled for proficiency, gradually introducing longer and more complex texts.

• Comprehension: Integrate post-reading comprehension checks, guided discussion forums, and tasks requiring students to synthesize or critique texts, not just recall facts.

• Motivation & Engagement: Utilize interactive and choice-based features of apps, such as peer recommendation systems and optional reading challenges, de-emphasizing leaderboard-based gamification that may distract from deep reading.

• Teacher Support: Conduct professional development workshops to equip teachers with strategies for scaffolding MAER, modeling digital reading processes, and providing formative feedback based on dashboard analytics.

• Evaluation: Collect periodic feedback and analyze performance data to iteratively revise text selections and instructional activities, ensuring the program remains responsive to student needs.

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