

The Correlation of Predicting and Visualizing Strategies with Students' Reading Comprehension at Junior High School

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Abstract

Reading comprehension is a key component of English language learning, yet many students continue to experience difficulties in understanding written texts. Among the various reading strategies, predicting and visualizing have been widely recognized for promoting active engagement during reading. This study investigated the relationships between predicting and visualizing strategies and reading comprehension among eighth-grade students at a junior high school in Surabaya. A quantitative correlational design was employed involving 38 participants. Data were collected using a ten-item reading strategy questionnaire and a reading comprehension test based on narrative texts. Descriptive statistics, Pearson correlation, and one-way analysis of variance (ANOVA) were used to analyze the data. In answer to the first research question, the results indicated positive but non-significant relationships between predicting and reading comprehension ($r = .227$, $p = .170$) and between visualizing and reading comprehension ($r = .308$, $p = .060$). A significant positive relationship was found between predicting and visualizing strategies ($r = .562$, $p < .001$), suggesting that students who frequently employed one strategy also tended to use the other. In answer to the second research question, although the ANOVA showed no significant differences in reading comprehension across the four strategy-use groups ($F(3, 34) = 2.638$, $p = .065$), participants who reported using both strategies achieved the highest mean comprehension scores. Because the present study involved a relatively small and uneven sample, replicating the research with a larger group of participants would help clarify the role of predicting and visualizing in EFL reading comprehension.

Keywords: predicting, visualizing, reading strategy, reading comprehension, junior high school students

INTRODUCTION

Learning English involves more than memorizing vocabulary and grammar rules. Much of what students learn comes from reading, where they encounter new language, ideas, and different ways of communicating. In many EFL classrooms, written texts provide learners with their greatest exposure to English, making the ability to understand what they read an important part of successful language learning.

Reading English involves more than recognizing words on the page. Many EFL learners are able to understand individual sentences but still struggle to grasp the overall meaning of a passage. Identifying the main idea, interpreting implied information, making inferences, and connecting ideas across a text can all present difficulties. Vocabulary limitations, limited background

knowledge, and frequent word-by-word translation often make these challenges even greater.

As these reading difficulties continue to be reported in EFL classrooms, increasing attention has been given to the strategies students use while reading. Rather than reading passively, proficient readers actively interact with a text by making predictions, monitoring their understanding, and connecting new information with what they already know. Such strategies allow readers to process information more efficiently and to recover when comprehension breaks down.

Reading is an active process. Readers often anticipate what might come next, picture the events described in the text, and revise their understanding whenever new information changes their initial expectations. Predicting refers to the process of anticipating upcoming information

by drawing on textual clues and prior knowledge. As readers move through a passage, they continually compare their expectations with new information and revise those expectations whenever necessary. This ongoing interaction keeps readers engaged and encourages them to evaluate the consistency of the ideas presented in the text rather than simply receiving information passively.

Visualizing complements prediction by encouraging readers to create mental representations of what they read. Instead of focusing only on written words, readers imagine characters, settings, events, or situations described in the text. Imagining the scenes described in a text can help readers follow the storyline more easily, especially as characters and events develop throughout the narrative. Rather than remembering isolated words or sentences, they build a mental representation of the characters, setting, and sequence of events. Visualization appears to be particularly helpful when students read narrative texts. Imagining the scenes and events as the story progresses can make the storyline easier to follow and easier to remember afterward.

Schema Theory (Anderson & Pearson, 1984) suggests that successful reading depends on more than recognizing written words. Readers continuously interpret new information by linking it with what they already know and have previously experienced. Predicting and visualizing fit well within this perspective because both require readers to engage actively with a text. While prediction encourages learners to anticipate what may come next, visualization helps them transform written information into mental representations that support understanding as reading progress., much

A number of previous studies have reported positive outcomes associated with predicting and visualizing. Addinna et al. (2019) found that visualization activities improved students' engagement and supported their understanding of reading materials. Likewise, Anggraini et al. (2022) reported that prediction encouraged learners to make better use of textual clues and prior knowledge when interpreting written texts. Other researchers have also argued that successful readers rarely depend on a single strategy. Instead, they combine several cognitive and metacognitive strategies according to the demands of the text, allowing them to build meaning more effectively (Sumirat et al., 2019).

Studies on predicting and visualizing have generally emphasized the effects of teaching these strategies in the classroom. However, students do not always read under guided conditions. How they naturally use predicting and visualizing during everyday reading has received considerably less attention. Examining this aspect may

provide a different perspective on the role of reading strategies in comprehension.

Another limitation is that predicting and visualizing are frequently investigated as separate variables. In actual reading situations, however, readers often use multiple strategies simultaneously rather than relying on only one. Examining the relationship between these two strategies alongside reading comprehension may therefore provide a more complete understanding of students' reading behavior.

The present study addresses these gaps by investigating the relationships among predicting strategy, visualizing strategy, and reading comprehension among eighth-grade students at a junior high school in Surabaya. In addition to examining the relationship between each strategy and reading comprehension, the study explores the association between predicting and visualizing and compares reading comprehension across four groups representing different patterns of strategy use. By focusing on students' naturally reported reading strategies instead of the effects of classroom intervention, this study contributes further evidence regarding the role of strategic reading in EFL learning.

This study focuses on three aspects of students' reading strategies. It examines predicting and its relationship with reading comprehension, explores whether visualizing shows a similar pattern, and compares reading comprehension across groups with different combinations of strategy use. Based on this focus, the study addresses the following research questions: (1) What are the correlations between the frequency of predicting strategy use and reading comprehension, between the frequency of visualizing strategy use and reading comprehension, and between predicting and visualizing strategy use, among eighth-grade students at a junior high school? (2) Are there significant differences in reading comprehension performance based on the varying levels of predicting and visualizing strategy use?

METHODS

The study used a quantitative correlational design to explore how predicting, visualizing, and reading comprehension were related. Instead of introducing a teaching treatment, it examined the relationships among these variables as they occurred in students' regular classroom learning. Accordingly, this study explored students' existing reading strategy use and examined how it was related to their reading comprehension performance. In addition, reading comprehension scores were compared across groups representing different patterns of strategy use.

Participants were 38 eighth-grade students from a junior high school in Surabaya, Indonesia. Cluster random sampling was selected because the school had already organized students into intact classes. Participant selection was carried out at the class level. A single class was randomly chosen, and all students in that class were invited to participate in the study. According to Fraenkel et al. (2012), samples in correlational studies should be selected carefully and, whenever possible, through random procedures to enhance the representativeness of the participants.

Two instruments were used to collect the data: a reading strategy questionnaire and a reading comprehension test. The questionnaire was designed to measure how frequently students used predicting and visualizing while reading English texts. It consisted of ten statements, with five items representing predicting and five representing visualizing. Responses were recorded on a five-point Likert scale ranging from 1 (Never) to 5 (Always). The questionnaire used in this study was adapted from the Language Learning Strategy Questionnaire (LLSQ) developed by Setiyadi (2016) and the Metacognitive Awareness of Reading Strategies Inventory (MARS-I Version 1.0) developed by Mokhtari and Reichard (2002). Before the main data collection, both the questionnaire and the reading comprehension test was reviewed by two experts: the researcher's thesis advisor, who served as the primary validator, and an English teacher from the participating junior high school. Both experts reviewed the instruments before data collection. Written validation was obtained from the thesis advisor, while the English teacher provided recommendations during the review process, which were incorporated prior to finalizing the instruments. The validation process focused on the relevance of the items to the constructs being measured, the clarity of the instructions and item wording, the appropriateness of the language for eighth-grade EFL students, and the suitability of the instruments for the research objectives. Following this review, the validators concluded that the questionnaire items adequately represented the constructs of predicting and visualizing, and that the reading comprehension test was appropriate for eighth-grade EFL learners after minor revisions to wording and instructions.

Reading comprehension was measured using a ten-item multiple-choice test developed from narrative texts. Narrative texts were chosen because they form part of the junior high school English curriculum and naturally encourage students to predict events and visualize story elements while reading. Rather than measuring a single aspect of reading, the test evaluated several comprehension skills. These included identifying the main

idea, recognizing supporting details, interpreting vocabulary from context, drawing inferences, and following the development of events within a passage.

Reliability was examined through a pilot study involving 12 participants before the main data collection. Internal consistency was estimated using Cronbach's alpha. The predicting strategy questionnaire produced a Cronbach's alpha coefficient of **.890**, while the visualizing strategy questionnaire produced a coefficient of **.889**, indicating high internal consistency for both scales. The reading comprehension test were designed based on current learning materials and reviewed by the research advisor to ensure relevance to the study's objectives, with an instrument blueprint developed to align each item with the intended comprehension indicators. The difficulty level was based on the TOEFL Junior Standard Test for reading, selected because its question types align with this study's focus on predicting and visualizing strategies and because it is a widely researched and validated standardized reference. It was also administered in the pilot study to evaluate the clarity of the passages, the wording of the questions, the suitability of the instructions, and the overall administration procedure. Participant feedback from the pilot resulted in several minor revisions to improve wording and readability before the instruments were used in the main study. Because the pilot involved only twelve participants, formal analyses of item difficulty and item discrimination were not conducted. Consequently, evidence for the reading test was based on expert judgment and the pilot evaluation of clarity, readability, and appropriateness rather than statistical item analysis. The pilot administration indicated that the passages, instructions, and test items were understandable for the participants.

Data collection took place during the second semester of the academic year. Participants first completed the reading strategy questionnaire and then worked on the reading comprehension test. Data collection did not take place entirely in one setting. While some students completed the instruments during regular classroom meetings, others responded through an online questionnaire because the study continued into the school holiday period. Although the questionnaires were administered in different settings, the same procedures and instructions were applied throughout the study. Students chose to participate voluntarily, and their responses were treated as confidential research data.

After collected, the data were analyzed using IBM SPSS Statistics. Before testing the research hypotheses, the distribution of the data was examined using the Shapiro-Wilk normality test because the sample consisted of fewer than fifty participants.

Descriptive statistics were calculated to classify students into strategy-use groups based on their questionnaire scores. Total scores for the predicting and visualizing subscales were computed separately for each student. Scores between 1.00 and 2.99 were classified as low use, and scores between 3.00 and 5.00 were classified as high use, with 3.00 representing the midpoint of the five-point Likert scale and thus distinguishing more frequent from less frequent strategy use. Based on the combination of these two classifications, students were divided into four groups: Group 1, low scores on both predicting and visualizing (neither strategy used); Group 2, high predicting and low visualizing (predicting only); Group 3, low predicting and high visualizing (visualizing only); and Group 4, high scores on both (both strategies used). The mean and standard deviation of reading comprehension scores were then calculated for each group. The resulting group sizes were highly unequal: 2 students in the neither-strategy group, 3 in the predicting-only group, 3 in the visualizing-only group, and 30 in the both-strategies group. This imbalance reflects the natural distribution of strategy use among participants rather than a deliberate sampling decision, and it should be taken into account when interpreting the group comparisons reported in the following sections, as the smaller groups provide limited statistical power.

Pearson correlation analysis was subsequently performed to examine the relationships between predicting strategy and reading comprehension, visualizing strategy and reading comprehension, as well as the relationship between the two reading strategies themselves. The resulting correlation coefficients were interpreted according to their direction, strength, and statistical significance.

To examine whether reading comprehension differed among the four strategy-use groups, a one-way analysis of variance (ANOVA) was performed. All statistical results were interpreted using a significance level of .05.

RESULTS AND DISCUSSION

Students' Use of Predicting and Visualizing Strategies

To provide an overview of students' reading strategy use, participants were classified into four groups according to their questionnaire responses. The groups consisted of students who reported low use of both strategies, high use of predicting only, high use of visualizing only, and high use of both predicting and visualizing. Table 1 below is the summary of descriptive statistics of reading comprehension scores for each group.

Table 1

Descriptive Statistics of Reading Comprehension by Strategy-Use Group

Group	N	Mean	SD
Neither predicting nor visualizing	2	4.50	4.950
Predicting only	3	8.67	1.528
Visualizing only	3	7.67	2.309
Both predicting and visualizing	30	7.90	1.494
Total	38	7.76	1.866

An initial look at the group means suggests that students did not perform equally on the reading comprehension test. Those who combined predicting and visualizing obtained the highest average score, while students who reported little use of either strategy showed the weakest performance. The two groups that mainly relied on only one strategy were positioned between these extremes. These results are descriptive only and do not, by themselves, provide evidence of a relationship between strategy use and comprehension; the following statistical analyses were conducted to examine this further.

These descriptive results provide an initial overview of the data. Statistical analyses were conducted to determine whether the observed patterns were significant.

Data from analyses was checked with the Shapiro-Wilk test before further statistical analyses were conducted. Predicting and visualizing scores satisfied the normality assumption, whereas reading comprehension scores were only slightly outside the expected distribution. Because the deviation was relatively small, the planned parametric analyses—Pearson correlation and one-way ANOVA—were retained.

Correlation Analysis

To examine how reading strategy use was associated with comprehension, Pearson correlation analysis was conducted. The results are presented in Table 2.

Table 2

Pearson Correlation Matrix

Variables	Reading Comprehension (r)	Sig. (p)
Predicting strategy	0.227	0.170
Visualizing strategy	0.308	0.060
Predicting ↔ Visualizing	0.562	0

The analysis showed a positive relationship between predicting strategy and reading comprehension ($r = .227$, $p = .170$). However, as this relationship was not statistically significant, the results do not provide sufficient evidence of a relationship between predicting and reading comprehension in this sample.

The positive direction of the coefficient, while not statistically significant, is not inconsistent with Schema Theory, which explains that readers construct meaning by connecting new information with prior knowledge.

Given the non-significant result, these findings do not establish predicting as a strategy that improves or contributes to comprehension in this sample. Reading comprehension is shaped by many interacting factors, including vocabulary knowledge, language proficiency, motivation, and familiarity with the reading topic, which may help explain why a clear relationship was not observed here. As a result, students who reported using prediction more frequently may still have achieved different comprehension outcomes because these additional influences were beyond the scope of this study.

Earlier studies generally evaluated predicting after explicit strategy instruction (Anggraini et al., 2022), whereas this study examined students' existing reading habits. This difference in research design may explain the weaker relationship observed here. A similar explanation was proposed by Anyiendah et al. (2020), who found that readers with stronger background knowledge were generally able to make more accurate predictions while reading.

A slightly stronger, though still non-significant, relationship was observed between visualizing and reading comprehension ($r = .308$, $p = .060$). As with predicting, this result does not provide sufficient evidence of a relationship between visualizing and reading comprehension in this sample.

One possible explanation relates to the nature of the reading materials used in this study. Narrative texts naturally encourage readers to imagine characters, settings, and events. Creating mental representations of these elements has been argued to help readers organize information and maintain coherence (Dewi, 2017; Usman, 2016), although the present data do not confirm this relationship statistically.

Although neither relationship reached statistical significance, visualizing produced a stronger coefficient than predicting. This difference should be interpreted with caution given that neither coefficient reached significance.

The correlation analysis also revealed a significant positive relationship between predicting and visualizing ($r = .562$, $p < .001$). Participants who frequently reported

using one strategy were also likely to report frequent use of the other.

This finding indicates that predicting and visualizing tend to co-occur in students' self-reported reading behavior, consistent with the interactive nature of strategic reading described in prior literature. Readers rarely depend on a single strategy while processing a text. Reading is not a fixed process. Readers frequently anticipate what might happen next, reconsider their initial expectations when necessary, and gradually develop a clearer understanding as they continue reading. Mental images often change alongside this process, reflecting new information encountered in the text. This correlation, however, reflects a relationship between the two strategies themselves and does not by itself indicate a relationship between either strategy and reading comprehension. Similar conclusions have been reported by Santi and Reflinda (2022) and Sumirat et al. (2019), who describe effective reading as a process that involves coordinating multiple cognitive strategies simultaneously.

Differences in Reading Comprehension among Strategy-Use Groups

To further examine whether different patterns of strategy use were associated with reading comprehension, a one-way ANOVA was performed. The results are presented in Table 3.

Table 3
One-Way ANOVA Results

Source	Sum of Squares	df	MS	F	p
Between groups	24.335	3	8.112	2.638	0.065
Within groups	104.533	34	3.075	-	-
Total	128.868	37	-	-	-

Although average reading comprehension scores varied across the four groups, the differences were not statistically significant, $F(3, 34) = 2.638$, $p = .065$. Statistically, these findings suggest that the differences observed in the group means were not large enough to conclude that students with different strategy-use patterns performed differently in reading comprehension.

The statistical test did not confirm significant differences across the groups, but the averages did not point in opposite directions. Students who used both predicting and visualizing consistently recorded higher reading comprehension scores than the remaining groups. The weakest performance was observed among students who reported using neither strategy frequently. The

remaining two groups, consisting of participants who mainly relied on one strategy, produced intermediate results. This gradual pattern is descriptive only; given the non-significant result, it does not provide statistical evidence that combining multiple reading strategies improves comprehension.

Several factors may explain why these differences failed to reach statistical significance. One likely explanation is the relatively small sample size. With only thirty-eight participants divided into four groups, the statistical power of the ANOVA was limited. Under these conditions, moderate differences may remain undetected even when they appear meaningful in the descriptive statistics. The unequal distribution of participants across the four groups further reduced the sensitivity of the analysis, as most participants were concentrated in the group that reported using both strategies.

Success in understanding a text is influenced by far more than the use of predicting or visualizing alone. Vocabulary knowledge, grammatical competence, background knowledge, reading motivation, and language proficiency all contribute to comprehension. As a result, students who reported similar levels of strategy use may still have demonstrated different reading performance because of factors that were not examined in this research.

The method used to measure strategy use should also be acknowledged when interpreting these findings. Self-report instruments still remain common in educational research, but they cannot fully capture how consistently or effectively individual strategies are applied during authentic reading activities. Future studies may benefit from combining questionnaires with classroom observations, think-aloud protocols, or reading journals to obtain a richer picture of students' strategic behavior.

The overall pattern observed across the descriptive and correlational analyses was directionally consistent: reading comprehension scores tended to be higher among students who reported greater use of predicting and visualizing, and lower among those who reported less use of either strategy. However, since none of these associations reached statistical significance, this pattern does not provide sufficient evidence that strategic reading contributes to comprehension in this sample, and should be interpreted with caution.

This descriptive pattern is not inconsistent with Schema Theory, which views comprehension as an active process of integrating new information with prior knowledge, and under which predicting and visualizing might be expected to complement one another. The significant correlation identified between predicting and visualizing indicates that students who reported frequent use of one strategy also tended to report frequent use of the

other; however, this finding reflects a relationship between the two strategies themselves and does not confirm that combining them improves reading comprehension.

Result of the research also complement previous research (Santi & Reflinda, 2022; Sumirat et al., 2019) rather than contradicting it. Much of the existing literature has investigated predicting or visualizing through classroom interventions in which students received explicit strategy instruction before their reading performance was assessed. In contrast, the analysis examined students' naturally reported strategy use without providing any instructional treatment. As a result, the frequency with which participants reported using a strategy did not necessarily reflect how effectively they applied it during reading. This difference in research design may partly account for the weaker relationships observed in the study.

From a practical perspective, the findings nevertheless support the continued inclusion of strategy instruction in English classrooms. Encouraging learners to predict upcoming information and visualize textual events may promote more active engagement with reading, particularly when narrative texts are used. The present study does not provide statistical evidence that these strategies improve reading comprehension; however, the descriptive pattern observed, considered alongside the theoretical and practical rationale in the literature, offers a reasonable basis for continuing to include them in reading instruction.

These findings should be interpreted in light of several limitations. The study included a relatively small group of students from one junior high school, so the results may not represent other learning contexts. The unequal size of the four strategy-use groups also made it more difficult to detect statistically significant differences. In addition, strategy use was measured through students' own reports rather than direct observation, meaning that reported behavior may not always match what occurred during reading.

Predicting and visualizing both showed positive but non-significant associations with reading comprehension, and students who reported using both strategies generally achieved the highest average scores. These results do not provide sufficient evidence of a relationship between strategy use and reading comprehension in this sample, though they suggest a direction worth investigating further with a larger and more balanced sample.

CONCLUSION

The present research examined the relationships between predicting and visualizing strategies and reading comprehension among eighth-grade students. It also compared reading comprehension across four groups representing different patterns of strategy use. In answer to the first research question, the findings revealed positive but non-significant relationships between predicting and reading comprehension and between visualizing and reading comprehension. Students rarely relied on only one of the two strategies. Those who reported frequent use of predicting generally reported frequent use of visualizing as well, producing a significant positive correlation between the variables. In answer to the second research question, even though the ANOVA did not reveal statistically significant differences among the four strategy-use groups, descriptive results consistently showed that participants who reported using both strategies achieved the highest average comprehension scores.

The statistical results were inconclusive, but they did not point in the opposite direction. Students who combined predicting and visualizing consistently achieved higher average scores than those who reported limited use of both strategies. This observation provides a practical reason to continue encouraging the use of both strategies during reading activities.

Even though the current study provides useful evidence, its findings are based on a relatively small group of participants, and the strategy-use groups were not evenly represented. Future study should consider to be done with a larger sample drawn from multiple junior high schools to help determine whether the same patterns can be observed in different contexts. Future research could also use more than questionnaire data by examining students' reading processes directly through classroom observation, interviews, or think-aloud activities. Such approaches would provide a clearer understanding of how predicting and visualizing are used during reading rather than relying solely on students' self-reports.

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