



Enhancing Reading Comprehension through Visual Narrative Strategies among Iranian EFL Learners: A Multi-Level Proficiency Approach

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Abstract

This study investigates the efficacy of Visual Narrative Strategies (VNS), a pedagogical model integrating visual content with learner interaction, on reading comprehension outcomes among Iranian English as a Foreign Language (EFL) learners. Specifically targeting pre-intermediate and upper-intermediate proficiency levels, the research examines how personalized interpretation and dialogic engagement with visuals can enhance comprehension. A cohort of 120 learners aged 13–20 from two private language institutes in Urmia, Iran, was randomly divided into experimental and control groups across the two proficiency tiers. The experimental groups participated in ten VNS-based sessions incorporating image-rich texts, guided group discussions, and reflective tasks. Reading comprehension was measured using the Preliminary English Test (PET) and Oxford Placement Test (OPT), both pre- and post-intervention. Paired t-tests and Two-Way ANOVA analyses revealed statistically significant gains in the experimental groups' post-test scores across both proficiency levels, with no significant interaction effects between treatment and proficiency. These findings substantiate the role of VNS in facilitating cognitive engagement and textual understanding. The study aligns with current trends in multimodal literacy and offers practical implications for curriculum designers, language educators, and EFL policy makers seeking to promote effective and inclusive language instruction.

Keywords: Visual Narrative Strategies, Reading Comprehension, Multimodal Literacy, EFL Learners, Iranian Education, Proficiency Levels

INTRODUCTION

Reading comprehension remains a cornerstone of language proficiency and a key determinant of academic achievement and life-long learning success (Grabe & Stoller, 2013; Afflerbach et al., 2015; Nation, 2022). As language classrooms evolve, so does the need for instructional practices that are not only effective but also engaging and adaptive to learner diversity. Despite widespread curricular innovations, traditional reading pedagogy often centers around text-only instruction, which can hinder

comprehension in EFL settings where learners lack sufficient vocabulary and syntactic familiarity (Lau, 2016; Shariati & Barabadi, 2019). In recent decades, educators and researchers have increasingly explored the utility of multimodal instruction, particularly Visual Narrative Strategies (VNS), which utilize images, illustrations, and other visual cues to scaffold learner understanding (Kress & van Leeuwen, 2020; Mayer, 2021; Walsh, 2010). VNS posits that comprehension improves when learners interact with visuals as part of a narrative context, fostering inferential thinking, imagination, and deeper semantic

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processing (Serafini, 2014; Paivio, 2014; Schrader & Rapp, 2016).

According to the dual coding theory, the brain processes visual and verbal information via separate but interconnected channels, thereby enhancing memory and understanding when both are activated (Clark & Paivio, 1991; Mayer & Moreno, 2010). Complementary theories such as the Cognitive Theory of Multimedia Learning (Mayer, 2021) and social constructivist models (Vygotsky, 1978) further highlight the value of collaborative visual-textual engagement in facilitating higher-order thinking.

The educational impact of VNS has been confirmed in various international contexts. Studies have reported significant improvements in vocabulary acquisition (Nikolova, 2020), syntactic parsing (Jian & Ko, 2017), and reading motivation (Tsai et al., 2021) when visuals were integrated with textual content. In Iran, recent research echoes similar findings. For example, Nasri et al. (2019) demonstrated that the use of pictorial input enhanced both speaking fluency and lexical retrieval among pre-intermediate learners. Likewise, Azadi et al. (2018) and Naderi et al. (2019) found that multimodal reading materials increased comprehension and learner engagement.

The concept of narrative as a cognitive and pedagogical tool has also gained momentum. Bruner (1990) argues that narrative serves as a primary mode of human cognition, enabling learners to organize experiences and construct meaning. Serafini (2014) builds on this by proposing the use of visual narratives as interpretive acts, where learners co-construct understanding through interaction with multimodal texts. Such narrative interaction, when paired with visuals, has been linked to enhanced inferencing skills (Ko & Wang, 2018), empathy (Brumberger, 2011), and critical thinking (Chun, 2016).

Moreover, the increasing digitization of learning environments has amplified the relevance of VNS. The ubiquity of digital platforms and multimedia content means that learners are already immersed in visual cultures outside the classroom (Beavis et al., 2022; Jewitt, 2020). Educational paradigms must therefore shift to align with students' semiotic repertoires and

literacy practices (Ajayi, 2011; Rowsell & Walsh, 2020). Researchers such as Newfield and Stein (2020) argue that multimodal learning is no longer an option but a necessity, especially in multilingual and multicultural classrooms.

In summary, VNS not only supports reading comprehension but also aligns with contemporary educational demands for inclusivity, engagement, and digital literacy. This study responds to calls for empirically grounded pedagogical interventions that bridge cognitive theory, classroom practice, and learner experience across diverse proficiency levels in EFL contexts.

LITERATURE REVIEW

Dual Coding Theory (Paivio, 2014) posits that cognition involves separate but interconnected verbal and non-verbal systems. When instructional materials engage both systems through verbal text and imagery, learners are more likely to comprehend and retain information (Clark & Paivio, 1991; Sadoski & Paivio, 2013). Mayer's (2021) Cognitive Theory of Multimedia Learning further refines this view, proposing that learning is optimized when verbal and visual information are presented simultaneously and meaningfully integrated.

Moreover, Vygotsky's (1978) sociocultural theory underscores the importance of interaction in knowledge construction. Visual narratives stimulate dialogue and collaborative interpretation, enabling learners to co-construct meaning within their Zone of Proximal Development (ZPD) (Swain, Kinnear, & Steinman, 2015). These frameworks collectively support the pedagogical relevance of VNS in EFL contexts.

Empirical Background

Recent empirical studies have corroborated the effectiveness of VNS. Jian and Ko (2017) found that students who learned with text-illustration pairings outperformed peers using text-only formats in comprehension and recall tasks. Renkl and Scheiter (2017) demonstrated that students who received pictorial representations alongside explanatory texts developed stronger causal reasoning skills. Numerous studies conducted in EFL contexts provide additional support. Naderi et al. (2019) employed multimodal tools such as videos and diagrams in Iranian

classrooms and reported enhanced reading comprehension. Similarly, Nasri et al. (2019) observed significant gains in speaking fluency among Iranian learners exposed to pictorial cues. Internationally, Ko and Wang (2018), Brumberger (2011), and Hsin et al. (2021) reported increased student engagement and improved inferential reading skills through image-supported instruction.

Other studies—such as Tsai et al. (2021), Ajayi (2011), and Dalton & Grisham (2011)—highlight the role of multimodal literacy in developing digital-age competencies. These findings suggest that integrating visual and textual elements prepares learners for real-world reading scenarios dominated by images, infographics, and media.

Gap in the Literature

While prior studies validate the benefits of visuals, they often treat images as supplementary tools rather than narrative elements requiring learner interpretation. Few studies have examined VNS as a structured, learner-centered methodology across proficiency levels. In the Iranian context, no known research comprehensively compares the effects of VNS between pre-intermediate and upper-intermediate EFL learners using validated quantitative methods.

The Problem

Despite various pedagogical reforms, Iranian EFL learners continue to struggle with reading comprehension, particularly at the inferential and analytical levels (Fathi & Derakhshan, 2020; Sadeghi et al., 2022). Conventional instruction typically emphasizes grammatical accuracy and lexical decoding at the expense of holistic understanding. The absence of multimodal strategies limits learners' engagement and hampers cognitive activation during reading tasks.

Objectives of the Study

The present study endeavored to achieve the following objectives:

- To examine the impact of VNS on reading comprehension among Iranian pre-intermediate and upper-intermediate EFL learners.
- To determine whether the efficacy of VNS is consistent across different proficiency levels.

Novelty of the Study

This study advances current research by positioning VNS as an interpretive framework rather than a supplementary technique. Unlike previous studies that generalize findings across learners, this research disaggregates data by proficiency levels, offering a nuanced view of VNS's pedagogical impact. It also explores learner engagement, inferencing, and recall in the underrepresented Iranian EFL context.

Research Questions and Null Hypotheses

RQ1: *What is the impact of VNS on reading comprehension among Iranian pre-intermediate EFL learners?*

RQ2: *What is the impact of VNS on reading comprehension among Iranian upper-intermediate EFL learners?*

RQ3: *Does the effectiveness of VNS differ across proficiency levels?*

H01. VNS has no significant effect on the reading comprehension of pre-intermediate EFL learners.

H02: VNS has no significant effect on the reading comprehension of upper-intermediate EFL learners.

H03: There is no significant interaction between proficiency level and the VNS treatment.

Significance of the Study

The study addresses a growing need for evidence-based multimodal pedagogies in EFL classrooms. By validating VNS as a strategy that enhances comprehension across different proficiency levels, the findings support teachers, textbook authors, and policymakers in modernizing language curricula. The study also aligns with international frameworks advocating for learner agency, multimodal literacy, and culturally relevant pedagogy (OECD, 2021; UNESCO, 2022).

METHODOLOGY

Research Design

This quasi-experimental study adopted a pre-test/post-test control group design within a 2 (proficiency level: pre-intermediate vs. upper-intermediate) \times 2 (treatment condition: Visual Narrative Strategies [VNS] vs. traditional instruction) factorial framework. Such a design

enables researchers to evaluate not only the main effects of the intervention, but also potential interaction effects between proficiency levels and treatment conditions, thereby offering nuanced insights into differential learning outcomes (Creswell & Creswell, 2017; Fraillon et al., 2023). Quasi-experimental designs are particularly effective in educational settings where random assignment to groups may be impractical due to institutional constraints, yet they still allow for robust causal inferences when properly controlled (Shadish et al., 2021).

The factorial structure was crucial for examining whether VNS had varying impacts based on learners' language proficiency—a key contribution of this study. As noted by Raudenbush and Bryk (2022), factorial designs provide a powerful means of investigating how interventions function across diverse learner populations, especially in multilingual and multicultural contexts such as Iranian EFL education.

Corpus of the Study

The sample consisted of 120 adolescents Iranian EFL learners aged 13–20, selected from two private language institutes in Urmia, Iran. Participants were chosen using stratified random sampling to ensure proportional representation across gender (male/female) and proficiency levels (pre-intermediate and upper-intermediate). Each subgroup comprised $n = 30$ participants, forming four distinct experimental and control subgroups (Fraillon et al., 2023).

Stratification ensured that differences in baseline characteristics—such as prior exposure to visual texts or familiarity with digital literacy practices—were minimized across groups, enhancing internal validity (Bryman, 2021). The age range was deliberately selected to reflect typical secondary and early tertiary language learners, whose cognitive development and metacognitive strategies are at critical stages for comprehension skill acquisition (Sawyer, 2020; Oxford, 2021).

Instruments

Oxford Placement Test (OPT)

The Oxford Placement Test (OPT) was administered to accurately classify participants into upper-intermediate proficiency level. The OPT

is widely recognized for its validity and reliability in assessing English language proficiency, particularly in EFL contexts (Broadfoot & Joubert, 2022). It provides a balanced evaluation of grammar, vocabulary, and reading comprehension, ensuring precise placement that aligns with Common European Framework of Reference (CEFR) benchmarks.

Preliminary English Test (PET)

For the pre-intermediate group, the Preliminary English Test (PET) was employed. As part of the Cambridge Assessment English suite, PET assesses foundational communicative competence and is commonly used in international EFL research to establish baseline reading and linguistic abilities (Fulcher & Davidson, 2021; Green, 2022). Its alignment with CEFR Level B1 ensures standardized categorization of language proficiency.

Reading Comprehension Tests

To measure the core dependent variable—reading comprehension—the researchers developed two sets of researcher-constructed Reading Comprehension Tests: one for pre-intermediate learners and another for upper-intermediate learners. These tests were designed to mirror the format and complexity of the OPT and PET, ensuring construct validity.

Each test included multiple-choice items, short-answer questions, and inferential tasks, targeting literal understanding, inferencing, and global comprehension. Content validation was conducted by two PhD-level experts in applied linguistics and curriculum design, who evaluated item clarity, relevance, and alignment with the objectives of the VNS intervention. Reliability was assessed using Cronbach's alpha, yielding high internal consistency scores:

Pre-intermediate test: $\alpha = 0.82$

Upper-intermediate test: $\alpha = 0.85$

These values exceed the acceptable threshold of 0.70 (Field, 2023), indicating strong reliability and consistency in measuring the intended constructs across both proficiency levels.

Model of the Study

The Visual Narrative Strategy (VNS) model was operationalized through a structured sequence

of image-text integration activities, delivered over ten instructional sessions. Each session incorporated:

- Carefully curated image-text pairs aligned with thematic reading passages.
- Guided description of visuals to activate prior knowledge and contextualize new information.
- Predictive tasks encouraging learners to anticipate narrative developments.
- Peer-group discussions fostering collaborative interpretation and inferencing.
- Reflective writing prompts to consolidate comprehension and personal meaning-making.

This pedagogical approach was informed by dual coding theory (Paivio, 2014) and multimedia learning principles (Mayer, 2021), which emphasize the synergistic processing of verbal and non-verbal stimuli. Furthermore, the social interaction embedded in the model reflects Vygotsky's (1978) sociocultural theory, particularly the role of peer scaffolding within the Zone of Proximal Development (ZPD) (Swain et al., 2015; Lantolf & Thorne, 2021).

The teacher acted as a facilitator, guiding discussions, modeling analytical thinking, and ensuring that learners engaged deeply with both textual and visual elements. This structured guidance aligns with guided discovery learning models (Hattie & Timperley, 2022), which have been shown to enhance conceptual understanding and retention.

Data Collection Procedures

Data collection spanned a 12-week period during the regular academic term:

Week 1: Administration of pre-tests (OPT/PET and researcher-developed reading comprehension tests).

Weeks 2–11: Implementation of instructional sessions (ten sessions total):

Experimental groups received VNS-based instruction.

Control groups followed the traditional text-only curriculum.

Week 12: Administration of post-tests, identical in format to pre-tests, to measure changes in reading comprehension.

All procedures were standardized across institutions to minimize confounding variables.

Teachers were trained in delivering both instructional models, and lesson plans were reviewed for fidelity to ensure consistent implementation. Additionally, classroom observations were conducted periodically to monitor adherence to the protocol (Fraillon et al., 2023).

Data Analysis Procedures

Quantitative data were analyzed using descriptive and inferential statistical techniques via SPSS software (Version 28). The following analyses were performed:

Descriptive Statistics

Means, standard deviations, and frequency distributions were calculated to summarize participant performance across time points and groups. These measures provided initial insights into central tendency and variability, facilitating preliminary comparisons (Field, 2023; Pallant, 2023).

Paired-Samples t-Tests

To assess within-group improvements from pre- to post-intervention, paired-samples t-tests were conducted for both experimental and control groups. These tests allowed for the determination of statistically significant changes in comprehension scores attributable to the treatment (Larson & Farber, 2021; Pallant, 2023).

Effect sizes were calculated using Cohen's d , providing a measure of practical significance beyond mere statistical significance (Ellis, 2022). Effect size thresholds were interpreted as follows:

Small: $d = 0.20$

Medium: $d = 0.50$

Large: $d = 0.80$

(Cohen, 2013; Lakens, 2013)

Two-Way ANOVA

A Two-Way Analysis of Variance (ANOVA) was employed to evaluate:

The main effect of treatment (VNS vs. traditional instruction),

The main effect of proficiency level (pre-intermediate vs. upper-intermediate),

The interaction effect between treatment and proficiency level.

This factorial analysis enabled the investigation of whether the impact of VNS varied depending on learners' initial language proficiency, addressing a key research question of the study (Abdi, 2021; Field, 2023). Assumptions of normality, homogeneity of variance, and sphericity were tested and confirmed using Shapiro-Wilk tests, Levene's test, and Mauchly's test respectively. In addition, exploratory sub-analyses were conducted to examine potential moderating effects of gender and age, although no significant differences were found, suggesting the generalizability of findings across demographic variables (Newfield & Stein, 2020; Walsh, 2010).

RESULTS

Statistical Results of the First Research Question

Table 1

Descriptive Statistics – Pre-Intermediate Group

Test	N	Mean	Std. Deviation
Pre-Test	30	26.33	3.94
Post-Test	30	29.76	2.76

Table 2

Paired Samples T-Test – Pre-Intermediate Group

Mean Difference	t	Df	Sig. (2-tailed)
-3.43	-7.47	29	0.000

Effect Size (Cohen's d): 1.05 (large effect)

The pre-intermediate group showed a statistically significant gain of 3.43 points in reading comprehension, with a large effect size (Cohen's $d = 1.05$), indicating that the impact of the Visual Narrative Strategy (VNS) was not only statistically significant but also educationally meaningful. These findings align with previous research by Ko and Wang (2018) and Renkl and Scheiter (2017), which found multimodal inputs significantly improved comprehension in learners with lower baseline proficiency.

Furthermore, this gain suggests that lower-proficiency learners may benefit more noticeably from scaffolded visual cues, as these provide immediate contextual support and reduce the cognitive load associated with textual decoding (Mayer, 2021; Paivio, 2014). Similar patterns

have been observed in Iranian EFL studies (Nasri et al., 2019), where visual prompts helped learners retain vocabulary and grasp narrative cohesion more effectively.

Statistical Results of the Second Research Question

Table 3

Descriptive Statistics – Upper-Intermediate Group

Test	N	Mean	Std. Deviation
Pre-Test	30	27.13	3.61
Post-Test	30	29.83	2.79

Table 4

Paired Samples T-Test – Upper-Intermediate Group

Mean Difference	t	df	Sig. (2-tailed)
-2.70	-6.37	29	0.000

Effect Size (Cohen's d): 0.81 (large effect)

The upper-intermediate learners also exhibited statistically significant gains (mean increase = 2.70, $p < .001$) in post-test reading scores. With a Cohen's d of 0.81, the intervention demonstrated a large practical impact. These results are consistent with Jian and Ko (2017), who reported that even higher-proficiency learners benefit from narrative-rich visuals that prompt critical inference and thematic comprehension.

While the absolute gain was smaller than that of the pre-intermediate group, the effect size confirms the continued relevance of VNS across developmental stages. This supports dual coding and multimedia learning theories, where cognitive flexibility at higher levels still benefits from dual-channel input (Mayer, 2021; Sadoski & Paivio, 2013).

Statistical Results of the Third Research Question

Table 5

Two-Way ANOVA

Source	F	Sig.
Treatment	25.61	.000
Proficiency Level	0.51	.470
Treatment *		
Proficiency	0.36	.546

The ANOVA results show a highly significant main effect for the treatment ($F = 25.61$, $p < .001$), confirming that VNS had a substantial impact on reading comprehension. There was no statistically significant main effect for proficiency level, nor a treatment \times proficiency interaction. This indicates that VNS was equally effective across both pre-intermediate and upper-intermediate groups. These findings resonate with international studies (Brumberger, 2011; Hsin et al., 2021; Tsai et al., 2021), which suggest that visual scaffolding aids learners irrespective of their starting proficiency. The non-significant interaction suggests that VNS can be implemented universally in heterogeneous classrooms without risking differential impacts.

Sub-Analysis: Gender and Age

Exploratory analyses were conducted to investigate potential moderating variables. No significant differences were observed between male and female participants in either group, aligning with the findings of Newfield and Stein (2020) and Walsh (2010) that VNS supports inclusive learning across demographics. Age differences were also minimal, reflecting that VNS is adaptable to adolescent learners regardless of their developmental range.

Summary of Results

The findings of this study provide strong empirical support for the effectiveness of Visual Narrative Strategies (VNS) in enhancing reading comprehension among Iranian EFL learners at both pre-intermediate and upper-intermediate levels.

Pre-Intermediate Learners

Learners demonstrated a statistically significant improvement of 3.43 points from pre- to post-test ($p < .001$).

The effect size (Cohen's $d = 1.05$) indicated a large practical impact.

These results affirm the substantial benefits of VNS for learners with lower language proficiency, particularly in supporting vocabulary retention and reducing cognitive overload.

Upper-Intermediate Learners

Learners showed a statistically significant gain of 2.70 points ($p < .001$).

The effect size (Cohen's $d = 0.81$) also reflected a large educational effect.

Although the gain was slightly lower than the pre-intermediate group, the strategy remained robust for more proficient learners, enhancing inference-making and thematic comprehension.

Comparative Effectiveness Across Proficiency Levels

Two-way ANOVA revealed a significant main effect for treatment ($F = 25.61$, $p < .001$), but no significant interaction between treatment and proficiency level ($p = .546$).

This suggests that VNS is universally effective, regardless of learners' starting proficiency.

Exploratory Sub-Analyses (Gender & Age)

No significant differences were found across gender or age groups, supporting the adaptability and inclusivity of VNS as an instructional approach.

Visualization Summary

A bar chart illustrated clear, parallel improvements in reading scores for both groups, visually confirming the consistency of VNS effectiveness.

DISCUSSION

Discussion Related to the First Research Hypothesis

The significant improvement in reading comprehension among pre-intermediate learners following the VNS intervention supports H01's rejection. These findings align strongly with Mayer's (2021) principles of multimedia learning, which highlight how combining visual and textual information enhances both memory and conceptual understanding, particularly in novice learners. The dual coding mechanism proposed by Paivio (2014) facilitates this integration by enabling learners to construct mental models that fuse verbal and non-verbal data. Additionally, the results corroborate Nasri et al. (2019), who observed improvements in fluency and vocabulary retention among Iranian EFL learners using pictorial input. The large effect size in this study (Cohen's $d = 1.05$) further emphasizes that VNS is not merely beneficial, but transformative for learners with limited linguistic

scaffolding. This aligns with the findings of Azadi et al. (2018), who noted increased engagement and motivation when visual support was used with text. Visuals acted as scaffolds, simplifying semantic processing and promoting inferencing, consistent with findings from Renkl and Scheiter (2017).

Discussion Related to the Second Research Hypothesis

The results support the rejection of H02 and demonstrate the efficacy of VNS among upper-intermediate learners. These findings resonate with Jian and Ko (2017), who found that visual supports facilitated deeper textual engagement and inferential thinking in more proficient readers. While advanced learners may already possess robust decoding skills, VNS allows them to move beyond surface understanding and engage with content at an analytical level, enabling synthesis and critical interpretation (Brumberger, 2011; Hsin et al., 2021). This outcome also reflects the principles of constructivist learning theory, where learners actively build meaning by integrating new stimuli with prior knowledge (Vygotsky, 1978; Swain et al., 2015). The improvement in comprehension—alongside a large effect size ($d = 0.81$)—demonstrates that visual narratives can enhance even high-level cognitive skills, such as thematic abstraction and contextual analysis. Moreover, the strategy's use of peer discussion and collaborative interpretation reinforces social constructivist pedagogies, fostering learner agency (Walsh, 2010).

Discussion Related to the Third Research Hypothesis

The non-significant interaction between treatment and proficiency level supports the rejection of H03 and confirms the universal applicability of VNS. These results mirror Schrader and Rapp (2016), who found that multimodal learning tools offer consistent benefits across learner types. The absence of performance variance across proficiency levels suggests that VNS provides flexible scaffolding: it simplifies comprehension for lower-level learners while deepening interpretation for more advanced readers. This adaptability also corresponds with

findings from OECD (2021) and Tsai et al. (2021), both of which advocate for multimodal literacy tools in language curricula as means of bridging achievement gaps. In this study, VNS functioned not only as a cognitive aid but also as an affective motivator, offering a dynamic and engaging pathway through which learners could construct and articulate meaning (Serafini, 2014; Newfield & Stein, 2020).

CONCLUSION

Visual Narrative Strategies (VNS) significantly enhance reading comprehension in EFL contexts, offering measurable gains across multiple proficiency levels. This study establishes VNS as an effective and inclusive instructional approach that supports linguistic decoding, vocabulary acquisition, inferencing, and cognitive engagement. Its effectiveness is rooted in robust theoretical foundations—such as dual coding and multimedia learning—and supported by a growing body of empirical research.

Implications of the Study

Pedagogically, the findings suggest that language teachers should integrate visuals not as supplementary materials, but as core instructional tools that stimulate critical thinking and peer interaction. This shift necessitates professional development focused on designing and implementing multimodal tasks. Practically, EFL textbook authors and curriculum developers should revise content frameworks to incorporate VNS components, such as image-text pairings, reflection prompts, and visual storytelling tasks. Policymakers and educational planners can use these insights to modernize language education in line with global multimodal literacy standards.

Limitations of the Study

This study was geographically limited to two institutes in Urmia, which may affect generalizability. It also did not examine learners' cultural familiarity or prior exposure to visual texts—factors that could influence VNS efficacy. The exclusive focus on reading skills excluded the potential transfer of benefits to other language domains.

Suggestions for Further Research

Future investigations should explore VNS across different age groups and in rural or under-resourced contexts. Longitudinal studies can assess the durability of VNS-related gains. Researchers are also encouraged to evaluate the strategy's impact on other language skills—such as writing, speaking, and listening—and to investigate learner attitudes toward visual learning. Cross-cultural studies may provide insights into how visual familiarity affects comprehension.

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