

Telegram-Assisted Extensive Reading as a Game-Changer for EFL Learners: A Comparison of Blended and Backward Design Approaches

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ABSTRACT

Advances in mobile technology have transformed language education, enabling innovative approaches such as mobile-assisted blended and backward design learning. However, the combined effects of these instructional models with intensive versus extensive reading remain underexplored. As such, this quasi-experimental study compared the effects of mobile-assisted blended learning and backward design, integrated with intensive and extensive reading, on the reading comprehension of Iranian intermediate-level learners of English as a foreign language (EFL). Eighty participants were randomly assigned to four experimental groups: blended intensive, blended extensive, backward intensive, and backward extensive reading. All groups received intervention via Telegram, followed by pre- and post-testing using parallel TOEFL reading comprehension tests. Additionally, semi-structured interviews were conducted to explore their perceptions of the learning experiences. One-way ANOVA revealed significant differences among the groups. The backward extensive reading group significantly outperformed all other groups. Furthermore, the blended extensive group outperformed the blended intensive group. However, no significant difference was found between the backward intensive and blended intensive groups. The qualitative analysis of the interviews revealed that learners in the backward extensive group placed a great emphasis on pre-class preparation, which fostered confidence and readiness for in-class collaborative activities. Also, the learners in both of the extensive reading groups reported that they enjoyed the course more than the students in the intensive groups. The accessibility and ease of use of the Telegram platform were also lauded across all groups for promoting consistent engagement. The findings suggest that mobile-assisted extensive reading within a backward design framework is highly effective for enhancing Foreign Language (FL) reading comprehension.

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Introduction

The incorporation of technology in language education has led to new models of instruction, such as blended learning and backwards design that change the timing, location, and context of a learner's learning experiences. In blended learning, instruction is split between classroom sessions and out-of-class work, whereas backward design reverses the traditional sequence by having

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students first engage with content independently, freeing class time for interactive application (Challob, 2021; Montgomery et al., 2019). These designs can be especially pertinent to teaching complex skills such as reading comprehension, an area that is essential to EFL learners, but also rather difficult because EFL learners have to master several cognitive and linguistic strategies at the same time (Dreyer & Nel, 2003).

A main educational decision in teaching reading is whether to support either intensive or extensive reading. Intensive reading focuses on the detailed linguistic analysis of short texts to build specific skills, while extensive reading emphasizes high-volume, meaning-focused engagement with comprehensible and enjoyable texts to build fluency and motivation (Ali et al., 2022; Ghafournia & Malekshahi, 2025; Shen, 2008). Yet a key historical barrier to practicing extensive reading is the ability to provide learner's easy, consistent access to a variety of engaging texts. Mobile-Assisted Language Learning (MALL) is a game-changing enabler in this area. A platform like Telegram has the potential to directly address this barrier by providing a library of level-appropriate reading materials on an ongoing basis, in an easy-to-access and portable way directly on students' devices (Kukulska-Hulme, 2018). Success in incorporating reading into students' lives as a result of MALL is one theoretical premise as to how MALL can fundamentally change extensive reading practices by providing regular engagement necessary for fluency development.

Although prior studies have documented the effectiveness of MALL, blended learning, backward design, and extensive reading in and of themselves (e.g., Chen et al., 2022; Graham et al., 2013; Talebi, 2025; Zou et al., 2020), the potential effects of these instructional designs together have not been explored. It is unclear whether one instructional design is more effective when paired with a specific reading approach, and how this integration is perceived by learners. This lack of exploration is important to address, due to the academic examination and testing-oriented curricula implemented in Iran, which primarily emphasize intensive reading versus additional lesson content and reading experiences, to the detriment of student fluency and engagement.

To address this gap, the present study investigates the comparative effects of Telegram-assisted blended and backward design learning, each integrated with either intensive or extensive reading, on the reading comprehension of Iranian intermediate EFL learners. It further explores learners' perceptions of these integrated experiences. The study is guided by the following research questions:

RQ1: Which instructional design is more effective for improving reading comprehension: mobile-assisted blended learning or mobile-assisted backward design?

RQ2: Does the effectiveness of these instructional designs differ when integrated with intensive reading versus extensive reading?

RQ3: What are the perceptions of EFL learners regarding their experiences in mobile-assisted blended and backward design learning environments for reading comprehension?

Literature Review

Reading comprehension is a core element in EFL education, considered a fundamental component of academic success. The cognitive complexity of reading processes has been thoroughly explored through the works of scholars (e.g., Bernhardt, 1999; Marpaung et al., 2021; Snow, 2002) who conceptualize reading as an active and constructive process where learners read linguistic symbols and construct meaning through engagement with texts. This dual process entails an ongoing interplay between bottom-up text processing and top-down interpretation, in which readers draw on their prior knowledge to construct meaning from new text (Urquhart & Weir, 1998). Anderson (1999) further argued that successful reading comprehension relies on readers combining and evaluating multiple cognitive strategies (e.g., phonological processing, syntactic parsing, semantic mapping, and discursive level reading). The interactive nature of these approaches also implies that reading competence is enhanced via continuous practice with different genres of texts that challenge students to use and refine these strategies in real-life settings (Koda, 2005).

Against this theoretical backdrop, approaches based on the distinction between intensive and extensive reading have led to positive developments in EFL reading pedagogy. Defined by Barfield (1995), intensive reading concentrates on in-depth reading of short texts with both recognition of linguistic features and attention to reading strategies and comprehension skills. Intensive reading approaches have increasingly dominated reading instruction in EFL classrooms for reasons that include alignment with the structural language teaching method and its convenience for controlled practice of language elements. Nevertheless, as it became recognized that reading volume and fluency are crucial elements for overall proficiency, research revealed that there are restrictions in an exclusively intensive approach (Grabe & Stoller, 2002). Thus, extensive reading turned out to be an alternative solution to these restrictions by providing learners with a plethora of comprehensible input via enjoyable, meaning-based reading activities. (Shen, 2008). The theoretical considerations of extensive reading are mainly based on the input hypothesis (Krashen, 1982), which emphasizes the significance of access to a variety of sufficiently interesting reading material to improve fluency and implicit understanding of language.

Research studies have reported a range of benefits of extensive reading. Lee (2007), for example, conducted an extended piece of longitudinal research and found very significant improvements in reading speed, vocabulary recognition, and overall comprehension for learners who engaged in ongoing extensive reading programs. These results support similar findings by Kuhn and Stahl (2003), which showed significant correlations between reading fluency and comprehension across a variety of language learning settings. The lexical benefits of extensive reading are well-documented, with Schmitt (2000) pinpointing that exposure to vocabulary repeatedly in different contexts produces a stronger lexical representation for the learner and a much better retention than memorizing a list of words with no context. Furthermore, it was revealed that extensive reading influences learner motivation and attitudes towards reading (Yamashita, 2013), which are significant factors for language development that are often missing in traditional intensive reading models.

The verified effectiveness of extensive reading serves as an appropriate rationale for the association of extensive reading with the technology-supported pedagogical theories of blended learning and backward design. Both blended learning and backward design present unique ways to organize learning experiences. Blended learning is a revolutionary model of learning in EFL

education that intentionally merges traditional, in-person instruction with digitally-mediated learning to enhance learning outcomes (Graham et al., 2013). Their model of blended learning brings together the premeditated support of learning in a classroom with the autonomy of learning through technology-mediated tasks, which can often be more individualized. Blended learning aligns with sociocultural theory (Vygotsky, 1978) by emphasizing collaborative learning but also promotes digital ecologies to enhance activity beyond the actual classroom experience while reading. In reading instruction, blended models can promote scaffolded practice, in which teacher-led instruction in the classroom manifests in out-of-classroom instruction and mobile-assisted activities (e.g., reading comprehension activities on Telegram), as seen in Chen et al.'s (2022) study that incorporated MALL into the curriculum.

Unlike blended learning which focuses on the modality of instruction (online or face-to-face), backward design aligns itself with a pedagogical framework that concerns itself with how instruction is sequenced. Backward design is based on constructivistic principles, and begins with determining desired learning outcomes at the end of the instruction, and then works backward to develop tasks that produce the desired outcomes.

A significant implementation of backward design with regard to language learning is the flipped learning model, in which students first digest content independently outside of class which inverts the usual order of instructional phases and makes the face-to-face meeting a time for interactive, higher-order work (Zou et al., 2020). This backward design is facilitated and structured through pre-class tasks that draw from mobile-assisted extensive reading to prepare learners for collaborative analysis, critical discussions, or other active learning strategies in class (Montgomery et al., 2019; Yang & Newman, 2019). The evident aim is to facilitate cognitive engagement and learner autonomy in the in-person component of the lesson.

Thus, even though blended learning utilizes technology to maximize learning experiences and access to learning across contexts, backward design intentionally organizes the ordering of educational phases to enhance in-class engagement. The flipped learning model is one overt manifestation of backward design and explicitly utilizes mobile technologies to shift content presentation to a pre-class activity so that class time can be devoted to teacher scaffolding and peer learning opportunities (Challob, 2021). Backward design in reading instruction allows for intensive reading the mechanical skill practice to be accomplished on pre-class reading platforms so that the class can pivot toward the efficacious focus on comprehension and discourse analysis in the classroom (Zou et al., 2020). The student engagement and time efficiency of backward design methods may even bridge together the aims of intensive reading and the outcomes of effective "doing" reading level changes as well, which is first engaged in extensive reading for fluency development and second, metered precision processing (Ali et al., 2022).

It seems that the direct association of the extensive reading approach with blended learning frameworks and mobile technologies is a promising direction in teaching EFL reading. Research by Chen et al. (2022) demonstrates how mobile-assisted extensive reading programs can have a great impact on improving reading comprehension results when incorporated with proper educational scaffolding. The flipped learning approach was cited as a viable and specifically useful approach to implement extensive reading because it offers structure and accountability for out-of-class reading practices, and liability for subject areas while maximizing the value of classroom interactions for deeper text engagement (Yang & Newman, 2019). Significantly, digital platforms

address major implementation problems by enabling progress tracing, comprehension evaluation, and personalized text recommendations via intelligent tutoring systems (Hwang et al., 2020).

Recent studies further refine our understanding of technology-enhanced extensive reading. For example, studies contrasting mobile reading platforms (e.g., e-books vs. apps) state that design elements of the interface can significantly inform how effectively readers engage with text and construct an understanding of the texts they are reading (Li, 2022). The impact of different types of multimedia annotations in mobile reading contexts is another area of active research, with results showing that careful application of lexical support can deepen vocabulary learning and can also allow reading flow to continue (Mohsen, 2016). Above all, progress in learning analytics (Viberg et al., 2023) now enables adaptive teaching reading tailored to individual learner needs, highlighting the transformative capacity of these incorporated approaches.

Despite this growing body of research, a clear gap remains. Moreover, a review of the previous studies (e.g., Herniwati & Fatmariansa, 2019; Kukulska-Hulme & Chen, 2018; Kukulska-Hulme, 2018; Pool & Yoshida, 2019; Ridwan, 2019) indicates that, to date, no study has attempted to explore the role of mobile-assisted blended and backward design learning in improving Iranian students' reading comprehension via extensive and intensive reading, which is the focus of the present investigation. While the benefits of extensive reading (Shen, 2008) and flipped learning as an application of backward design (Zou et al., 2020) in EFL settings are well-established, their integrated applications via mobile platforms have not been fully explored, especially for EFL learners in Iran. This is a significant concern since EFL learners struggle with both the accuracy of language and reading fluency (Viberg et al., 2023), and there continues to be an increase in the use of mobile technologies in educational contexts. Also, the lack of published empirical research that explores the relationship between backward design sequencing and extensive reading experience in a mobile-assisted environment limits teachers' ability to enhance course design to maximize comprehension opportunities. To address this gap, this study investigates the comparative effects of Telegram-assisted blended and backward design learning, each integrated with either intensive or extensive reading, on the reading comprehension of Iranian intermediate EFL learners.

Method

Participants

Primarily, there was a pool of 120 Iranian EFL learners (consisting of both genders with an age range of 20 to 42, a mean of 28.3, and an SD of 4.1) at the intermediate level participating from five language schools in Tehran, Iran. All had Persian as their first language. Due to the practical constraints of the educational context, a convenience sampling method was used to recruit the initial pool of participants. The participants were screened with a TOEFL test (Structure/Writing: 40 items; Reading: 50 items). Eighty of the participants who scored within $\pm 1SD$ of the mean ($M = 72.4$, $SD = 5.8$) were selected to ensure homogeneity concerning their proficiency level. To maximize the internal validity of the quasi-experimental design despite the convenience sampling, the final sample ($N = 80$) was then stratified-randomly allocated to four experimental groups (20 per group), namely, (1) blended mobile-assisted intensive reading, (2) blended mobile-assisted extensive reading, (3) backward-design mobile-assisted intensive reading, and (4) backward-design mobile-assisted extensive reading.

Instruments

The instruments to be used in the present study were as follows:

TOEFL Reading Sections

In terms of reading comprehension measurement, parallel forms of the TOEFL iBT reading section were used for the pre-test (homogeneity) and post-test.

The TOEFL iBT was selected for two primary reasons. First, it is a high-stakes standardized exam that measures academic English proficiency worldwide. Second, its construct validity for measuring reading comprehension is widely accepted.

In terms of design and construct, the TOEFL reading section utilized in the present study contained three factual reading passages, each approximately 700 words in length, on academic topics from different disciplines. Each passage had 12-14 questions, totaling 50 items per test. The questions represented the types found on the actual TOEFL iBT, comprising multiple-choice format and assessing Basic Comprehension (e.g., main ideas, details, and vocabulary), Inferencing (e.g., logical inferences, rhetorical purpose), and Reading to Learn (e.g., coherence, schematic summaries).

With regards to reliability and validity, the tests used in this specific study were estimated for internal consistency reliability using the Kuder-Richardson 21 (KR-21) formula. The reliability indices are acceptable to good for research purposes at .73 (the main proficiency TOEFL), .76 (the pre-test), and .82 (the post-test). For validity, there is strong evidence from a significant research base (Chapelle et al., 2008). The TOEFL iBT has strong evidence for (a) content validity, established through a rigorous test development process involving domain and construct analysis and expert review; (b) criterion-related validity, established through correlational evidence with other academic English measures; and (c) construct validity, established through psychometric studies which confirmed that the TOEFL iBT measured the construct of reading comprehension (Sawaki, et al., 2009).

Semi-structured Interviews

To assess participants' perceptions regarding the effectiveness of mobile-assisted blended learning and backward design for their reading comprehension skills, semi-structured interviews were conducted. The interview protocol was first piloted with a separate group of four similar EFL learners to check for clarity, duration, and appropriateness, leading to minor refinements that enhanced the instrument's validity. This phase occurred after the posttest phase of the study. A total of 21 participants were randomly selected from the four experimental groups (approximately 5-6 from each group) to ensure a representative range of experiences and to achieve data saturation. The interviews were conducted face-to-face in a private room at the language institutes, with each interview lasting approximately 10 to 15 minutes. All interviews were audio-recorded with participant consent and later transcribed verbatim for accurate analysis.

The interviews included three main questions (see Appendix). The smaller sample size allowed for an in-depth examination of each participant's experiences and viewpoints, yielding rich and detailed insights. To ensure the credibility of the qualitative analysis, a process of member checking was employed, where a summary of the findings was shared with participants for confirmation. In addition, an external colleague reviewed the initial codes to enhance reliability.

In qualitative research, the goal is generally to attain a comprehensive understanding of specific phenomena rather than to generalize results to a larger population. The in-depth accounts from these participants yielded rich, qualitative insights into their learning experiences. This provided a deeper understanding of the quantitative findings.

Procedure

We implemented four distinct mobile-assisted treatments to compare blended versus backward design learning approaches for EFL reading comprehension in this quasi-experimental study. The procedure followed four sequential phases:

Phase 1: Participant Selection and Baseline Assessment

1. Screening and Homogenization: A pool of 120 intermediate EFL learners completed a TOEFL proficiency test. From these, 80 participants scoring within $\pm 1SD$ of the mean were selected to ensure homogeneity.

2. Pretest: A parallel-form TOEFL reading pretest was administered to confirm no significant between-group differences in initial reading comprehension ability.

Phase 2: Intervention Implementation

3. Group Assignment and Treatment: Participants were stratified by proficiency and randomly assigned to one of four experimental groups (N = 20 each). The 10-session treatment for each group followed a specific two-step sequence, is detailed in Table 1 below:

Table 1

The Ten-Session Treatment for the Four Groups in the Two Steps

Group	Instructional Sequence	Reading Approach	Step 1	Step 2
Blended Extensive	Classroom first	Extensive	In-class: Pleasure reading + peer discussions	Telegram HW: Comprehension Qs + collaborative feedback
Blended Intensive	Classroom first	Intensive	In-class: Vocab/grammar analysis in pairs/groups	Telegram HW: Individual Qs on linguistic details
Backward Extensive	Telegram HW first	Extensive	Telegram HW: Pre-class reading	In-class: Collaborative discussion of pre-read materials

Group	Instructional Sequence	Reading Approach	Step 1	Step 2
Backward Intensive	Telegram HW first	Intensive	Telegram HW: Pre-class grammar prep	In-class: Group practice of grammatical rules

Phase 3: Posttesting and Qualitative Data Collection

4. Posttest: A TOEFL reading posttest (parallel to pretest) was administered to assess comprehension gains.

5. Interviews: Semi-structured interviews were conducted with a randomly selected sub-group of participants to explore their learning perceptions.

Phase 4: Data Analysis

6. Quantitative Analysis: Scores were analyzed using One-way ANOVA and Scheffé's post hoc tests to compare treatment efficacy.

7. Qualitative Analysis: Interview data were transcribed and analyzed thematically to identify key perceptions.

Posttesting and Data Collection

A TOEFL reading posttest (parallel to pretest) assessed comprehension gains. Scores were analyzed to compare treatment efficacy across groups.

Design

The dependent variable was reading comprehension, measured by TOEFL posttest scores. The independent variables were the four instructional conditions. Although random selection was not used, random assignment to groups was implemented. This satisfies the criteria for a quasi-experimental design (Mackey & Gass, 2005).

Data Analyses

To analyze the data, both descriptive and inferential statistics were used. Means, standard deviations, and variances were calculated for descriptive analysis. A One-way ANOVA was employed to compare the posttest scores across the four experimental groups, with Scheffé's post hoc tests used to identify the source of any significant differences.

Before conducting the ANOVA, its underlying assumptions were checked. The assumption of homogeneity of variances was met, as indicated by a non-significant Levene's test (see Table 4). Normality was assessed by inspecting the skewness and kurtosis of the data for each group. For all groups, the skewness and kurtosis divided by the standard error produced ratios of less than ± 1.96 , which indicates, at most, a minimal degree of departure from normality (Table 2). Thus, based on the normality assessment, parametric tests such as ANOVA were found to be appropriate.

The qualitative data from the interviews were then analyzed by means of thematic analysis following Braun and Clarke's (2006) framework in a process which included familiarizing oneself

with the data, generating initial codes, searching for themes, reviewing themes, and defining and naming themes. A member check for trustworthiness was also conducted - at this stage, a brief account of the results was shared with participants to confirm the findings. Additionally, to increase trustworthiness, peer debriefing was conducted with two colleagues experienced in qualitative research, to explore the coded data and thematic structure.

Results

Quantitative Results

Piloting TOEFL Test

The TOEFL test and reading comprehension test were piloted on a group of 30 students to estimate their KR-21 reliability indices. The KR-21 reliability indices for the main TOEFL test, pretest, and posttest were .73, .76, and .82, respectively.

The data collected in this study were analyzed through One-Way ANOVA, which assumes normality of the data and homogeneity of variances of groups. Table 2 displays the values of skewness and kurtosis, along with their respective ratios to standard errors, which are analogous to Z-scores.

Based on these results ($F(3, 76) = .739$, $p = .532$, omega squared = .010 representing a weak effect size), it can be concluded that there were no significant differences between the four groups' means on the TOEFL test. Thus, it can be concluded that they were homogeneous in terms of their general language proficiency before the main study.

One-way ANOVA was run to compare the four groups' means on the pretest of reading comprehension to prove that they were homogeneous in terms of their reading comprehension ability before the administration of the treatment. Before discussing the results, it should be noted that the assumption of homogeneity of variances was met. Based on the results of Levene's test of homogeneity of variances, the non-significant results of the test ($F(3, 76) = .462$, $p = .710$) indicated that the four groups enjoyed homogeneous variances on the pretest of reading comprehension.

Table 2 displays the descriptive statistics for the four groups on the pretest of reading comprehension. The results indicated that the backward intensive ($M = 13.20$, $SD = 4.99$), backward extensive ($M = 13.80$, $SD = 5.72$), and extensive ($M = 14.65$, $SD = 5.48$), and intensive ($M = 15.10$, $SD = 5.12$) groups had close means on the pretest of reading comprehension.

Table 2

Descriptive Statistics: Pretest of Reading Comprehension by Groups

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Backward Intensive	20	13.20	4.991	1.116	10.86	15.54
Backward Extensive	20	13.80	5.727	1.281	11.12	16.48
Extensive	20	14.65	5.489	1.227	12.08	17.22
Intensive	20	15.10	5.129	1.147	12.70	17.50
Total	80	14.19	5.292	.592	13.01	15.37

Finally, Table 3 displays the results of one-way ANOVA. Based on these results ($F(3, 76) = .507$, $p = .678$, omega squared = .019 representing a weak effect size) it can be concluded that

there were no significant differences between the four groups' means on the pretest of reading comprehension. Thus, it can be concluded that they were homogenous in terms of their reading comprehension ability before the main study.

Table 3
One-Way ANOVA; Pretest of Reading Comprehension by Groups

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	43.438	3	14.479	.507	.678
Within Groups	2168.750	76	28.536		
Total	2212.188	79			

The first research question inquired whether there was any statistically significant difference between the effects of blended mobile-assisted intensive vs. extensive reading on Iranian intermediate EFL learners' reading comprehension performance. One-way ANOVA followed by Scheffe's post-hoc comparison tests was run to compare the four groups' means on the posttest of reading comprehension to probe the research questions raised in the study. Before delving into the findings, it's important to highlight that the assumption regarding equal variances was met.

Table 4 displays the results of Levene's test of homogeneity of variances. The non-significant results of the test ($F(3, 76) = 1.01, p = .393$) indicated that the four groups had homogeneous variances on the posttest of reading comprehension.

Table 4
Test of Homogeneity of Variances; Posttest of Reading Comprehension by Groups

	Levene Statistic	df1	df2	Sig.
Based on Mean	1.504	3	76	.220
Based on Median	1.010	3	76	.393
Based on the Median and with adjusted df	1.010	3	50.164	.396
Based on trimmed mean	1.336	3	76	.269

Table 5 illustrates the descriptive statistics for the four groups on the posttest of reading comprehension. The results indicated that the backward extensive group ($M = 26.95, SD = 3.18$) had the highest mean on the posttest of reading comprehension. This was followed by the extensive ($M = 22.55, SD = 4.78$), backward intensive ($M = 17.85, SD = 3.08$) and intensive ($M = 15.50, SD = 3.53$) groups.

Table 5
Descriptive Statistics; Posttest of Reading Comprehension by Groups

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Backward Intensive	20	17.85	3.083	.689	16.41	19.29

Backward Extensive	20	26.95	3.187	.713	25.46	28.44
Extensive	20	22.55	4.785	1.070	20.31	24.79
Intensive	20	15.50	3.532	.790	13.85	17.15
Total	80	20.71	5.735	.641	19.44	21.99

Finally, Table 6 displays the results of one-way ANOVA. Based on these results ($F(3, 76) = 37.63$, $p = .000$, omega squared = .579 representing a large effect size), it can be concluded that there were significant differences between the four groups' means on the posttest of reading comprehension.

Table 6
One-Way ANOVA; Posttest of Reading Comprehension by Groups

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	1552.937	3	517.646	37.631	.000
Within Groups	1045.450	76	13.756		
Total	2598.388	79			

To identify the source of the significant differences found in Table 6, Scheffe's post-hoc tests were run to compare the groups pairwise (Table 7). The results indicated that:

A: The blended mobile-assisted extensive group (Mean = 22.55) significantly outperformed the blended mobile-assisted intensive group (Mean = 15.50) on the post-test of reading comprehension (Mean Difference = 7.05, $p = .000$). Thus, it can be concluded that the first null-hypothesis that proposed "there was no statistically significant difference between the effects of blended mobile-assisted intensive vs. extensive reading on Iranian intermediate EFL learners' reading comprehension performance" was rejected.

Additionally, the second research question asks if there is any statistically significant difference between the effects of backward design mobile-assisted intensive vs. extensive reading on Iranian intermediate EFL learners' reading comprehension performance.

B: The backward mobile-assisted extensive group (Mean = 26.95) significantly outperformed the backward mobile-assisted intensive group (Mean = 17.85) on the post-test of reading comprehension (Mean Difference = 9.10, $p = .000$). Thus, it can be concluded that the second null-hypothesis as "there is no statistically significant difference between the effects of backward mobile-assisted intensive vs. extensive reading on Iranian intermediate EFL learners' reading comprehension performance", was rejected, too.

Table 7
Scheffe's Post-Hoc Comparison Tests; Posttest of Reading Comprehension by Groups

(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound

Backward Intensive	Intensive	2.350	1.173	.268	-1.00	5.70
Backward Extensive	Backward Intensive	9.100*	1.173	.000	5.75	12.45
	Extensive	4.400*	1.173	.005	1.05	7.75
	Intensive	11.450*	1.173	.000	8.10	14.80
Extensive	Backward Intensive	4.700*	1.173	.002	1.35	8.05
	Intensive	7.050*	1.173	.000	3.70	10.40

*. The mean difference is significant at the 0.05 level.

Qualitative Results

Results for Research Question 3: Learners' Perceptions

Semi-structured interviews were administered to a subgroup of subjects from each of the four experimental groups.

Theme: The Empowering Effect of Preparedness in Backward Design

A main theme present in both backward design groups was the importance of coming to class prepared. The pre-class mobile work on Telegram was described as establishing a base of, which changed the in-class experience from knowledge reception to knowledge application.

Backward Extensive Group: Participants stated that pre-reading stories promoted their confidence and provided them with a sense of ownership. One of them mentioned that:

"When I entered the class, I had already read the story on Telegram. I was not afraid of the teacher's questions. Instead of being nervous, I was ready to discuss my ideas with my friends. It felt like the class was ours, not just the teacher's." (P.1)

Backward Intensive Group: Likewise, these learners valued the preparation for their pre-class grammar, although the concentration of the class was on the application of rules. One of the participants reported that:

"Studying the grammar points on my phone before class was helpful. When we did group work in class, I could focus on using rules, not just trying to understand them for the first time. It made the practice much more useful." (P.2)

Theme: Extensive Reading Promoted Joy and Decreased Anxiety

A strong theme that emerged from both of the extensive reading groups was the role that enjoyment played, and a considerable decrease in the anxiety commonly linked with reading a second language. This was in direct contrast with the previous experience they had in intensive reading.

Blended Extensive Group: Learners highlighted the transition from concentrating on individual errors to general meaning. One of the participants stated that:

"Before this, reading in English was only about answering difficult questions and finding grammar mistakes. It was stressful. Here, we read the story. I forgot I was learning English sometimes, and then I was surprised that I could understand so much." (P.3)

Backward Extensive Group: This group made an association between the joy they received while reading and an increase in volume and fluency. According to one of the learners:

"Because I was reading for pleasure on my phone, without the pressure of a test, I read more. The more I read, the easier it became. My fear of long English texts started to disappear." (P.4)

Theme: The Contrasting Demands of Intensive Reading Approaches

Participants in the intensive groups were aware of the usefulness of this approach for creating certain skills, but repeatedly said that it was more cognitively challenging and less motivating than the extensive approach.

Blended Intensive Group: The focus on linguistic detail in the classroom was perceived as sometimes impeding global comprehension. One interviewee remarked:

"The intensive work was good for learning specific words and rules, but it was tiring. We focused so much on small details that sometimes I lost the meaning of the whole text." (P.5)

Backward Intensive Group: While they appreciated the pre-class preparation, the focus of the intensive group was on the mechanics. This opinion was in contrast with that of a fellow student in an extensive group, who stated: *"We [in the extensive groups] focused on the whole meaning, the story. I learned vocabulary from seeing words again and again in different stories, which felt more natural than memorizing lists." (P.6)*

Theme: Mobile-Assisted Learning (via Telegram) as a Facilitator of Accessibility and Routine

Across the four groups of interviewees, the participants all perceived the convenience and accessibility provided by the use of the Telegram platform as being important. It was regarded as an important factor in effecting the continual engagement through the integrated and seamless nature of the learning opportunities which were being made into their daily lives.

A participant from the Blended Extensive Group commented:

"I could read on the bus or during short breaks. My phone is always with me, so I never forget to do the assignments. It was much easier than carrying a book." (P.7)

An interviewee from the Backward Intensive Group mentioned:

"Getting the materials on Telegram felt informal and easy. It didn't feel like heavy homework, so I was more motivated to open the files and read." (P.8)

The interview data are an important explanatory aspect for the quantitative results. The higher performance of the Backward Extensive Group appears both as a statistical outcome and as a result of a sound educational integration. This integration drew upon the *confidence and readiness* promoted by the backward design model, the *engagement, fluency development, and anxiety reduction* fostered by the extensive reading approach, and the *accessibility* enabled by mobile-assisted learning. On the contrary, the other groups gained just a part of these advantages: the intensive groups achieved structured skill practice but lost the engaging, meaning-focused practice, while the blended extensive group took advantage of enjoyable reading but lost the

cognitive and affective merits of the "flipped" preparedness that featured the backward design. Finally, participants believed that the backward extensive model was both more efficient and more enjoyable and less anxiety-inducing, which directly reflected their considerable achievements in their reading comprehension skills.

Discussion

The first research question inquired which instructional design is more effective for improving reading comprehension: mobile-assisted blended learning or mobile-assisted backward design. The findings showed substantial differences among the four experimental groups concerning their gains in reading comprehension, with the mobile-assisted backward extensive reading group demonstrating superior gains compared to others. It is possible that this superiority in performance is the result of the incorporation of the structured and student-centered approach adopted by backward design, as well as the extensive reading's focus on learners' engagement, which has been facilitated by mobile technology. This is strongly in line with Shen's (2008) idea that extensive reading fosters the growth and enhancement of L2 skills and Zhang et al.'s (2021) findings on task design which helps the easier acquisition of vocabulary. Likewise, Lin and Lin's (2019) recent work indicated that mobile-assisted extensive reading showed significant progress in EFL learners' reading fluency and comprehension, when compared with traditional approaches.

The second research question asked if there was a difference in the effectiveness of the instructional designs attached to intensive versus extensive reading. The results strongly corroborate the theoretical benefits associated with extensive reading discussed in the literature review, especially the input hypothesis (Krashen, 1982), which suggests comprehensible input is fundamental to language acquisition. These results show notable improvement in comprehension and align with Krashen's (1982) theory and documented lexical benefits of extensive reading. As reported, extensive reading creates opportunities for repeated encounters with vocabulary in different contexts, which, as Schmitt (2000) indicates, has a positive effect on retention and implicit knowledge. Learning effects of these were observed in both extensive reading groups. Furthermore, the improvement in enjoyment and learner anxiety in either extensive condition connected to the affective benefits (Yamashita, 2013) demonstrated in the nature of volumes of reading for meaning associated with extensive reading as a motivating and positive attitude toward reading which contributes to an effective learning atmosphere. The significant success of the blended extensive group, however, was outpaced by the backward design model, which emphasizes that the effectiveness instruction of reading not only relies on the approach, but on the planning and sequencing of learning which is central to backward design approach. Nevertheless, the backward extensive group's greater success means that flipping the order (pre-class preparation through Telegram followed by in-class application) increases the benefits of extensive reading by prioritizing active, collaborative learning throughout face-to-face sessions. Crucially, the results indicate that the choice of reading approach is paramount; in both instructional designs (blended and backward), the extensive reading groups significantly outperformed their intensive reading counterparts.

The third research question explored the perceptions of EFL learners regarding their experiences in these mobile-assisted learning environments. The qualitative data presented by the semi-structured interviews add an important explanatory dimension to these quantitative results, revealing the underlying assumptions of the participants that led to the performance outcomes. A dominant theme among the successful backward extensive group was the empowering impact of having lessons prepared in advance, which fostered self-confidence and made the lesson a lively

occasion for application and discussion. In addition, it was reported by students in both extensive reading groups that there was an increased enjoyment and a significantly lower anxiety than experienced by those students in the intensive group signaling the affective advantages of a meaning-oriented method. This was matched by a unanimous appreciation across all groups for the accessibility and convenience of the Telegram media available for academic inputs and communications, which made for a continued involvement by assimilating the learning into their everyday strategies and practices. Finally, it appears from the interview data that the backward extensive method was perceived as being not only more effective than but also more enjoyable and less anxiety producing than synchronous classroom learning methods, creating a powerful pedagogical synergy that thus mirrors perfectly the significant gains in comprehension that were the successful and observable outcomes.

To triangulate these findings, the qualitative themes provide a clear explanatory framework for the quantitative results. A dominant theme among the successful backward extensive group was the empowering impact of having lessons prepared in advance, which fostered self-confidence and made the lesson a lively occasion for application and discussion. This directly explains their significant post-test gains, as the backward design structure actively enabled deeper in-class engagement. Furthermore, it was reported by students in both extensive reading groups that there was an increased enjoyment and a significantly lower anxiety than experienced by those students in the intensive group, signaling the affective advantages of a meaning-oriented method. This stark contrast in learner experience directly correlates with and explains the performance gap between the extensive and intensive groups on the comprehension test. This was matched by a unanimous appreciation across all groups for the accessibility and convenience of the Telegram media. Thus, the triangulation of data confirms that the superior performance of the Backward Extensive model was not a statistical anomaly but rather the result of a powerful synergy between the backward design's empowering structure, extensive reading's motivational benefits, and the seamless access provided by the mobile platform.

The present study highlights the pedagogical value of incorporating backward design with the extensive reading method in MALL settings, echoing Kukulska-Hulme and Chen's (2018) support for blended curricula and Larsson et al.'s (2019) research results on active learning. The achievements gained by backward extensive group show the way mobile technology can make a more active and tailored learning experience, when coupled with a flipped pedagogy that is designed to promote comprehension. Nevertheless, the restricted effect of intensive reading approaches is well in line with Chan's (2019) findings that educational techniques produce a substantial impact on the outcomes. In addition, cooperative learning, a byproduct of extensive tasks, supports Laufer's (2009) findings that collaboration improves negotiating meaning, a significant factor in developing a second language. This aligns with Viberg et al.'s (2023) meta-analysis, which came to the conclusion that mobile-assisted collaborative tasks lead to stronger learning results than personal exercises in EFL contexts. The sharp contrast between the extensive and intensive groups highlights that although methodology is important, the selection of reading method (extensive vs. intensive) is also of great significance, with extensive reading's engaging, meaning-oriented nature demonstrating greater effectiveness for comprehension success in this MALL setting.

Conclusion

The backward extensive reading group's better performance shows how doing backward design and involving engaging reading practices with students capitalizing on the mobile technology,

enhanced their experience. These findings confirm the value of a well-designed mobile environment that leads to meaningful language acquisition.

This study's findings offer several practical implications for EFL instruction. Primarily, there is a strong case for incorporating mobile-assisted backward extensive reading into standard curricula to systematically foster learner engagement and reading comprehension. To maximize the effectiveness of this approach, task designers should create activities that leverage cooperative learning principles. For instance, students could use mobile platforms to form reading circles, share annotations, and collaboratively reconstruct texts or solve comprehension tasks, thereby deepening their processing of the material. Furthermore, as the digital and physical learning environments converge, educators are encouraged to adopt a blended learning model (Yang & Newman, 2019). This model allows teachers to curate and manage broader learning pathways, using mobile reading for flexible, independent practice while reserving classroom time for collaborative tasks, critical discussion, and targeted teacher support.

There are a number of limitations in the present study that should be considered in interpreting the findings. Firstly, relying on a single instructor, even though somewhat controlling for teacher effects, might limit the generalizability of the results to other styles of teaching or other settings. Secondly, relying on a single MALL platform, such as Telegram, may limit the various available mobile learning tools. In the meantime, the sample included intermediate EFL students from one language institute in Iran, which limits the generalizability of the findings to other proficiency levels or instructional contexts. The short-term nature of the treatment also casts doubt on the long-term retention of reading comprehension gains. These restrictions propose the need for future research with different teachers, platforms, and long-term study designs to confirm and extend the results.

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