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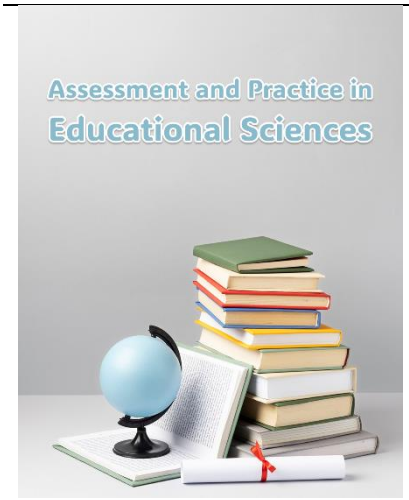

The Effect of Online and Offline Blended Teaching on Iranian EFL Learners' Reading Comprehension: A Study Across Proficiency Levels

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ABSTRACT

The objective of this study was to investigate the effect of online and offline blended teaching on Iranian EFL learners' reading comprehension across proficiency levels. A sequential mixed-methods design was employed, combining quantitative and qualitative phases. Sixty Iranian upper-intermediate EFL learners, aged between 18 and 34, were selected through convenience sampling and divided into two groups: an experimental group (n=30) that received blended instruction integrating online and offline tasks, and a control group (n=30) that received traditional face-to-face instruction. The Oxford Placement Test was used to homogenize participants, followed by the administration of a reading comprehension pretest and posttest. The intervention lasted for eight sessions, after which posttests and delayed posttests were conducted. Additionally, semi-structured interviews were administered to a subset of participants in the experimental group to explore their perceptions of blended learning. Quantitative data were analyzed using descriptive statistics and independent samples t-tests, while qualitative data were examined through thematic analysis. The independent samples t-test revealed no significant difference between the two groups at the pretest stage, confirming comparability in their initial proficiency. However, the posttest results showed a statistically significant difference in favor of the experimental group ($t(58)=2.479$, $p<.001$), with learners in the blended instruction group achieving higher reading comprehension scores compared to those in the control group. These results demonstrate the effectiveness of blended teaching in enhancing reading comprehension among Iranian EFL learners. The study concludes that blended teaching significantly improves reading comprehension performance compared to traditional methods. While learners expressed positive perceptions of blended instruction, they also reported challenges related to technical issues, limited feedback in writing and grammar, and concerns about its use in assessment contexts. Overall, blended teaching can be considered a promising pedagogical approach in Iranian EFL settings, provided that contextual and technological challenges are adequately addressed.

Keywords: Blended teaching; reading comprehension; Iranian EFL learners; online learning; offline instruction; mixed-methods study

Introduction

Reading comprehension has long been considered one of the most essential skills in English as a Foreign Language (EFL) contexts, as it provides learners with the foundation for academic achievement, professional communication, and broader cultural understanding. In many non-native English-speaking countries, particularly in contexts such as Iran, the development

of effective reading comprehension skills represents both a challenge and an opportunity for learners and educators alike. Recent decades have seen dramatic changes in instructional methods, particularly through the integration of digital and blended learning approaches, which combine face-to-face and online modes of instruction. Blended learning, as a pedagogical model, has been increasingly recognized for its potential to enhance student engagement, provide more flexible learning opportunities, and strengthen reading comprehension performance (1-3).

The need to focus on blended learning approaches in EFL reading stems from limitations observed in traditional teaching methods. Conventional classroom instruction often relies on teacher-centered practices and limited exposure to authentic reading materials, leaving students with insufficient practice opportunities. By contrast, blended learning has been shown to empower learners to engage more actively with reading tasks, access diverse resources, and practice reading strategies at their own pace (4-6). Furthermore, the flexibility of blended environments aligns with the changing demands of modern learners, many of whom are already immersed in digital technologies.

A growing body of research has investigated the effects of blended instruction on reading comprehension across different EFL populations. Studies highlight that blended learning has a direct positive impact on reading proficiency, often outperforming traditional classroom-based teaching (7-9). For example, findings from Libya and Jordan demonstrate that blended instruction significantly improves comprehension achievement by combining synchronous and asynchronous activities (7, 10). Similarly, Iranian EFL learners in Rahimzadeh and Gilakjani's research showed notable gains in reading proficiency after blended instruction (8). These studies provide compelling evidence of blended learning's utility in fostering reading comprehension, making it a relevant approach to explore in Iranian educational contexts.

At the same time, research emphasizes that the success of blended learning depends on its design, the integration of appropriate instructional strategies, and the ability to engage learners meaningfully. Innovative methods such as project-based learning (11, 12), flipped classroom models (1, 13), augmented reality (14), and technology-enhanced reading platforms (15, 16) have been widely studied, and each approach contributes unique benefits to students' reading outcomes. These models demonstrate that blended learning is not a monolithic construct but rather a flexible framework adaptable to different pedagogical goals and learner needs.

Another important dimension of blended learning research involves learner perceptions and attitudes. Numerous studies have shown that learners tend to view blended learning positively, especially when it enhances their motivation and engagement (17-19). For instance, Indonesian students reported that blended media in reading classes increased their motivation and provided enjoyable experiences (17). Similarly, Ismail and colleagues found that problem-based learning combined with blended methods improved learners' ability to engage with reading activities more deeply (18, 20, 21). However, while positive perceptions are common, research also highlights challenges related to technical access, learners' digital literacy, and the potential for distraction in online environments (22, 23).

Blended learning's effectiveness in EFL contexts also appears to be influenced by individual learner differences. For example, personality traits have been shown to mediate learners' responses to blended interventions, shaping how they engage with reading materials and instructional design (3). Similarly, students with dyslexia face particular challenges in foreign language reading, but instructional design adaptations, such as scaffolding and support tools, can mitigate these issues (24). These findings highlight the importance of tailoring blended instruction to learners' unique needs to ensure inclusivity and equity.

Cultural and contextual differences also shape the application and outcomes of blended teaching. For instance, research in Chinese and Indonesian EFL settings indicates that integrating computer-mediated communication and extensive reading within blended programs significantly enhances reading comprehension outcomes (15, 16, 25). Chinese undergraduates

reported increased reading achievement and engagement when exposed to blended environments (26), while Indonesian learners improved their comprehension skills using KWL chart strategies implemented in blended formats (25). These cross-national findings indicate that while blended learning has a universal potential to enhance reading skills, its implementation should consider local educational cultures and learner readiness.

In addition to comprehension outcomes, blended learning contributes to broader dimensions of language learning such as self-regulation, critical reading, and vocabulary development. For instance, strategies like flipped learning foster self-regulated learning among EFL students (13), while cognitive apprenticeship-based blended programs enhance critical reading skills (6). Project-based learning and cooperative learning strategies within blended contexts have further been shown to stimulate engagement, critical thinking, and collaboration (11, 12, 27). These results suggest that blended learning can extend its impact beyond reading comprehension into higher-order cognitive and metacognitive domains.

Despite these advantages, research also identifies persistent challenges. Students often report difficulties with internet connectivity, limited teacher feedback, and inconsistencies in assessment within blended environments (28-30). For example, Daweli and Mahoub explored learners' views on using AI tools in blended reading instruction and found that while students appreciated the innovation, they were cautious about reliability and teacher support (30). Similarly, Rojabi's study in Indonesia reported both benefits and challenges of using Schoology as a learning management system in reading instruction, indicating that institutional readiness is crucial (29). These findings underscore that the mere adoption of blended approaches does not guarantee success; careful planning, robust infrastructure, and ongoing support are necessary to maximize learning outcomes.

Scholars also stress the role of teacher preparation and pedagogical design in blended learning success. Teachers' perceptions play a central role in how blended instruction is implemented and sustained. In this regard, studies have reported that many teachers recognize blended learning's potential but emphasize the need for professional development and pedagogical training to implement it effectively (19, 31). Furthermore, when teachers integrate interactive strategies such as the jigsaw technique or cooperative projects within blended models, learners' comprehension outcomes improve substantially (12, 31). This highlights that the effectiveness of blended teaching is not solely determined by technological integration but by the quality of pedagogical design.

Importantly, blended instruction also opens pathways for innovation in reading pedagogy by incorporating emerging technologies. Augmented reality, artificial intelligence tools, and multimedia platforms have increasingly been introduced to enhance blended reading experiences (14, 22, 30). Augmented reality, for instance, provides interactive and immersive contexts that enhance learners' engagement with texts (14), while AI tools have been shown to assist with vocabulary acquisition, reading speed, and comprehension (30). The integration of multimedia also facilitates multimodal learning, giving students the opportunity to reinforce comprehension through audio-visual supports (22). Such innovations expand the scope of blended learning, making it not just a delivery method but a transformative approach to language education.

Taken together, the literature demonstrates that blended learning offers significant advantages for developing EFL learners' reading comprehension, though it also brings certain challenges. For Iranian contexts, where learners often face difficulties in achieving reading fluency and comprehension, blended approaches hold strong potential. Previous Iranian research already suggests positive outcomes (4, 8), yet studies have rarely compared the relative effectiveness of online versus offline blended formats across different proficiency levels. Moreover, few studies have examined learners' perceptions of blended instruction in depth, particularly in the Iranian EFL context, where cultural and institutional factors may influence its effectiveness.

Therefore, the present study aims to investigate the effect of online and offline blended teaching on Iranian EFL learners' reading comprehension, with a particular focus on differences across proficiency levels.

Methods and Materials

In order to address the objectives of this study, a sequential mixed methods design was adopted. The quantitative phase was followed by the qualitative phase, and both phases were given equal weight to ensure comprehensive exploration of the research questions. In the quantitative stage, a quasi-experimental pretest–posttest design was employed with one control group and one experimental group. Both groups were tested before and after the intervention to determine whether there were significant changes in reading comprehension as a result of the instructional mode. In the qualitative stage, semi-structured interviews were conducted with a subset of participants from the experimental group to gain deeper insights into their experiences with blended teaching. This integration of quantitative and qualitative data allowed for triangulation and a richer understanding of the phenomenon under investigation.

The participants in this study were 60 Iranian EFL learners who were enrolled in an English language institute and placed at the upper-intermediate proficiency level. Their ages ranged between 18 and 34 years, and they consisted of 26 male and 34 female learners. Persian was their native language, and English was the target language of instruction. All participants were studying Top Notch 3B as part of their curriculum. They were selected through convenience sampling and were divided into two groups. The experimental group received blended teaching that combined online and face-to-face instruction, while the control group received only traditional offline teaching. In order to ensure that both groups were homogenous in terms of language proficiency, the Oxford Placement Test (OPT) was administered at the beginning of the study. Only those participants who scored within the intermediate range were included, thereby ensuring comparability between the groups.

To gather the necessary data, several instruments were employed. The first instrument was the Oxford Placement Test, which was used to assess the general proficiency level of the learners and to homogenize the sample. The OPT has long been recognized as a valid and reliable tool in language studies, and in this research, Allan's 2017 version of the test was administered. It consisted of 60 multiple-choice items divided into two sections: reading comprehension and grammatical knowledge. The test was timed at 65 minutes, and the scoring system was used to classify learners according to proficiency levels. Only those with intermediate proficiency, scoring between 28 and 36, were selected to participate in the subsequent phases of the study.

Following this, a reading comprehension pretest was administered to establish a baseline measure of the participants' reading skills. The pretest was developed from the Top Notch 3B materials and consisted of 30 multiple-choice items. To ensure its validity, the pretest was reviewed by two faculty members experienced in EFL teaching, and adjustments were made to improve clarity and appropriateness for the learners. The test was also piloted with a group of 15 students of similar proficiency to confirm its practicality and to estimate the required completion time, which was determined to be 25 minutes. Based on the pilot results, minor modifications were applied to a few items. Reliability of the pretest was calculated using Cronbach's Alpha, which yielded a coefficient of 0.72, indicating an acceptable level of internal consistency.

A posttest, which was a parallel form of the pretest, was administered at the conclusion of the instructional period. Like the pretest, it consisted of 30 multiple-choice items but differed in terms of content and item sequence to avoid practice effects. The posttest was carefully reviewed and validated by expert judges to ensure its alignment with the objectives of the study. Minor revisions were made to increase clarity and to adjust item difficulty. In addition to the immediate posttest, a delayed posttest was conducted one month later in order to measure the retention of reading comprehension skills. This provided further evidence regarding the lasting effects of the instructional methods.

For the qualitative phase, a semi-structured interview was designed and administered to three randomly selected participants from the experimental group. The interview included ten open-ended items that encouraged learners to reflect on their

experiences with the blended teaching method and its impact on their reading comprehension and learning motivation. Each interview lasted approximately five minutes and was conducted in English. To ensure trustworthiness, the interview questions were reviewed by three language experts, and their feedback was incorporated into the final version. Interviews were audio-recorded with the consent of the participants, and the recordings were later transcribed for analysis. Attention was given to criteria of credibility, dependability, and transferability to ensure rigor in the qualitative phase.

The data analysis followed a two-stage procedure corresponding to the mixed methods design. Quantitative data from the pretest, posttest, and delayed posttest were analyzed using SPSS version 22. Descriptive statistics, including means and standard deviations, were calculated to summarize the data. To test the assumptions of normality, the Kolmogorov–Smirnov test was applied. For inferential statistics, independent-samples t-tests were run to compare the reading comprehension performance of the experimental and control groups. This allowed for determining whether the blended teaching approach had a statistically significant effect compared to the traditional offline method.

The qualitative data collected through interviews were analyzed using thematic analysis. The transcripts were coded to identify recurring themes and subthemes related to the learners' perceptions of blended teaching, its benefits, and challenges. This analysis helped to contextualize the quantitative results by providing detailed accounts of the participants' subjective experiences. Integration of the two strands of data occurred during interpretation, where the qualitative insights were used to explain and enrich the quantitative findings. Through this systematic approach to analysis, the study aimed to present a comprehensive account of the impact of online and offline blended teaching on Iranian EFL learners' reading comprehension.

Findings and Results

This section presents the results of the study, beginning with the descriptive statistics of the participants' performance in the pretest and posttest of reading comprehension. The findings are reported for both the experimental group (EG), which received blended instruction combining online and offline methods, and the control group (CG), which received traditional offline instruction. The descriptive analysis provides an overview of the learners' mean scores and standard deviations before and after the treatment, offering preliminary insights into the impact of the instructional modes prior to the inferential analysis.

Table 1. Descriptive Analysis of Results for the Experimental and Control Groups in the Reading Pretest and Posttest

Group	Test	Mean	Standard Deviation
Experimental Group	Pretest	15.37	1.187
	Posttest	17.29	1.007
Control Group	Pretest	15.08	1.712
	Posttest	15.22	1.031

As the results indicate, the mean score of the experimental group in the reading pretest was 15.37 with a standard deviation of 1.187, whereas in the posttest the mean increased to 17.29 with a reduced standard deviation of 1.007. This increase in the mean scores suggests that the participants in the experimental group improved in their reading comprehension performance following the blended teaching intervention. The decrease in standard deviation from pretest to posttest also shows that the learners' performance became more consistent across the group after receiving the treatment. Moreover, the control group obtained a mean score of 15.08 with a standard deviation of 1.712 in the pretest. In the posttest, the mean slightly increased to 15.22 while the standard deviation decreased to 1.031. Compared to the experimental group, the improvement in the control group was marginal, indicating that the traditional offline instruction did not bring about a substantial change in reading

comprehension performance. While the standard deviation shows a reduction in variability among learners' scores, the very small increase in mean performance points to limited effectiveness of the traditional method compared to blended teaching.

Table 2. Independent Samples t-test Results for Reading Comprehension in Pretest and Posttest

Test	Groups	N	Mean	SD	Levene's Test: F	Levene's Test: Sig.	t	df	Sig. (2-tailed)
Pretest	EG	30	15.22	1.187	7.296	0.661	2.494	58	0.678
	CG	30	15.08	1.712					
Posttest	EG	30	17.29	1.007	7.244	0.001	2.479	58	0.000
	CG	30	15.22	1.031					

As shown in Table 2, the mean score of the experimental group in the reading pretest was 15.22 (SD=1.187), while the control group obtained a mean score of 15.08 (SD=1.712). The Levene's test of equality of variances indicated $F(1,58)=7.296$, $p>.05$, suggesting that the assumption of homogeneity of variances was met. The independent samples t-test result showed no statistically significant difference between the two groups at the pretest stage, $t(58)=2.494$, $p=.678$. This finding indicates that both groups started the study with comparable reading comprehension abilities, and therefore, any subsequent differences observed in the posttest could be attributed to the instructional treatment rather than pre-existing differences in ability.

Moreover, the experimental group achieved a mean score of 17.29 (SD=1.007) in the posttest, whereas the control group obtained a mean score of 15.22 (SD=1.031). Levene's test showed $F(2,58)=7.244$, $p<.05$, indicating that the assumption of equality of variances was not met; however, the independent samples t-test still demonstrated a highly significant difference between the two groups, $t(58)=2.479$, $p<.001$. These results confirm that the experimental group outperformed the control group in the posttest, demonstrating that blended teaching had a significant and positive effect on the reading comprehension of Iranian EFL learners at the upper-intermediate level. Consequently, the related null hypothesis was rejected, and it was concluded that the blended mode of instruction provided a more effective learning environment compared to the traditional offline approach.

Alongside the quantitative results, the qualitative data gathered through semi-structured interviews provided a deeper understanding of learners' perceptions and experiences of blended teaching. The analysis of the interviews revealed that most participants held positive attitudes toward the use of blended learning in EFL contexts. Students generally highlighted the usefulness of blended learning for practicing and improving their overall language abilities, particularly reading comprehension. They emphasized that this mode of learning provided them with additional opportunities to engage with reading materials and to develop strategies for decoding texts, understanding phrases, and constructing meaning at their own pace. Some learners also mentioned that blended learning enhanced their pronunciation and speaking practice, as the system enabled them to repeat and mimic words without the pressure of speaking in front of others.

The students' reflections, however, also revealed certain limitations in the application of blended learning to writing and grammar skills. They reported that while reading comprehension improved significantly, the writing tasks remained challenging because of the limited corrective feedback provided by the system. In addition, some learners perceived that the explanations of grammar were not always clear or comprehensive enough to allow for self-correction. Several participants noted that they often felt confused when they encountered ungrammatical structures without adequate guidance.

Another prominent theme identified in the interviews was related to the technical challenges associated with blended learning. Although learners appreciated the flexibility of accessing content anytime and anywhere, they also expressed frustration when facing internet connection problems that limited their ability to engage consistently with the materials. Many students reported difficulties navigating through lessons when the connectivity was unstable, which hindered the continuity of their learning.

Despite these issues, the majority of participants expressed enjoyment and motivation while engaging with blended learning. They highlighted that the activities were often interesting, challenging, and adaptable to their preferences, which helped sustain engagement. One significant aspect raised was learners' tendency to consult answer keys when faced with difficult tasks. While some students admitted to skipping tasks that were too challenging or uninteresting, others mentioned that they relied heavily on the answer keys to complete the activities. This behavior points to a potential inconsistency in learner engagement, as some learners prioritized efficiency over effortful learning.

The participants also expressed concerns about the possibility of blended learning being used as a formal assessment tool. While they acknowledged its benefits as a supplement to traditional instruction, they unanimously opposed replacing traditional exams with blended assessments. Students reported that such a shift would increase stress and require unfamiliar exam preparation strategies, which they considered an additional burden. Some learners argued that blended assessments demanded specific digital skills, which might disadvantage students who were less technologically proficient.

Overall, the interviews showed that while blended learning was positively received as a tool for improving reading comprehension and enhancing learner motivation, it also presented challenges, particularly in the domains of writing, grammar, and assessment practices. The themes derived from the analysis are summarized in Table 3 below.

Table 3. Opinions of Iranian Intermediate EFL Learners about Blended Learning

Categories	Themes
Role of Blended Learning	a. Motivation b. Engagement
Quality and Design	a. Technical problems b. Not available at all times
Positive Opinions	a. Funny and enjoyable b. Effective as supplements or add-ons
Negative Opinions	a. Inappropriate assessment tools b. Requires digital literacy skills

This integration of quantitative and qualitative findings demonstrates that while blended learning significantly enhanced learners' reading comprehension performance, students' perceptions added valuable context by highlighting both strengths (motivation, engagement, enjoyment) and weaknesses (technical challenges, limited feedback, and concerns about assessment).

Discussion and Conclusion

The present study examined the effect of online and offline blended teaching on Iranian EFL learners' reading comprehension across proficiency levels. The findings showed that the experimental group, which was exposed to blended instruction, achieved significantly higher reading comprehension scores compared to the control group, which received traditional face-to-face instruction. Moreover, learners' perceptions gathered through interviews confirmed that blended learning was positively viewed as a valuable tool for improving reading skills, though challenges related to writing practice, grammar explanation, technical barriers, and assessment anxiety were also identified.

These findings align with the growing body of research that recognizes blended learning as a highly effective pedagogical model for enhancing reading comprehension in EFL contexts. Consistent with earlier work in Iran and other EFL contexts, the results of this study confirm that combining digital resources with traditional classroom instruction creates richer and more engaging learning environments that promote deeper comprehension skills (4, 7, 8). Specifically, the significant gains observed in the experimental group highlight the effectiveness of online-offline integration in creating opportunities for learners to actively interact with texts, apply strategies beyond the classroom, and receive timely feedback.

One important explanation for these outcomes lies in the interactive and multimodal nature of blended learning. As observed in earlier studies, students exposed to augmented reality (14), computer-mediated communication (16), and blended multimedia strategies (22) often report higher engagement levels and improved reading performance. The current findings suggest that the

integration of online resources in the experimental group allowed learners to extend their reading practice outside the classroom, while the offline sessions provided scaffolding and face-to-face clarification. This echoes the conclusion of (26), who demonstrated that Chinese undergraduates improved both reading comprehension and engagement in blended environments, underscoring the dual role of such approaches in enhancing both cognitive and affective dimensions of learning.

The significant difference between the experimental and control groups also resonates with (1), who showed that flipping EFL reading classes through blended strategies enhanced students' comprehension and positively affected their perceptions of learning. Similarly, (13) confirmed that flipped and blended instruction improved self-regulated learning alongside comprehension, suggesting that learners in such environments develop metacognitive skills that support long-term achievement. The present study's findings similarly highlight that blended methods foster autonomy, encouraging learners to take control of their reading practices and reflect critically on their progress.

The qualitative results further support these quantitative findings. Learners consistently reported that blended instruction gave them more opportunities to practice and consolidate reading strategies. These perceptions align with research from Indonesia and Saudi Arabia, where students highlighted the motivational and enjoyable aspects of blended instruction in reading courses (17, 31). Learners in this study noted that reading texts presented online were both useful and challenging, a finding consistent with (25), who demonstrated that the use of KWL chart strategies in blended learning enhanced comprehension by encouraging learners to activate prior knowledge, ask questions, and reflect on reading content. Similarly, the present findings support (27), who emphasized that peer learning within blended classrooms can strengthen reading outcomes by encouraging collaboration and engagement.

Interestingly, students in this study also noted that blended learning was more effective for reading comprehension than for writing or grammar, primarily because of limited corrective feedback. This perception is echoed in other studies that reveal discrepancies in how different language skills benefit from blended environments. For instance, (11) found that while hybrid project-based learning improved reading comprehension, challenges persisted in ensuring adequate feedback for writing skills. Likewise, (28) reported that while read-aloud strategies in blended classrooms improved comprehension, learners continued to require additional guidance in grammar. These results suggest that blended learning should be carefully adapted for each skill domain, with writing and grammar requiring additional instructional support.

Technical issues, such as poor internet connectivity and reliance on answer keys, were also raised in learners' interviews. These barriers have been widely documented in the literature as obstacles to blended learning's full effectiveness. For example, (29) noted that while Schoology-based blended instruction enhanced reading practices, students faced connectivity and navigation issues. Similarly, (30) found that while students appreciated AI-based blended instruction for reading, concerns about technical reliability and over-dependence on digital tools persisted. The current findings confirm that infrastructural support remains critical for maximizing blended learning's benefits, particularly in developing contexts such as Iran.

Another notable finding concerns learners' resistance to using blended learning as an assessment tool. While they valued blended environments for practice, students expressed reluctance to adopt it for formal evaluation, citing stress, unfamiliarity, and fairness concerns. This mirrors findings by (19), who reported that teachers perceived student engagement as higher in blended instruction but raised concerns about assessment design. Similarly, (20, 21) found that while learners viewed blended reading instruction positively, they resisted replacing traditional exams with blended assessments. These perceptions suggest that while blended teaching is effective as a pedagogical supplement, transitioning to fully blended assessment systems requires significant adaptation, training, and gradual cultural change within educational institutions.

The present study also contributes to the literature by providing evidence from an Iranian context, adding to the growing cross-national body of research on blended learning in EFL reading. In comparison with results from Libya (7), Jordan (10),

Indonesia (17, 28), China (26), and Saudi Arabia (31), the findings of this study reaffirm that blended learning is not limited by cultural or geographical boundaries but shows universal effectiveness in enhancing reading comprehension. At the same time, the study emphasizes that successful implementation requires context-sensitive design, addressing local challenges such as internet reliability and learners' readiness.

Finally, the present results also underscore the importance of teacher preparation in blended instruction. Learners reported that blended reading helped them with vocabulary, idioms, and reading comprehension but left gaps in writing and grammar. Such challenges could be mitigated if instructors incorporated explicit corrective feedback and scaffolded writing tasks in blended environments. This is consistent with (12), who showed that project-based strategies within blended classrooms improved critical reading when teachers actively guided the process, and with (31), who demonstrated that jigsaw strategies in blended reading courses outperformed traditional instruction when supported by teacher facilitation. These findings confirm that while technology and blended models provide opportunities, the instructor's role remains central in ensuring effective learning outcomes.

In sum, the findings of this study confirm the significant effectiveness of blended teaching in improving reading comprehension among Iranian EFL learners, consistent with a broad international literature. At the same time, qualitative data highlight both opportunities and challenges, underscoring the importance of context-sensitive implementation, strong pedagogical design, and careful integration of assessment and feedback practices.

Despite its valuable contributions, the present study has several limitations. First, the sample size was limited to 60 upper-intermediate learners in one language institute, which restricts the generalizability of the results. Larger and more diverse samples across different proficiency levels, age groups, and institutions would provide stronger external validity. Second, the study focused exclusively on reading comprehension, while other language skills such as writing, listening, and speaking were only indirectly examined through learners' perceptions. Third, the study lasted for eight sessions, which may not have been sufficient to capture long-term effects of blended instruction or to assess the sustainability of improvements over time. Another limitation lies in the reliance on self-reported qualitative data, which may be subject to bias as learners sometimes provide socially desirable responses. Finally, technological infrastructure in the institute, including inconsistent internet access, may have influenced the learners' experience of blended instruction and limited the full potential of online learning.

Future studies should expand the scope of blended learning research in EFL contexts by including larger samples from multiple institutions and across different proficiency levels to ensure broader generalizability. Longitudinal studies are also needed to examine the lasting effects of blended learning on reading comprehension and other skills over time. Comparative studies between blended, fully online, and fully traditional methods would provide deeper insights into their relative advantages and limitations. Further research could also investigate the role of learner variables such as motivation, digital literacy, and personality traits in shaping responses to blended environments. Additionally, experimental studies integrating innovative technologies such as augmented reality, AI tools, or adaptive multimedia platforms would shed light on how emerging instructional designs affect reading comprehension. Finally, more attention should be given to designing valid and reliable assessment tools for blended contexts, exploring how to evaluate learning outcomes without causing undue stress or inequity among learners.

From a pedagogical standpoint, the findings of this study suggest several practical implications. Teachers should incorporate blended learning as a supplement to traditional classroom instruction, particularly for developing reading comprehension skills. To maximize effectiveness, instructors should provide explicit corrective feedback for writing and grammar within blended platforms to complement reading-focused tasks. Training programs should prepare teachers to design blended learning activities that balance synchronous and asynchronous modes while fostering learner autonomy and engagement. Institutions

should also invest in reliable technological infrastructure to minimize connectivity issues and ensure equitable access to online resources. Moreover, blended learning should be introduced gradually, particularly in relation to assessment, to reduce student anxiety and resistance. By addressing these considerations, blended learning can be a powerful tool for improving EFL learners' reading comprehension and overall language proficiency.

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Authors' Contributions

Not applicable.

Declaration of Interest

The author of this article declared no conflict of interest.

Ethical Considerations

All ethical principles were adhered in conducting and writing this article.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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