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Reading Comprehension Performance Among Impulsive and Reflective English Learners: Examining the Influence of Three Reading Methods

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ABSTRACT

Background: Exploring the impact of various reading methods - such as oral reading, silent reading, and the relatively understudied subvocalization method - on the comprehension abilities of language learners with different cognitive styles, including reflective and impulsive learners, can contribute significantly to understanding how different reading techniques enhance comprehension across diverse cognitive styles.

Purpose: To investigate the role of three reading methods, including oral, silent, and subvocalization, on the comprehension performance of a group of English as a Foreign Language (EFL) learners, considering the cognitive styles of impulsivity and reflectivity.

Method: In this study, 60 female students studying in first-grade senior high school were selected based on purposive sampling. Employing a counterbalanced quasi-experimental design with three treatments, the research investigated how different reading methods influenced the impulsive and reflective learners' reading performance. The impulsivity and reflectivity of the participants were determined by Eysenck's Impulsiveness Questionnaire (I.7).

Results: The results revealed that all participants, both reflective and impulsive, demonstrated better comprehension performance with oral and subvocalization methods compared to silent reading. The oral and subvocalization methods had a similar effect on their performance. Reflective learners outperformed impulsive learners across all three methods, showing significantly higher performance. Additionally, most participants expressed a preference for oral reading over the other two methods.

Conclusion: The outcomes suggest the importance of teachers' increased flexibility in utilizing diverse reading methods and considering learners' diverse characteristics, including their cognitive style, in classroom instruction.

KEYWORDS

oral reading, silent reading, subvocalization reading, impulsivity, reflectivity, comprehension performance

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INTRODUCTION

Since English as a foreign language has found its place in Iranian schools' curricula, enhancing the foreign language proficiency of Iranian language learners has become one of the top priorities of educational authorities, language teachers, and learners. According to Halliday (2004), one of the language abilities in a literate society is reading comprehension skill. This skill is particularly crucial for all secondary school students, significantly impacting their academic achievement. In today's world, there exists an increasing demand for EFL learners to actively enhance their comprehension performance ability in order to fulfill their educational requirements.

Despite the considerable emphasis on reading skills within Iranian schools and even universities and substantial investment made in their teaching, most language learners struggle to comprehend the content they read (Torabi & Maleki,

2022). These inabilities might more specifically stem from insufficient knowledge of vocabulary and words (Mohammed, 2019), lexical inefficiency, unfamiliarity with complex structures, poor reading skills, lack of schemata, and learners' lack of interest (Davoudi & Yousefi, 2015). To cope with such challenges, many researchers have investigated using different reading strategies (e.g., Mehrpour et al., 2012; Okasha, 2020) or various reading methods, including reading aloud, reading silently, or less commonly subvocalization (e.g., Jafari, 2013, Robinson et al., 2019, Schimmel & Ness, 2017) to enhance the students' reading comprehension performance.

Reading aloud is simple for younger learners and has been suggested and used for decades. This method helps learners create a mental picture of the context read by teachers. In addition, It is an essential skill for improving and maintaining learners' pronunciation and vocabulary, as well as cultivating their comprehension (Senawati, 2021). Silent reading is commonly considered the natural way of reading and is observed as the most suitable for comprehension. It offers diverse advantages, including the ability to control the reading pace, fostering learners' confidence in understanding texts independently and facilitating deep comprehension of informational materials (Hopkins, 1997; Kemaloglu-Er, 2019). Subvocalization is defined as the internal articulation of words during reading, which reduces the cognitive load and helps the reader's comprehension and retention of the material (Carver, 1990).

However, existing research has primarily focused on singular reading methods, often failing to compare the influence of different methods simultaneously, or to consider how individual characteristics, such as cognitive styles, may interact with these methods. While there are studies that acknowledge the impact of cognitive styles like impulsivity (i.e., quick decision-making and risk-taking) and reflectivity (i.e., deliberate and thorough problem-solving) on general reading comprehension (e.g., Amiry & Mall-Amiri, 2015; Nemat Tabrizi & Esmaeili, 2016; Nisa et al., 2018), the impact of these cognitive styles on specific reading methods remains underexplored.

Thus, there is a noticeable research gap concerning the interplay between cognitive styles and the efficacy of different reading methods in enhancing learners' comprehension abilities. To address this gap and provide more effective solutions to reading comprehension challenges, this study aims to investigate how the cognitive styles of impulsivity and reflectivity impact the effectiveness of oral, silent, and subvocalization reading methods among high school students in Baft, Iran. The following questions guide this exploration:

(1) What is the most efficient reading method in the comprehension performance of Iranian English learners in high school?

(2) What is the most efficient reading method considering the comprehension performance of reflective and impulsive Iranian English learners in high school?

(3) Which reading method do the Iranian English learners in high school prefer and why?

METHOD

Research Design

This study utilized a counterbalanced quasi-experimental design featuring three distinct treatments to investigate how various reading methods influence the comprehension performance of impulsive and reflective Iranian EFL learners. In educational research, a counterbalanced design involves an experimental method where the influence of sequencing is controlled by ensuring that all groups experience each treatment, even though in different sequences (Ary et al., 2010).

Participants

This study included 60 female students from Narjeskhatoon High School in Baft, Kerman, all in their first year of upper secondary school (10th grade). These students, like their peers across Iran, had received three years of English instruction starting from the 7th grade. The school was selected based on purposive sampling due to its representative nature and typicality within the city, being the largest school with three 10th-grade classes suitable for the present research. All 85 10th-grade students who were placed in intact classes were assessed using the Oxford Placement Test (OPT)[1] to ensure homogeneity before the study. The participants were selected from this pool based on their OPT scores falling within one standard deviation above and below the mean, resulting in a sample of 60 students. However, all students present in the classroom received the treatment, as classes were intact, and the experiment took place during regular school hours.

The reason for selecting students from this grade was based on the assumption that having completed three years of English study, the students had attained the requisite proficiency for the experiment and had yet to decide on their intended majors, making them a representative sample of high school students. They received English instruction twice a week, with each session lasting approximately 90

minutes. Additionally, the same teacher instructed all three classes, with the researcher providing close guidance on conducting the experiment.

Instruments

Oxford Placement Test (OPT)

To tap the participants' English language proficiency level and homogenize them, the researcher used the Quick Placement Test version 1 of the Oxford Placement Test (OPT). This test examines reading skills, vocabulary, and grammar of a context, and it consists of 60 questions in two parts (part one includes 40 items and part two contains 20 items). The OPT is believed to be a trustworthy and valid tool for the initial placement of participants at various levels, and it has been confirmed to have a high level of consistency and reliability.

Eysenck's Impulsiveness Questionnaire (I.7)

To assess the participants' impulsivity/reflectivity, the researcher employed the Impulsiveness Subscale of Eysenck's Impulsiveness Questionnaire (Eysenck et al., 1985), comprising 54 items presented in a 'Yes/No' format and divided into four subscales: Impulsiveness (19 items), venturesomeness (16 items), and Empathy (19 items).

Due to the participants' limited English proficiency, a Persian version of the questionnaire adapted from Salimi (2001) was utilized. This translated version employed a 5-point Likert scale format and underwent validation with 1820 subjects, resulting in a reliability coefficient of 0.84 and a split-half reliability of 0.86. The Impulsiveness Subscale comprised 19 items, yielding impulsiveness scores ranging from 19 to 95.

Written Feedback

Following the completion of the three reading comprehension tests, students were provided with three essay-type questions in their native language on a separate sheet of paper. They were instructed to articulate their preferences regarding the reading method, the method they found most beneficial for comprehension, and the rationale behind their choices. This segment aimed to explore participants' preferences and comprehension performance further.

Materials

This study utilized three passages from The Pearson Test of English (PTE) General Level 2[1]. Each passage was followed by five comprehension questions, presented in English, featuring three-option multiple-choice answers. Multiple-choice questions are considered the most commonly used format in standardized reading comprehension tests, and their advantage lies in the simplicity of the scoring (Koda, 2005). The first passage, titled «Students Summer Jobs,» comprised 217 words and depicted a group of students seeking summer employment to support their studies. The second passage, titled «Smoking,» consisted of 264 words and detailed the health risks associated with smoking. The third passage, «Standing Alone at the Browns' Party,» contained 290 words and narrated the story of Anna and her spouse.

Data Collection

This research was conducted approximately two months into the academic year (2019-2020). This timing was chosen to allow students enough time to adjust to the classroom dynamics, classmates, and teacher, minimizing potential stress during the study period. Additionally, this timeframe provided the teacher with sufficient opportunity to familiarize the students with the fundamentals of the three designated reading methods and how to employ each one effectively.

The Oxford Placement Test (OPT) was initially administered to ensure uniformity among participants. Subsequently, participants' levels of impulsivity and reflectivity were assessed using the Persian version of the Impulsiveness Subscale I.7 during a regular class session. Before commencing the assessment, the teacher explained the process clearly, and participants received comprehensive information about the study's objectives. Additionally, they were assured of the confidentiality of their responses and the results. The completion of the Impulsiveness Questionnaire took approximately 10 minutes, with participants instructed not to think too long when choosing their answers.

The test was administered to each group during their own class time. To avoid any threats to internal validity, the teacher explained the procedure to the students, asking them not to exchange information with other classes. Data collected comprised comprehension scores from the fifteen multiple-choice items distributed among three passages. Following the reading comprehension tests, the students were asked to answer three essay-type questions.

Data Analysis

To differentiate between impulsive and reflective learners and evaluate their comprehension performance across each method, the study utilized SPSS software (version 22) for both descriptive and inferential statistical analyses. Repeated measures analysis of variance (ANOVA) was employed to compare the effects of the three reading methods on students' comprehension, followed by post hoc Bonferroni tests to identify significant differences. Furthermore, a

[1] Andrew, Betsis, & Lawrence, Mamas, Succeed in PTE general level 2 (B1) 10 Practice Tests. Self-Study Edition (Greece: Global ELT Publications, 2012), 175.

series of independent samples t-tests were conducted to explore the potential relationship between students' impulsivity/reflection and comprehension across different reading methods. Lastly, participants' written feedback was summarized and tabulated using descriptive statistics, computing the mean score for each preferred method.

RESULTS

Impulsivity/reflectivity of the Participants

The initial phase involved assessing the impulsivity/reflectivity of the participants through descriptive statistics. Based on the Persian version of I.7's guidelines, participants scoring 58 or higher were deemed highly impulsive, while those scoring 57 or lower were classified as low impulsive or reflective. Out of the total participants, 45 students fell into the highly impulsive category, while 15 students were categorized as reflective.

Comprehension Performance and Reading Methods

The following table, Table 1, presents descriptive statistics outlining participants' comprehension performance across three distinct methods.

As indicated in Table 1, the oral reading method exhibits the highest mean ($\bar{x}$ = 3.41), closely followed by the subvocalization method ($\bar{x}$ = 3.21). Conversely, the silent method demonstrates the lowest mean ($\bar{x}$ = 2.51) among all. To determine the statistical significance of these observed mean differences across the methods, a repeated-measures ANOVA procedure was conducted. The results of this analysis are presented in Table 2.

Table 2 provides the F value for the «Reading methods» factor, along with its associated significance level and effect size (Partial Eta Squared). Due to a violation of the assumption of sphericity in the obtained data, the values in the «Greenhouse-Geisser» row should be considered. The results reveal statistically significant differences in mean scores among the three reading methods ($F(1.991, 117.48) = 10.645$, $p < 0.0005$). Consequently, a post hoc test was administered to explore the source of this disparity.

The Bonferroni post hoc test results in Table 3 highlight significant mean differences between the silent method and both the subvocalization and oral methods. However, no significant difference is detected between the subvocalization and oral methods.

Impulsivity/Reflectivity and Reading Methods

Table 4 below presents the performance of both impulsive and reflective participants across each of the three reading methods. Upon closer examination, it becomes evident that reflective participants outperformed their impulsive counterparts across all methods. Specifically, the mean scores

Table 1

Descriptive Statistics for Comprehension Performance

	Mean	Std. Deviation	N
Silent reading	2.5167	1.37152	60
Subvocalization reading	3.2167	1.48543	60
Oral reading	3.4167	1.49906	60

Table 2

ANOVA Results for the Comparison of Different Reading Methods

Source		Type III Sum of Squares	Df	Mean Square	F	Sig.
Reading methods	Sphericity Assumed	26.800	2	13.400	10.645	.000
	Greenhouse-Geisser	26.800	1.991	13.459	10.645	.000
	Huynh-Feldt	26.800	2.000	13.400	10.645	.000
	Lower-bound	26.800	1.000	26.800	10.645	.002
Error (Reading methods)	Sphericity Assumed	148.533	118	1.259		
	Greenhouse-Geisser	148.533	117.480	1.264		
	Huynh-Feldt	148.533	118.000	1.259		
	Lower-bound	148.533	59.000	2.518		

Table 3

Bonferroni Post-hoc Test Examining the Source of Difference among the Three Reading Methods

(I) reading method	(J) reading method	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
					Lower Bound	Upper Bound
Silent	Sub-vocalization	-.700*	.199	.003	-1.191	-.209
	Oral	-.900*	.204	.000	-1.403	-.397
Subvocalization	Silent	.700*	.199	.003	.209	1.191
	Oral	-.200	.211	1.000	-.720	.320
Oral	Silent	.900*	.204	.000	.397	1.403
	Sub-vocalization	.200	.211	1.000	-.320	.720

*Note. Based on estimated marginal means. *. The mean difference is significant at the .05 level. b. Adjustment for multiple comparisons: Bonferroni.*

for the impulsive group were 1.97 for silent reading, 2.84 for subvocalization reading, and 3.04 for oral reading. In contrast, the reflective group achieved mean scores of 4.13, 4.33, and 4.53 for the respective methods. To ascertain the significance of these mean differences, a series of independent samples *t*-tests were conducted (See Table 5).

According to Levene's test results, equal variance is assumed for all the *t*-tests. Furthermore, the significant level of each test shows that the difference in mean between reflective and impulsive participants in the use of all three methods of reading, including silent, subvocalization and oral, is significant, having the *p* values of .000, .000, and .001 and F values of .54, 8.13, and 15.48, respectively. Also, both groups gained their highest mean when using the oral method, and their lowest mean was when using silent reading.

Written Feedback Results

The tables below display the results of the written feedback, outlining participants' preferred reading styles and the rationales behind their selections. According to Table 6, oral reading emerges as the most favored reading method, chosen by 50% of all participants.

Out of the 30 participants who preferred oral reading, ten students (representing over 16%) identified it as a method beneficial for enhancing their information processing skills and vocabulary acquisition. Conversely, employing oral reading to alleviate stress and anxiety was less frequently cited, with only a 5% occurrence among respondents.

As indicated in Table 7, a mere 16.67% of participants (equivalent to ten students) favored silent reading as their preferred method. The primary rationale for selecting this method was reading for leisure, with a modest popularity of 5% (three individuals). Conversely, the least preferred reason was employing the silent method to read faster and enhance comprehension, cited by only one person (1.67%).

Based on the data provided in Table 8, approximately 30% of respondents (equivalent to 20 individuals) opted for the subvocalization method as their preferred approach to reading. The primary justification, cited by 13.33% of participants, was the enhanced concentration and deeper understanding of the text achieved through this method. Conversely, the least commonly cited reason for favouring subvocalization reading was the practice of mentally repeating ideas as they form, mentioned by only 1.67% of respondents.

DISCUSSION

Reading Methods and Learners' Comprehension Performance

The initial research findings demonstrated notable differences in participants' comprehension performance across different reading methods. Oral reading showed the highest mean score, followed by subvocalization and silent reading. However, post hoc analysis revealed significant mean differences only between oral reading and silent reading, as well as between subvocalization reading and silent reading. While oral reading may seem to exert a greater influence on comprehension performance compared to subvocalization, the disparity lacks statistical significance, indicating both methods positively impact reading performance.

Existing literature predominantly focuses on oral and silent reading, overlooking the significance of subvocalization. However, this reading method can offer significant advantages to students' reading comprehension. There are two contrasting perspectives on the benefits of subvocalization. Some argue that individuals convert visual stimuli into sounds during subvocalization to access meaning, while others propose that speech codes are generated after comprehension, aiding in semantic integration and memory retention (Lee, 2015). Despite potentially reducing reading

Table 4

Descriptive Statistics of the Reading Performance of Impulsive and Reflective Participants

		N	Mean	Std. Deviation	Std. Error Mean
Silent	Impulsive	45	1.9778	1.03328	.15403
	Reflective	15	4.1333	.91548	.23637
Subvocal	Impulsive	45	2.8444	1.47641	.22009
	Reflective	15	4.3333	.81650	.21082
Oral	Impulsive	45	3.0444	1.50689	.22463
	Reflective	15	4.5333	.74322	.19190

Table 5

Independent Samples T-tests Results Comparing the Performance of Reflective and Impulsive Participants

	Levene's Test for Equality of Variances		*t*-test for Equality of Means			Mean Difference	Std.Error Difference	95% Confidence Interval of the Difference	
	F	Sig	T	Df	Sig. (2-tailed)			Lower	Upper
Silent Equal variances assumed	.549	.462	-7.186	58	.000	-2.15556	.29996	-2.75600	-1.55511
Equal variances not assumed			-7.640	26.873	.000	-2.15556	.28213	-2.73457	-1.57654
Subvocal Equal variances assumed	8.135	.006	-3.707	58	.000	-1.48889	.40161	-2.29281	-.68497
Equal variances not assumed			-4.885	44.375	.000	-1.48889	.30477	-2.10296	-.87481
Oral Equal variances assumed	15.489	.000	-3.666	58	.001	-1.48889	.40617	-2.30192	-.67586
Equal variances not assumed			-5.040	49.238	.000	-1.48889	.29544	-2.08253	-.89525

Table 6

The Students' Responses for Reasons Behind Preferring Oral Reading

Number	Students' justifications	Frequency	Percentage
1	It helps me practice pronunciation, and I can pronounce words better.	5	8.34
2	It improves my understanding and comprehension of information and helps me learn new vocabulary.	10	16.66
3	It helps me cope with my stress and anxiety while reading.	3	5
4	Reading aloud helps me with my listening.	7	11.66
5	I can read faster and have a better understanding when reading aloud.	5	8.34
Total		30	50

Table 7

The Students' Responses for Reasons Behind Preferring Silent Reading

Number	Students' justifications	Frequency	Percentage
1	I do not disturb others when I am reading.	2	3.33
2	I read faster and have a better understanding when reading silently.	1	1.67
3	When I read silently, I can skip anything I think is too difficult or unimportant.	2	3.33
4	I read silently for pleasure, not for studying.	3	5
5	It helps me concentrate on what I am reading rather than the pronunciation of individual words.	2	3.33
Total		10	16.67

Table 8

The Students' Responses for Reasons behind Preferring Subvocalization

Number	Students' justifications	Frequency	Percentage
1	It helps me pronounce the words better.	5	8.33
2	I repeat the ideas as they are formed in my mind and learn better.	1	1.67
3	I hear my own sound, and it helps me remember the information.	2	3.33
4	I can concentrate better and have a better understanding of the text.	8	13.33
5	I use it to memorize and remember new vocabulary better.	4	6.67
Total		20	33.33

speed, subvocalization significantly enhances information retention. Nevertheless, the complexity associated with measuring and exploring this process has constrained research in this field.

The outcomes of the current study reveal that brief training in subvocalization results in comprehension performance comparable to that of reading aloud. However, conflicting results emerge from studies advocating for silent reading (e.g., Mendoza & Cruz, 2024; Schimmel & Ness, 2017) versus those favoring oral reading (e.g., Mott, 2019; Zolfagharkhani & Kowsary, 2013), with most research focusing solely on the benefits of one method without comparing all three. The discrepancies among these studies, including the current one, in comparing silent reading, oral reading, and subvocalization may arise from variations in participants' personalities or the context of test administration (McCallum et al., 2004). Scholarly discussions suggest that each of these methods may exert distinct effects on comprehension (Shahnaz & Kabir, 2022), potentially influenced by individuals' skill levels and proficiencies (Filderman, 2022). Additionally, factors such as informal literacy experiences (Evans et al., 2000) and cultural literacy norms (Nachmani, 2015) beyond the classroom may influence individuals' preferences for specific reading methods. Given the multitude of these variables, fully controlling their impact when examining the relationship between learners' comprehension performance and the utilized reading method becomes challenging.

Despite limitations such as the absence of comparative studies in this area and a restricted number of participants, the current study's findings do not diminish the obtained outcomes; instead, they stimulate further investigation and a more comprehensive exploration in this field. Based on these outcomes, current research suggests that advocating for one reading method over another may not be universally applicable, as the effectiveness of each method can vary depending on the context. For instance, oral reading may benefit younger learners, while adult learners may excel in oral reading under varying reading settings (Mellard et al., 2015). Conversely, for certain groups of students, subvocalization or silent reading might be the optimal method to enhance their comprehension performance. Therefore, when selecting a reading method, it is crucial to carefully consider the specific circumstances and needs of the individuals involved.

Reading Methods and Impulsive and Reflective Learners Performance

The investigation into optimal reading methods for both reflective and impulsive learners unveiled significant differences in comprehension performance. Impulsive learners exhibited their highest performance during oral reading, achieving a mean score of 3.04, whereas their lowest performance was evident during silent reading, with a mean score of 1.97. Similarly, reflective learners displayed their

best comprehension performance during oral reading, with a mean score of 4.53, and their lowest performance during silent reading, with a mean score of 4.13. Notably, the reflective group consistently outperformed the impulsive group across all three reading methods. While research on impulsivity/reflectivity and methods of reading comprehension, particularly subvocalization, remains limited, existing studies predominantly focus on the general comprehension performance of impulsive and reflective learners. Nonetheless, comparisons with previous studies, such as those conducted by Nisa et al. (2018) and Amiri and Mall-Amiri (2015), affirm the predictive role of reflectivity in enhancing reading comprehension.

Reflective learners are distinctly focused and demonstrate more tolerance of ambiguity and think before responding, as they have the desire to respond correctly. However, they are known for their delayed responses and decisions that eventually make it difficult for them to learn quickly. On the other hand, impulsive learners are faster readers who give a very rapid answer rather than the right one. They are globalized in their thinking process, and they can create a quick mental picture of patterns and objects or even outlines of lessons (Messer, 1976; Nisa et al., 2018).

The results of the current research reveal intriguing patterns in the performance of both reflective and impulsive groups across different reading methods. While both groups performed better during oral reading and struggled more with silent reading, the variation in mean scores for each group across the reading methods is noteworthy. The reflective group consistently achieved mean scores exceeding four across all three methods, with minimal variation, indicating a relatively high level of comprehension. In contrast, the impulsive group's mean scores displayed greater variability, ranging from 3.04 during oral reading to 1.97 during silent reading.

The consistent performance of the reflective group across various reading methods may be attributed to their inclination towards strategic processing and deep engagement with the material. Their reflective nature likely prompts them to employ diverse comprehension strategies, adapting flexibly to different reading contexts (McNamara, 2011). These findings suggest that reflective learners may derive benefits from all three reading methods. However, teachers may achieve better results with impulsive learners by emphasizing oral reading and subvocalization. Oral reading's interactive and auditory nature may engage impulsive learners more effectively, providing immediate feedback and stimulating their auditory processing skills. Similarly, subvocalization, with its internalized speech component, could offer impulsive learners a structured approach to processing information, potentially enhancing their comprehension abilities.

Providing appropriate feedback to encourage alternative problem-solving approaches is among the effective teaching strategies for impulsive learners (Rivera-Flores, 2015). By offering personalized feedback aimed at promoting deeper engagement with the material, teachers can steer impulsive readers towards more deliberate comprehension techniques. Through the implementation of diverse instructional modalities, such as visual aids and interactive discussions, educators can effectively engage impulsive learners and reinforce comprehension skills. The ultimate objective is to empower these learners to approach reading tasks with greater mindfulness and strategic thinking, enabling them to analyze, interpret, and synthesize textual information more effectively.

English Learners' Preferred Reading Method

The analysis of the written feedback revealed insights into the subjects' preferences regarding different reading methods. Results indicated that 50% of the students favored oral reading, believing it enhanced their comprehension of passages. In contrast, 33.33% and 16.67% of participants opted for subvocalization and silent reading, respectively. These preferences align with the outcomes of the reading tests, which highlighted the oral reading method's significant impact on students' comprehension performance.

In this study, students who favored oral reading (as indicated in Table 6) cited reasons such as improved pronunciation practice, enhanced comprehension, stress reduction, improved listening skills, and increased reading speed. These findings are consistent with prior research conducted by Alshumaimeri (2011) and Rochman (2019). The predominance of oral reading in Iranian secondary schools, where students are most accustomed to this method (Sadeghi & Bidel Nikou, 2012), likely influenced their preference compared to silent and subvocalization readings which are rarely taught or practiced in classrooms.

Introducing and familiarizing students with the mentioned alternative reading methods could enhance their comprehension skills. Subvocalization, in particular, has been identified as a potent tool for improving comprehension (Carver, 1990; Daneman & Stainton, 1991). Although subvocalization is a common process among readers, it often remains unexplored due to its unobservable nature. Nevertheless, reinforcing this reading strategy could significantly improve reading comprehension performance (Daneman & Newson, 1992). Subvocalization, by silently pronouncing words as one reads, aids in the internalization of text, allowing readers to engage more deeply with the material. This active engagement facilitates better understanding and retention of information. Additionally, subvocalization serves as a form of self-monitoring, enabling readers to clarify meaning and detect errors as they read.

In addition, considering the outcomes of the present study and the differing effectiveness of each of the three mentioned reading methods on students with diverse educational and personal characteristics, it becomes evident that the introduction and utilization of less common reading methods in teaching can lead to significant changes in teaching practices and greatly enhance learning outcomes. This recognition underscores the importance of adopting a flexible and inclusive approach to reading instruction, one that acknowledges the varied needs and preferences of learners. By embracing alternative methods such as subvocalization, educators can create more tailored and effective learning experiences that cater to the individual strengths and challenges of their students. This proactive approach not only fosters a deeper understanding and appreciation for diverse reading strategies but also empowers students to become more confident and proficient readers in the long term.

CONCLUSION

The cognitive style of language learners can significantly impact their language learning process. Thus, the present study explored the relationship between impulsivity/reflectivity cognitive styles and reading comprehension performance across three reading methods: oral, silent, and subvocalization. The results revealed that oral reading, with the highest mean score, had a substantial positive impact on comprehension performance. However, the subvocalization method closely followed, and statistically, there was no significant difference between the two methods in their effectiveness. Moreover, reflective subjects outperformed impulsive ones across all three reading methods, with both groups achieving their highest mean scores with oral reading and their lowest with silent reading. Notably, oral reading emerged as the most preferred method among participants.

These findings suggest that EFL teachers should adopt a flexible approach in selecting reading methods to enhance teaching activities. Recognizing that a one-size-fits-all approach may not cater to all learners' needs, teachers should provide opportunities for students to explore different reading methods aligned with their cognitive styles and learning objectives. Additionally, learners themselves can benefit from understanding their cognitive styles and preferred reading methods to enhance their reading performance and adapt their learning styles accordingly.

In conclusion, while these findings may have cultural or individual specificity, they underscore the need for greater flexibility in second/foreign language teaching methodologies. The current outcomes can guide future research in exploring additional aspects of the interaction between impulsivity/reflectivity and reading methods such as the cognitive processing strategies. Also, longitudinal studies can assess the long-term effects of specific reading methods particularly subvocalization and silent reading on language learning and academic achievement and comprehension performance for individuals with different cognitive styles. By building upon these insights, future research can refine instructional approaches to better meet the diverse needs of language learners.

DECLARATION OF COMPETITING INTEREST

None declared.

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APPENDIX

Eysenck's Impulsiveness Questionnaire (I.7) (Eysenck et al., 1985)

Instruction: Please answer each question by putting a circle around the 'Yes' or the 'No' following the questions. There are no right or wrong answers and no trick questions. Work quickly and do not think too long about the exact meaning of the question.

1.	Would you enjoy water skiing?	Yes	No
2.	Usually, do you prefer to stick to brands you know are reliable and try new ones on the chance of finding something better?	Yes	No
3.	Would you feel sorry for a lonely stranger?	Yes	No
4.	Do you quite enjoy taking risks?	Yes	No
5.	Do you often get emotionally involved with your friends' problems?	Yes	No
6.	Would you enjoy parachute jumping?	Yes	No
7.	Do you often buy things on impulse?	Yes	No
8.	Do unhappy people who are sorry for themselves irritate you?	Yes	No
9.	Do you generally do and say things without stopping to think?	Yes	No
10.	Are you inclined to get nervous when others around you seem to be nervous?	Yes	No
11.	Do you often get into a jam because you do things without thinking?	Yes	No
12.	Do you think hitch-hiking is too dangerous a way to travel?	Yes	No
13.	Do you find it silly for people to cry out of happiness?	Yes	No
14.	Do you like diving off the high board?	Yes	No
15.	Do people you with have a strong influence on your moods?	Yes	No
16.	Are you an impulsive person?	Yes	No
17.	Do you welcome new and exciting experiences and sensations, even if they are a little frightening and unconventional?	Yes	No
18.	Does it affect you very much when one of your friends seems upset?	Yes	No
19.	Do you usually think carefully before doing anything?	Yes	No
20.	Would you like to learn to fly an aeroplane?	Yes	No
21.	Do you ever get deeply involved with the feelings of a character in a film, play or novel?	Yes	No
22.	Do you often do things on the spur of the moment?	Yes	No
23.	Do you get very upset when you see someone cry?	Yes	No
24.	Do you sometimes find someone else's laughter catching?	Yes	No
25.	Do you mostly speak without thinking things out?	Yes	No
26.	Do you often get involved in things you later wish you could get out of?	Yes	No
27.	Do you get so carried away by new and exciting ideas, that you never think of possible snags?	Yes	No
28.	Do you find it hard to understand people who risk their necks climbing mountains?	Yes	No
29.	Can you make decisions without worrying about other people's feelings?	Yes	No
30.	Do you need to use a lot of self-control to keep out of trouble?	Yes	No
31.	Do you become more irritated than sympathetic when you see someone cry?	Yes	No
32.	Would you agree that almost everything enjoyable is illegal or immoral?	Yes	No
33.	Generally, do you prefer to enter cold sea water gradually, to diving or jumping straight in?	Yes	No

34.	Are you often surprised at people's reactions to what you do or say?	Yes	No
35.	Would you enjoy the sensation of skiing very fast down a high mountain slope?	Yes	No
36.	Do you like watching people open presents?	Yes	No
37.	Do you think an evening out is more successful if it is unplanned or arranged at the last moment?	Yes	No
38.	Would you like to go scuba diving?	Yes	No
39.	Would you find it very hard to break bad news to someone?	Yes	No
40.	Would you enjoy fast driving?	Yes	No
41.	Do you usually work quickly without bothering to check?	Yes	No
42.	Do you often change your interests?	Yes	No
43.	Before making up your mind, do you consider all the advantages and disadvantages?	Yes	No
45.	Can you get very interested in your friends' problems?	Yes	No
46.	Would you like to go pot-holing?	Yes	No
47.	Would you be put off a job involving quite a bit of danger?	Yes	No
48.	Do you prefer to 'sleep on it' before making decisions?	Yes	No
49.	When people shout at you, do you shout back?	Yes	No
50.	Do you feel sorry for very shy people?	Yes	No
51.	Are you happy when you are with a cheerful group and sad when the others are glum?	Yes	No
52.	Do you usually make up your mind quickly?	Yes	No
53.	Can you imagine what it must be like to be very lonely?	Yes	No
54.	Does it worry you when others are worrying and panicky?	Yes	No