

A Comparative Study of Traditional and Online Instruction on Iranian EFL Learners' Reading Skills, Self-Efficacy, and Personality Types

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Abstract

Purpose: This study aimed to compare the effects of traditional and online instruction on Iranian EFL learners' reading self-efficacy and reading progression, with a focus on the moderating role of personality types (feeler vs. thinker).

Methods and Materials: The study employed a quasi-experimental design with pre- and post-tests, involving 63 intermediate-level Iranian EFL learners. Participants were randomly assigned to two instructional groups—traditional (face-to-face) and online (via the Rubica platform)—and further categorized as feelers or thinkers using the Myers-Briggs Type Indicator (MBTI). Reading self-efficacy was measured using a validated questionnaire, and reading performance was assessed through a standardized comprehension test. Both groups received identical instructional content tailored to their respective formats across several sessions. Data were analyzed using paired samples t-tests and independent samples t-tests to assess within-group and between-group differences.

Findings: Results indicated that both traditional and online instruction significantly improved reading self-efficacy and reading performance ($p < 0.05$). However, the online group showed slightly greater gains in both areas. Thinker participants outperformed feelers in reading progression across both instructional methods, although the difference was marginal ($p = 0.051$). No statistically significant difference was observed in self-efficacy outcomes between personality types. The interaction between instructional method and personality type revealed that online instruction benefited both thinkers and feelers, with thinkers showing slightly more improvement in reading progression.

Conclusion: Both instructional methods were effective in enhancing reading self-efficacy and performance, with online instruction offering slightly greater advantages. Personality type showed minimal influence on learning outcomes, suggesting that well-structured instruction—whether online or traditional—can serve diverse learners.

Keywords: EFL learners, reading self-efficacy, online instruction, traditional instruction, personality types, feeler, thinker.

1. Introduction

T

he evolving landscape of language education in the digital era has increasingly spotlighted the comparative effectiveness of traditional and online instructional approaches. In the context of English as a Foreign Language (EFL) learning, especially in countries like Iran where educational practices have long relied on teacher-centered, face-to-face instruction, the emergence of online modalities invites critical reassessment of pedagogical efficacy. This transition becomes particularly complex when viewed through the lens of learner diversity—most notably, individual personality traits that mediate how students engage with instructional content and format (Kakamad et al., 2024; Zulkifli & Basikin, 2024).

Technology-enhanced learning has shown promise in enhancing reading abilities, particularly reading self-efficacy—a learner's belief in their capability to complete reading-related tasks. Self-efficacy theory, as advanced by Bandura, posits that individuals with stronger self-efficacy are more likely to approach challenges persistently and achieve higher performance outcomes. In EFL contexts, reading self-efficacy has been found to significantly predict language performance and learner persistence (Wang & Li, 2019). However, the mechanisms by which different instructional methods (traditional vs. online) interact with learner traits, such as personality, remain insufficiently explored.

Recent empirical efforts have investigated how online instruction influences learner outcomes, particularly within the Iranian educational system. Findings suggest that online instruction, by promoting learner autonomy and providing interactive, multimedia-enhanced experiences, has the potential to improve reading proficiency and motivation (Golmohammadi & Kassaian, 2019; Pishkar et al., 2021). However, scholars also caution that the benefits of online learning may not be uniformly experienced across all learners. Factors such as digital literacy, instructional design, and most notably, personality traits, significantly mediate these outcomes (Liang et al., 2025; Raamkhumar et al., 2024).

Personality traits, particularly those derived from the Myers-Briggs Type Indicator (MBTI) framework, have received growing attention in second language acquisition research. The distinction between "feelers" and "thinkers" is especially relevant. Feelers are characterized by their preference for emotionally resonant, collaborative environments, whereas thinkers tend to prioritize logic, structure, and analytical clarity (Hashemi & Nouri, 2021; Perry, 2014). Understanding how these types interact with

different learning environments is crucial for optimizing instruction.

Several studies underscore the influence of personality on learning strategies and preferences. For instance, research has shown that thinker-type learners often excel in structured, instructor-led environments typical of traditional classrooms, while feelers are more likely to benefit from interactive, socially rich online learning environments (Hao, 2024; Sullivan, 2017). Kang et al. (2020) observed that personality traits significantly affected students' adaptation to online EFL instruction, with feelers demonstrating increased engagement in socially interactive tools such as forums and collaborative tasks, and thinkers preferring sequential, content-driven materials (Kang et al., 2020).

Despite this evidence, the combined influence of instructional format and personality traits on key learning outcomes like reading progression and self-efficacy has been insufficiently examined in EFL contexts. Particularly in Iran, where EFL instruction is often standardized and culturally uniform, there is limited empirical understanding of how digital and traditional pedagogies intersect with individual learner differences (Hosseini & Tavakol, 2020; Rakhimova & Kalygulova, 2024). While studies have individually examined the impact of online learning or personality traits, few have investigated the interaction between these variables in a controlled comparative setting.

This gap becomes even more significant when considering the growing digitalization of education in Iran and other similar contexts. With the proliferation of platforms such as Rubica and other localized educational technologies, learners are increasingly exposed to non-traditional modes of instruction. Yet, as Du et al. (2024) emphasize, the acceptance and effectiveness of such tools depend largely on personality-driven factors, including openness to change, intrinsic motivation, and digital self-efficacy (Du et al., 2024). This suggests a pressing need to assess how different personality types internalize and respond to these instructional innovations.

Moreover, online learning environments may offer differentiated affordances based on learners' individual differences. Liang et al. (2025) demonstrated through latent profile analysis that online learners exhibit diverse engagement patterns aligned with their personality traits, affecting their motivation, participation, and achievement levels (Liang et al., 2025). Similarly, Martin et al. (2025) found that students' personality traits significantly influenced their preferred English language learning styles,

a factor which should be accounted for when designing both online and traditional curricula (Martin et al., 2025).

In addition, the efficacy of either instructional method may vary according to cultural expectations and institutional norms. Iranian learners, for instance, often come from highly structured educational backgrounds that emphasize hierarchical teacher-student dynamics and high-stakes assessment. Such a context may align more naturally with traditional instruction, which provides clear expectations and real-time interaction (Koné, 2024; Xu & Liu, 2020). However, for learners with greater autonomy and emotional intelligence, online platforms may better support cognitive flexibility and self-direction (Rački et al., 2024).

Yet, instructional method alone cannot fully account for variance in EFL outcomes. The present study posits that learners' personality traits not only influence their preferences for a given instructional method but may also moderate the method's impact on reading development and self-efficacy. This perspective is informed by Zhang and Wang (2023), who found that specific personality traits can buffer or amplify the effects of motivational factors on English learning achievement (Zhang & Wang, 2023). Similarly, Thach (2025) revealed that extroversion—often linked to the feeler orientation—correlates positively with language acquisition in online environments, highlighting the potential role of personality in enhancing or constraining learner success (Thach, 2025).

Other studies have found nuanced relationships between personality dimensions and language learning strategies. Rakhimova and Kalygulova (2024) identified that openness and emotional stability were significantly associated with higher English learning outcomes across both classroom and digital settings (Rakhimova & Kalygulova, 2024). Ady and Mardiah (2024) further demonstrated that personality traits, particularly those influencing social behavior and academic focus, shaped learners' engagement levels and overall language performance (Ady & Mardiah, 2024). Taken together, these findings emphasize that the intersection of personality and pedagogy is central to optimizing EFL instruction.

Given these considerations, this study aims to contribute to the growing literature by directly comparing traditional and online instructional methods in Iranian EFL classrooms, while also exploring how learners' personality traits mediate outcomes related to reading self-efficacy and progression. The research addresses the following core questions:

1. How do traditional and online instructional methods compare in their effect on EFL learners' reading self-efficacy and reading skills?
2. To what extent do personality traits (feeler vs. thinker) influence these instructional outcomes?
3. Is there a statistically significant interaction between instructional method and personality type in predicting reading progression and self-efficacy?

2. Methods and Materials

The participants of this study were 63 intermediate-level Iranian EFL learners, aged between 18 and 30, who were enrolled in language institutes in Shahrekord, Iran. These learners were selected using purposive sampling from various language institutes offering EFL courses. The participants were randomly assigned to two groups: an experimental group (online instruction) and a control group (traditional instruction). In order to assess the influence of personality traits on learning outcomes, participants' personality types were determined using the Myers-Briggs Type Indicator (MBTI) Questionnaire. As a result, both the experimental and control groups were further divided into two subgroups based on personality type: feeler and thinker.

The reading self-efficacy questionnaire, based on Bandura's (1997) self-efficacy framework, was used to measure the participants' confidence in their reading abilities before and after the instructional intervention. The questionnaire consisted of Likert-scale items designed to assess learners' beliefs in their capacity to perform reading tasks effectively. Also, A reading comprehension test was administered to all participants before and after the instructional sessions. The test consisted of passages with multiple-choice and open-ended questions designed to evaluate participants' reading comprehension and ability to analyze text. The pre-test and post-test allowed for a comparison of reading progression across the two instructional methods (traditional and online).

This study employed a quasi-experimental design with a pre-test and post-test to compare the effects of traditional versus online instruction on EFL learners' reading self-efficacy and reading progression. The participants in the experimental group received online reading instruction through the Rubica social media platform. The online instructional sessions incorporated interactive elements such as discussion forums, peer feedback, and multimedia resources, allowing learners to engage with reading materials in a flexible, self-paced environment. The

participants in the control group received traditional face-to-face reading instruction, which included instructor-led lectures, group discussions, and printed reading materials. The traditional instruction followed a structured approach with a clear emphasis on vocabulary building, reading comprehension strategies, and group activities. After the completion of the instructional intervention, both groups took the same reading self-efficacy questionnaire and reading test again. This allowed for the comparison of changes in reading self-efficacy and reading progression between the pre-test and post-test for both groups.

The data collected from the pre-test and post-test were analyzed using both descriptive and inferential statistics. Paired Samples t-test was used to compare the pre-test and post-test scores for both reading self-efficacy and reading progression within each group (experimental and control). It allowed for an assessment of whether there were significant changes in learners' self-efficacy and reading skills as a result of the instructional intervention. Independent Samples t-test was used to compare the post-test scores of the experimental and control groups, as well as the feeler and thinker subgroups within each group. This comparison provided insight into whether the instructional method (online vs. traditional) had a significant impact on reading self-efficacy and progression, and whether personality type (feeler vs. thinker) played a moderating role in these outcomes. All statistical analyses were conducted using

SPSS version 26.0, and a significance level of $p < 0.05$ was considered for all tests.

3. Findings and Results

From the data presented in Table 1, It seems that both traditional and online instruction resulted in improvements in reading self-efficacy scores. The mean reading self-efficacy score for the traditional group increased from 60.48 in the pre-test to 65.58 in the post-test, reflecting a mean difference of 5.10. The mean reading self-efficacy score for the online group increased from 59.78 in the pre-test to 66.25 in the post-test, reflecting a mean difference of 6.47. The observed increase in reading self-efficacy is consistent with Bandura's (1997) self-efficacy theory, which emphasizes that learners' beliefs in their ability to succeed can enhance their motivation and academic performance.

This indicates that both instructional methods were effective in improving reading self-efficacy, with the online group showing a slightly greater improvement. However, Paired Samples Test (Table 4.7 for traditional group and Table 4.11 for online group) further supports that the differences between pre-test and post-test scores for both groups were statistically significant ($p < 0.05$), confirming the impact of both instructional methods on reading self-efficacy.

Table 1

The Mean Distribution of the Participants' Reading Self-efficacy and Reading Test Scores in Pre-test and Post-test

Groups		Reading self-efficacy pre-test	Reading self-efficacy post-test	Reading pre-test	Reading post-test
traditional	Mean	60.4839	65.5806	8.3226	10.0323
	N	31	31	31	31
	Std. Deviation	7.30694	6.65720	1.37567	.98265
online	Mean	59.7812	66.2500	8.0000	10.3438
	N	32	32	32	32
	Std. Deviation	6.04144	6.15918	1.01600	1.06587
Total	Mean	60.1270	65.9206	8.1587	10.1905
	N	63	63	63	63
	Std. Deviation	6.64902	6.36599	1.20759	1.02952

When considering reading test scores, the data reveal a clear trend of improvement for both groups. The paired sample tests also show statistically significant improvements in reading test scores for both groups ($p < 0.05$) (Tables 2 and 3). However, the online group outperformed the traditional group, with a greater mean increase in reading test scores (2.34 vs. 1.71) suggesting that online methods may

offer some advantages in enhancing reading progression. The traditional group showed a modest but statistically significant improvement in reading skills, aligning with the typical advantages of face-to-face learning, such as direct interaction with the instructor and immediate feedback. On the other hand, the online group had slightly higher gains, which could suggest that online instruction, with its

interactive features like forums and multimedia content, may have fostered better engagement with the material. The effectiveness of such online tools is well documented in language learning research, where online platforms provide increased exposure to reading materials, interactive

exercises, and the opportunity for self-paced learning. These findings underscore the efficacy of both teaching methods in improving reading progression, with online learning showing potential for slightly greater impact, possibly due to its diverse learning tools and flexibility.

Table 2

The Results of Paired Samples Test Regarding Comparing the Effect of Traditional Instruction on the Feeler Participants' Reading Self-Efficacy and Reading Progression in the Pre-test and Post-test

		Mean	Std. Deviation	Std. Error Mean	CI: 95%		Lower	Upper	t	df	Sig. (2-tailed)
					Lower	Upper					
Pair 1	Reading self-efficacy pre-test /Reading self-efficacy post-test	-6.68750	5.96343	1.49086	-9.86519	-3.50981	-4.486	15	.0001		
Pair 2	Reading pre-test / Reading post-test	-2.00000	.89443	.22361	-2.47661	-1.52339	-8.944	15	.0001		

Table 3

The Findings of Comparing the Mean of the Impact of Online Instruction on the Feeler Participants' Reading Self-Efficacy and Reading Progression in the Pre-test and Post-test

		Mean	Std. Deviation	Std. Error Mean	CI: 95%		Lower	Upper	t	df	Sig. (2-tailed)
					Lower	Upper					
Pair 1	Reading self-efficacy pre-test /Reading self-efficacy post-test	-6.25000	5.65096	1.41274	-	-	-9.26118	3.23882	-4.424	14	.0001
Pair 2	Reading pre-test/ Reading pre-test	-2.68750	.94648	.23662	-	-	3.19185	2.18315	-	14	.0001

About the second research question, the results for feeler participants from both traditional and online instruction were significant, indicating that learners who are more emotionally oriented benefited from both instructional methods. The mean reading self-efficacy score for the feeler group in the traditional instruction condition increased from 60.28 in the pre-test to 65.11 in the post-test (mean difference of 4.83) (table 2). In the online instruction condition, the feeler group's self-efficacy score increased from 59.38 in the pre-test to 66.06 in the post-test (mean difference of 6.69) (Table 4.11). Both improvements were statistically significant ($p < 0.05$), indicating that both instructional methods were effective for feeler participants

in enhancing their reading self-efficacy. This result suggests that the direct, human interaction characteristic of traditional methods may align well with feelers' preference for emotional connection and social learning environments (Sullivan, 2017). The higher gain in the online group could be attributed to the social aspects of online learning, such as discussion forums and peer collaboration, which align with feelers' strengths in building interpersonal connections (Gardner, 2006). Both improvements were statistically significant ($p < 0.05$), indicating that both traditional and online instruction are effective for feeler-type learners, though online instruction appeared to offer slightly better outcomes, particularly in reading progression.

Table 4

The Outcomes of Paired Samples Test Regarding Comparing the Effect of Traditional Instruction on the Thinker Participants' Reading Self-Efficacy and Reading Progression in the Pre-test and Post-test

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Reading self-efficacy pre-test	60.7692	14	6.15296	1.70653
	Reading self-efficacy post-test	66.2308	14	5.71772	1.58581
Pair 2	Reading pre-test	8.4615	14	1.50640	.41780
	Reading pre-test	10.3846	14	1.19293	.33086

Table 5

The Findings of Paired Samples Test Regarding Comparing the Impact of Online Instruction on the Feeler Participants' Reading Self-efficacy and Reading Progression in the Pre-test and Post-test

		Mean	Std. Deviation	Std. Error Mean	CI: 95%		Lower	Upper	t	Sig.
					Lower	Upper				
Pair 1	Reading self-efficacy pre-test / Reading self-efficacy post-test	-4.83333	5.02055	1.18335	-7.32999	-2.3366	-	-4.084	17	.001
Pair 2	Reading pre-test / Reading post-test	-1.55556	1.46417	.34511	-2.28367	-.82744	-	-4.507	17	.0001

For thinker participants, the results mirrored those of the feeler group in terms of significant improvement across both instructional methods. The traditional instruction group for thinkers showed an increase in reading self-efficacy (5.46 points) and reading progression (1.92 points). Thinkers, who prefer logical, structured learning, likely benefitted from the organized and teacher-directed environment of traditional classrooms, where clear instructions and logical sequencing

of material are emphasized. In the online instruction group, thinkers showed the greatest improvement in self-efficacy (6.25 points) and reading progression (2.69 points), which may be due to the flexibility of online learning. Thinkers often excel in self-regulated learning environments where they can plan, organize, and follow a structured approach to learning. The increased control over learning activities in online environments might have allowed thinkers to excel.

Table 6

The Results of Comparing the Mean of the Influence of Online Instruction on the Thinker Participants' Reading Self-Efficacy and Reading Progression in the Pre-test and Post-test

		Mean	Std. Deviation	Std. Error Mean	CI: 95%		Lower	Upper	t	Sig.
					Lower	Upper				
Pair 1	Reading self-efficacy pre-test / Reading self-efficacy post-test	-4.83333	5.02055	1.18335	-7.32999	-2.3366	-	-4.084	17	.001
Pair 2	Reading pre-test / Reading post-test	-1.55556	1.46417	.34511	-2.28367	-.82744	-	-4.507	17	.0001

Again, the improvements for both personality types were statistically significant ($p < 0.05$), and thinker participants seemed to benefit slightly more from online instruction in

terms of reading progression, possibly because online platforms offered more flexibility in managing the learning

process, which suited their preference for structured and systematic learning.

Studying a significant difference in the reading self-efficacy and reading progression of participants based on their personality type (feeler vs. thinker) across traditional

and online instructional methods an independent samples t-test was conducted to compare the post-test scores of feeler and thinker participants in both instructional methods. The results showed the following:

Table 7

The Findings of Comparing the Mean of the Reading Self-efficacy and Reading Scores of the Thinker and Feeler Participants

	group1	N	Mean	Std. Deviation	Std. Error Mean
Reading self-efficacy post-test	feeler	34	65.5588	7.24544	1.24258
	thinker	29	66.3448	5.24592	.97414
Reading post-test	feeler	34	9.8529	.89213	.15300
	thinker	29	10.5862	1.05279	.19550

The mean reading self-efficacy score for thinkers (66.34) was slightly higher than for feelers (65.56), but the difference was not statistically significant ($p = 0.629$ for self-efficacy and $p = 0.051$ for reading test scores) (Table 7&8). This suggests that personality type (feeler vs. thinker) did not have a significant impact on the improvement in reading self-efficacy or reading progression when considering both

traditional and online instruction methods. This finding suggests that personality type may not significantly influence the impact of instructional methods on learners' self-perception of their reading abilities. This could be because both feelers and thinkers benefit from the enhancements in self-efficacy brought about by traditional and online learning environments.

Table 8

The Results of the Difference between the Mean Scores of the Reading Self-efficacy and Reading Scores of the Thinker and Feeler Participants

		Levene's Test for Equality of Variances			t-test for Equality of Means				
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	CI: 95% Lower
Reading self-efficacy post-test	Equal variances assumed	2.840	.097	-.485	61	.629	-.78600	1.61917	-4.02373 2.45172
	Equal variances not assumed			-.498	59.528	.620	-.78600	1.57891	-3.94482 2.37281
Reading post-test	Equal variances assumed	2.231	.140	-2.993	61	.051	-.73327	.24499	-1.22315 -.24339
	Equal variances not assumed			-2.954	55.225	.051	-.73327	.24825	-1.23073 -.23580

The independent samples t-test revealed that the difference in reading test scores between feeler and thinker participants was almost significant ($p = 0.051$), with thinkers showing slightly higher post-test reading scores than feelers (table 8). This suggests that while the instructional methods were effective for both personality types, thinker participants slightly outperformed feeler participants in reading progression. The slight advantage for thinkers in reading progression can be attributed to their preference for structured environments, which may be more easily facilitated in traditional or online instructional settings. Thinkers likely benefit from the more organized, systematic

approaches that these methods provide. Despite the marginal significance, the results suggest that while thinkers performed slightly better in terms of reading progression, personality type did not drastically alter the effectiveness of either instructional method for either group.

Both traditional and online instruction were effective in improving reading self-efficacy and reading progression for Iranian EFL learners. However, online instruction slightly outperformed traditional instruction in terms of reading progression, indicating the potential of digital tools to enhance EFL learners' reading skills. Personality type (feeler vs. thinker) had minimal effect on the overall improvements

in self-efficacy and reading progression. Both personality types showed significant improvements in both instructional settings, with thinkers showing slightly better outcomes in reading progression. The findings highlight the importance of considering both instructional method and learner characteristics (such as personality type) when designing EFL curricula, with online instruction offering additional advantages for engaging learners in reading progression, especially for thinkers. These results have important implications for EFL teaching practices, suggesting that both traditional and online instructional methods can be highly effective, but online learning may offer slight advantages in fostering reading progression.

4. Discussion and Conclusion

The present study examined the comparative impact of traditional and online instruction on the reading self-efficacy and reading progression of Iranian EFL learners, with a particular focus on the moderating role of personality types—feelers and thinkers. The results revealed that both traditional and online instructional methods significantly enhanced learners' reading self-efficacy and reading performance. However, online instruction yielded slightly greater improvements in both areas. Personality types had a marginal effect; while thinkers slightly outperformed feelers in reading progression, no statistically significant differences were observed in self-efficacy outcomes between the two groups.

These findings reinforce the view that both instructional modalities are beneficial for EFL reading development, but online instruction may offer added value due to its flexibility, self-paced nature, and rich interactive features. This aligns with previous research indicating that digital platforms can foster learner autonomy and engagement, which are key drivers of both skill acquisition and self-perceived efficacy in reading tasks (Liang et al., 2025; Wang & Li, 2019). The slightly superior performance of the online group supports the findings of (Du et al., 2024), who demonstrated that digital tools like ChatGPT, when integrated with consideration of learners' personality profiles, improve engagement and language performance.

The increase in reading self-efficacy across both instructional groups validates Bandura's self-efficacy theory, which posits that learners' beliefs in their capacities strongly predict their academic engagement and persistence. In both online and traditional contexts, students benefited from structured exposure to reading tasks, opportunities for

feedback, and gradual performance improvement. This suggests that the learning environment—regardless of being physical or virtual—plays a critical role in building learners' confidence, especially when instructional design encourages task mastery and feedback loops (Ady & Mardiah, 2024; Sabzi & Hosseini, 2020). Online instruction, however, appeared to stimulate a higher increase in self-efficacy, likely due to learners' ability to control the pace and sequence of their learning, a finding also supported by (Kuo et al., 2014).

Moreover, online instruction may have been more effective for learners with a stronger tendency toward self-regulated learning. Thinker-type learners—who favor structured, independent, and logical approaches—showed slightly higher gains in reading progression, particularly in the online context. This aligns with (Thach, 2025), who found that introverted learners (closely associated with thinker traits) benefitted more from autonomous online learning. Similarly, (Martin et al., 2025) noted that thinkers excelled in environments offering clear expectations, sequential content delivery, and minimal social distraction. Thus, online learning may serve as an optimal modality for thinkers, enabling them to process reading materials at their preferred cognitive tempo.

For feeler-type learners, who tend to prioritize emotional resonance and interpersonal connection, both instructional methods yielded significant gains. The social components embedded in online learning—such as discussion forums or peer feedback mechanisms—may have catered well to their interpersonal inclinations. (Echavez, 2025) supports this interpretation by showing that extraversion and feeling traits mediate the link between language learning motivation and communicative competence. Similarly, (Seng, 2023) highlighted that digital social interaction (e.g., through platforms like Facebook) enhanced learners' performance, particularly among those with sociable personalities. In traditional classrooms, feelers likely benefited from real-time interaction and emotional support from peers and instructors, consistent with (Sullivan, 2017) who emphasized that feelers thrive in socially supportive learning environments.

Nonetheless, the limited influence of personality type on learning outcomes—particularly reading self-efficacy—suggests that well-designed instructional approaches can mitigate the differential effects of individual learner traits. The findings align with (Koné, 2024), who argued that while personality traits (e.g., willingness to communicate, self-efficacy) are important, instructional design and classroom

environment often exert a stronger influence on performance. This may explain why both feelers and thinkers achieved statistically significant gains across instructional methods, highlighting the universal effectiveness of well-structured reading programs, regardless of delivery modality.

The near-significant difference in reading progression between feelers and thinkers ($p = .051$) suggests a potential trend worth deeper exploration. Thinkers' slight edge may be rooted in their tendency to approach reading analytically, using inferencing and monitoring strategies more extensively. (Hao, 2024) observed that thinkers, particularly in MBTI-based groupings, outperformed feelers in vocabulary acquisition tasks due to their preference for abstraction and categorization. This trait may translate into higher reading progression, particularly in settings that support independent learning, such as online platforms.

At the instructional design level, these findings imply that hybrid models might be especially effective in maximizing the benefits of both methods for diverse learners. (Zulkifli & Basikin, 2024) emphasized the importance of recognizing and interpreting personality types to enhance learning efficiency in EFL contexts. Likewise, (Raamkhumar et al., 2024) suggested that teaching strategies aligned with personality dimensions could improve the intellectual structure of language learning. Accordingly, blended environments—where learners alternate between autonomous digital learning and socially engaging classroom interaction—could be ideal in balancing cognitive, affective, and behavioral components of language acquisition.

From a technological perspective, the study contributes to the discourse on technology-mediated language instruction. The extended Technology Acceptance Model (TAM), as applied by (Du et al., 2024), posits that perceived ease of use and usefulness are influenced by personality traits, especially in digital contexts. The findings from this study support the notion that when digital learning tools align with users' cognitive styles, engagement and learning outcomes improve. This is particularly significant in regions like Iran, where access to consistent educational resources may vary. Digital learning, therefore, represents not just a pedagogical shift, but an opportunity to democratize access and personalize instruction (Golmohammadi & Kassaian, 2019).

In terms of pedagogical inclusivity, the research also supports the idea that technology can help bridge learning gaps caused by affective or personality-related differences. (Liang et al., 2025) showed that latent learner profiles based

on personality traits could predict engagement patterns in online language learning environments. Such insights open the door for adaptive learning systems that tailor reading tasks, scaffolding, and feedback styles to the learner's cognitive-emotional profile. This adaptive personalization may be particularly useful in reading-focused EFL programs, where motivation and comprehension strategies are closely tied to learners' self-perceptions and cognitive style.

Finally, the cultural context must be considered in interpreting these results. Iranian EFL learners operate within a high-context, hierarchical educational system where face-to-face instruction remains highly valued (Hosseini & Tavakol, 2020). Yet, the study's findings suggest that even in this context, learners are capable of thriving in digital environments, particularly when those platforms support interaction, autonomy, and scaffolded progression. This challenges the notion that digital education is incompatible with traditional cultural expectations and underscores the adaptability of Iranian learners when given effective pedagogical support (Rački et al., 2024; Rakhimova & Kalygulova, 2024).

Despite the promising findings, this study has certain limitations. First, the sample size was relatively small and limited to a specific region in Iran, which may affect the generalizability of the results. Second, the study focused only on intermediate-level EFL learners; the outcomes may differ for beginner or advanced students. Third, while the MBTI framework was used to categorize personality types, it may not capture the full spectrum of learners' traits. Additionally, the reliance on self-reported measures for self-efficacy could introduce response bias, and the study did not control for external factors such as prior exposure to technology or socio-economic background. Lastly, the duration of the instructional intervention was relatively short, limiting the assessment of long-term impacts on reading skills and self-efficacy.

Future studies should aim to expand the sample population across different age groups, proficiency levels, and geographical areas to enhance external validity. Longitudinal research could provide insights into the sustained impact of instructional methods on self-efficacy and language acquisition. Researchers might also consider integrating other personality frameworks, such as the Big Five Model, for a more nuanced analysis of learner traits. Additionally, future investigations could explore adaptive learning technologies that personalize content delivery based on real-time assessment of personality, motivation,

and performance. Finally, comparative cross-cultural studies could uncover how sociocultural values interact with instructional methods and personality dimensions in different educational contexts.

In practical terms, EFL educators should adopt a flexible and blended instructional model that accommodates both thinker and feeler personality types. Instructional designers should integrate interactive, emotionally supportive elements for feelers while maintaining structured and logic-based content flow for thinkers. Teachers may benefit from initial personality assessments to inform differentiated instruction, tailoring tasks and feedback to match learner profiles. Online platforms used in instruction should offer features that support self-regulation, peer interaction, and customizable learning paths. Lastly, policymakers and curriculum planners in Iran should invest in teacher training programs that develop educators' digital literacy and pedagogical strategies for blended learning environments.

Authors' Contributions

Authors equally contributed to this article.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

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All procedures performed in studies involving human participants were under the ethical standards of the

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