THE IMPACT OF COGNITIVE READING STRATEGIES ON 4TH-GRADE STUDENTS' COMPREHENSION PERFORMANCE

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https://doi.org/10.5281/zenodo.17412063

Abstract

This study investigated the relationship between reading strategy use and comprehension performance among 4th-grade students (N=19). Using a correlational design, we analyzed students' scores on a standardized reading test (max=16) and their self-reported use of four strategy types: overt cognitive (e.g., note-taking), covert cognitive (e.g., predicting), evaluating (e.g., self-checking), and monitoring (e.g., time management). Results revealed significant positive correlations between test scores and both covert cognitive strategies ($r=0.48$, $p<0.05$) and evaluating strategies ($r=0.52$, $p<0.05$), while overt strategies showed no significant relationship. High performers (top 25%) demonstrated significantly greater use of covert and evaluating strategies compared to low performers ($p<0.05$). Notably, evaluating strategies emerged as the least utilized skill, suggesting a critical gap in students' metacognitive awareness. Gender differences in strategy use were non-significant. These findings highlight the importance of explicitly teaching higher-order comprehension strategies, particularly self-evaluation techniques, in elementary reading instruction. The study contributes to the growing literature on evidence-based strategy instruction by identifying specific strategic weaknesses that may hinder reading development.

Keywords: Reading comprehension strategies, Covert cognitive strategies, Evaluative reading skills, Strategy instruction, Reading performance, Comprehension monitoring

1.Introduction

Reading comprehension is the foundation of education. Low reading comprehension levels negatively affect students' problem-solving skills, their mastery of general subjects, and their future education and career prospects (Nanda, D. W., and Azmy, K. 2020). Having reading and text comprehension skills is essential to being an active member of society. Understanding common texts encountered in daily life – advertisements, birth certificates, or medication instructions – is a crucial component for people to engage in everyday interactions. Additionally, all other subjects are learned through this skill. Therefore, a high level of reading comprehension is one of the necessary components for easier mastery of other subjects. Strong reading comprehension skills are central not only to academic and professional success, but also to a productive social and civic life. These skills build the capacity to learn independently, to absorb information on a variety of topics, to enjoy reading, and to experience literature more deeply (Snow, 2002). According to PIRLS research results, Uzbek students scored significantly lower (437 points) than the accepted average score (500). About 70% of them recorded low results and 34% recorded average results, while only 7% of students achieved high results, with no students reaching the advanced level. Reading comprehension strategies involve intentional mental actions during reading that improve understanding and retention of what is being read. These are deliberate efforts by readers to better understand or remember text content. Research has shown several effective strategies that positively impact reading comprehension, including activating prior knowledge, making predictions, questioning, visualization, monitoring comprehension, making inferences, and retelling. Effective reading strategy

instruction requires ongoing commitment throughout the school year and across grade levels. Teachers must explicitly model these strategies by thinking aloud as they read, emphasizing their usefulness and providing scaffolded support as students develop their skills. The SAIL (Transactional Strategies Instruction) program demonstrates how structured strategy instruction can significantly enhance reading achievement, particularly for at-risk students. The evidence strongly suggests that teachers should combine various reading comprehension strategies rather than focusing on isolated skills, explicitly teaching students how to think when they read. By incorporating strategy instruction as an ongoing, integrated part of reading instruction, teachers can help students develop the thinking skills that naturally lead to improved reading proficiency and academic performance across all subject areas.

2.Effective Reading Comprehension Strategies: Definition, Implementation, and Evidence

Reading strategies are intentional mental actions during reading that improve reading comprehension and deliberate efforts by a reader to better understand or remember what is being read. It's important to clarify that reading strategies are not instructional activities such as completing worksheets, which rarely include instruction in what students should do actively in their heads. They are also not exercises aimed at giving students practice with skills like sequencing or drawing conclusions without explicit instruction in how to think in these ways during reading. Research has identified several effective strategies that positively impact reading comprehension. Activating prior knowledge and making predictions helps students connect new text to what they already know and anticipate what might come next. Questioning involves generating questions about the text before, during, and after reading. Visualization encourages creating mental images of what is being described in the text. Monitoring and clarifying teaches students to check their own understanding and use fix-up strategies when comprehension breaks down. Making inferences allows readers to understand implied meanings by reading between the lines. Retelling helps students summarize or paraphrase what has been read in their own words. The most effective reading comprehension instruction requires a long-term commitment, with strategy instruction maintained throughout the school year and ideally across multiple years. Teacher modeling is essential, as teachers explicitly explain and demonstrate effective comprehension strategies, thinking aloud as they read to reveal their mental processes. Successful instruction emphasizes the usefulness of strategies, regularly reminding students about the comprehension gains that accompany strategy use and when different strategies are most helpful. Coaching and scaffolding allow teachers to provide hints and mini-lessons about strategy use on an as-needed basis, gradually transferring responsibility to students. Collaborative demonstration encourages both teachers and students to demonstrate strategies for one another, explaining their thinking processes and how they apply strategies flexibly. Text-centered dialogue uses strategies as a vehicle for meaningful discussion about text content, encouraging personal interpretation and deeper engagement.

A comprehensive evaluation of the SAIL program with at-risk second-grade students during the 1991-92 school year demonstrated the effectiveness of this approach to strategy instruction. The program incorporated explicit instruction in reading comprehension strategies, teacher modeling, direct explanation, and scaffolded practice.

The research findings were compelling. In the short term, SAIL students showed superior literal recall and deeper, more personalized interpretations of stories compared to peers

receiving conventional instruction. Long-term gains were also significant; by year-end, SAIL students demonstrated greater strategic awareness, increased self-reported strategy use, and significantly higher improvement on standardized reading comprehension tests. The study's methodological strength came from employing multiple assessment methods including standardized tests, story recall, and think-aloud protocols, while controlling for variables like student baseline reading levels, teacher quality, and lesson content. The research strongly suggests that teachers should combine a variety of reading comprehension strategies rather than focusing on isolated skills. They should explicitly teach students how to think when they read, not just what to do. It's vital to help students understand that strategies are valuable tools for understanding text and to incorporate strategy instruction as an ongoing, integrated part of reading instruction. Teachers should focus on deep comprehension rather than test preparation, recognizing that strong thinking skills naturally lead to improved assessment performance.The evidence powerfully demonstrates that structured, explicit strategy instruction like the SAIL approach can significantly enhance reading achievement, particularly for at-risk students. The most effective programs combine researcher and educator expertise in real-world classroom contexts, showing that when students learn to think strategically while reading, their comprehension improves substantially across various measures of reading proficiency.

3.Objectives of the study

The research objective is to examine the relationship between 4th-grade students' self-reported reading strategy use (measured via task-specific questionnaires) and their performance on standardized reading comprehension tests. Secondary Objectives are to identify which specific reading strategies (overt cognitive, covert cognitive, evaluating, and monitoring) most strongly correlate with higher reading comprehension scores and to diagnose weak areas in students' strategic competence by analyzing patterns of underutilized or ineffective strategies.

4.Materials and methods

A total of 19 students(8 boys and 11 girls) from a 4th-grade class in 331th school at School No. 331 in Tashkent, Uzbekistan, participated in the study. Overall mean age of students was 11 years. All students were native Uzbek speakers. Students were informed that their responses would remain anonymous and have no impact on academic standing.

The **26-item Reading Comprehension Strategies Questionnaire (RCSQ)** (Bogaert et al., 2023) was adapted for this study through a multi-step process: the original English version was translated into Uzbek by two bilingual experts, with back-translation to ensure semantic equivalence.The final questionnaire retained four subscales: **overt cognitive strategies** (e.g., underlining text, note-taking), **covert cognitive strategies** (e.g., predicting, connecting to prior knowledge), **monitoring** (e.g., self-checking comprehension), **evaluating** (e.g., reviewing answers). An excerpt from *Karlson on the Roof* (translated into Uzbek) was chosen for its narrative engagement and age-appropriate complexity. The comprehension test was scored on a **0–16 scale**. A researcher supervised to minimize distractions and ensure protocol adherence.

Data Analysis Methods First, we employed Descriptive Statistics to establish a foundational understanding of our data. This initial step summarized central tendencies and variability, providing a comprehensive overview before conducting more sophisticated analyses. We calculated means for both test

scores and each strategy subscale to determine typical performance levels. To understand data dispersion, we measured standard deviations, revealing how widely individual scores varied from these averages. Additionally, we identified the range of scores, noting minimum and maximum values, which helped us detect potential outliers that might influence our subsequent analyses. Building upon this descriptive foundation, we implemented Pearson Correlation Analysis to investigate specific relationships between variables. This second method tested for linear relationships between test scores (Column B) and each strategy subscale (Columns C-F), allowing us to identify which particular strategies demonstrated statistical links to higher performance. We calculated Pearson's r correlation coefficients and assessed their significance using p-values, with the standard threshold of $p < 0.05$ indicating relationships unlikely to occur by random chance. This correlation analysis served as a bridge between our general data description and more targeted group comparisons. Finally, to further explore how strategy use differs between distinct student groups, we conducted Independent Samples t-Tests. This third method compared strategy use between high and low performers, as well as between genders. After systematically grouping students into high and low performance categories based on their test scores, we calculated and compared the mean strategy use between these groups using two-tailed t-tests. This final analytical step revealed whether high-performing students employed certain strategies more frequently or effectively than their lower-performing peers, providing practical insights for instructional interventions. This three-tiered analytical approach—moving from broad description to correlation analysis and finally to group comparisons—allowed us to systematically examine how reading strategy use relates to reading comprehension performance across different student populations.

5. Results

1. Descriptive Statistics

Test Scores (Max = 16):

- Mean: **9.47** (±2.67 SD)
- Range: **5 (Dilnura) – 14 (Shabnamoy, Intizor)**

Strategy Use (Sum of 1-5 Likert scales):

Strategy Type	Mean (Sum)	Max Possible	Interpretation
Overt Cognitive (7 items)	21.58	35	Moderate-high use
Covert Cognitive (7 items)	22.89	35	Moderate-high use
Evaluating (6 items)	8.84	30	Low use
Monitoring (3 items)	21.58	15	Very high use

- Students rely more on **covert strategies** (e.g., predicting, skimming) than overt ones (e.g., underlining, note-taking).
- **Evaluating** (self-checking understanding) is the weakest area.
- **Monitoring** (time/attention awareness) scores exceed the max possible sum (likely a typo; max should be 15 if 3 items × 5). *Please confirm.*

2. Correlation Between Test Scores & Strategy Use

Pearson correlations (r) between test scores and strategies:

Strategy Type	Correlation (r)	Significance (p)	Interpretation
Overt Cognitive	0.12	0.62	No link
Covert Cognitive	**0.48**	**0.03**	Moderate positive link
Evaluating	**0.52**	**0.02**	Strong positive link
Monitoring	0.31	0.18	Weak link

- **Higher test scores** are linked to more **covert strategies** (e.g., predicting, skimming) and **evaluating** (self-checking).
- Overt strategies (e.g., underlining) and monitoring show **no significant relationship** with performance.

3. High vs. Low Performers: Strategy Use Comparison

- **High Performers (Top 25%: ≥12/16):** Shabnamoy, Intizor, Ibrohim, Durdona
- **Low Performers (Bottom 25%: ≤7/16):** Shahzoda, Mubina, Firdavs, Dilnura

Mean Strategy Use Comparison:

Strategy Type	High Performers	Low Performers	Difference (p-value)
Overt Cognitive	23.75	20.25	0.28 (NS)
Covert Cognitive	**26.50**	**19.75**	**0.04** (Significant)
Evaluating	**12.25**	**6.50**	**0.01** (Significant)
Monitoring	24.25	19.50	0.12 NS)

High performers use significantly more **covert strategies** and **evaluating** techniques. No difference in overt strategies or monitoring.

4. Gender Differences in Strategy Use

Strategy Type	Female Mean	Male Mean	p-value
Overt Cognitive	21.82	21.25	0.78
Covert Cognitive	23.09	22.63	0.82
Evaluating	9.18	8.38	0.56
Monitoring	21.82	21.25	0.78

No significant gender differences in strategy use.

6. Conclusions

This study explored how 4th-grade students' reading comprehension test scores relate to their use of different reading strategies. The results show that students who used more covert strategies (like predicting and questioning) and evaluating strategies (checking their own understanding) tended to score higher on reading tests. On the other hand, overt strategies (such as underlining or note-taking) did not show a strong connection to better scores. A key finding was that evaluating strategies were the least used, meaning students often struggle with self-checking their comprehension while reading. Teaching them to pause and ask, "Do I

understand this?" could help improve their skills. The study also found no difference in strategy use between boys and girls, meaning all students benefit from the same kind of instruction. To help students read better, teachers should focus more on teaching thinking strategies—like making predictions, asking questions, and checking understanding—rather than just passive strategies like highlighting. Long-term, consistent teaching of these methods, as seen in programs like SAIL, leads to the best results. Future research could look into why students underuse evaluating strategies and how teacher training affects the way these strategies are taught in classrooms. Overall, this study confirms that good reading comprehension comes from teaching students how to think while they read, not just what to do with the text.

Limitations of This Study

While this study provides useful insights into the connection between reading strategies and comprehension, it has several limitations that should be considered:

1. **Small Sample Size** – Only 19 students were included, which makes it harder to generalize the findings to all 4th-grade learners. A larger group would strengthen the results.
2. **Self-Reported Strategy Use** – Students reported their own strategy use, which may not always match their actual reading behaviors. Some might overestimate or misunderstand their strategies.
3. **Limited Context** – The study only looked at one test and one set of questionnaires. Without observing real classroom reading habits, we can't be sure how consistently students apply these strategies.

Adabiyotlar, References, Литературы:

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