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The Effectiveness of Index Card Match Strategy on Students' Reading Comprehension

I Gede Mocka Aditya[1], K. Dedy Sandiarsa[2], M. Asrul Hasby[3]

[123] English Language Education Department, FBMB, Universitas Pendidikan Mandalika, Jl. Pemuda No. 59 A, Mataram, Indonesia 83125
e-mail: gedemocka@gmail.com

Abstrak

Penelitian ini menguji efektivitas strategi Index Card Match (ICM) untuk meningkatkan pemahaman membaca (reading comprehension) siswa kelas sebelas di SMAN 1 Gangga, Lombok Utara, pada tahun ajaran 2024/2025. Penelitian kuasi-eksperimen dengan perbandingan pre-test dan post-test ini dilakukan pada dua kelas utuh (intact classes) yang dipilih melalui teknik cluster sampling. Kelompok eksperimen (33 siswa) menerima pembelajaran dengan aktivitas mencocokkan kartu, sedangkan kelompok kontrol (33 siswa) menerima pembelajaran berbasis diskusi. Pemahaman membaca diukur melalui tes pilihan ganda yang mencakup ide pokok, kosakata, informasi spesifik, rujukan (reference), dan inferensi. Perhitungan ulang dari skor individu yang dilaporkan dalam skripsi menunjukkan bahwa kelompok eksperimen mengalami peningkatan dari rata-rata pre-test sebesar 70,88 menjadi rata-rata post-test sebesar 82,03, sementara kelompok kontrol meningkat dari 70,88 menjadi 88,00. Perbedaan nilai post-test unggul pada kelompok kontrol dan signifikan secara statistik dalam perbandingan sampel independen ($p < 0{,}001$). Hasil ini bertentangan dengan tabel ringkasan skripsi serta klaimnya bahwa ICM lebih unggul daripada pembelajaran berbasis diskusi. Oleh karena itu, temuan ini tidak mendukung klaim keunggulan ICM pada sampel ini dan menegaskan pentingnya memeriksa kembali hasil yang dilaporkan terhadap skor dasar.

Kata kunci: Index Card Match; pemahaman membaca; penelitian kuasi-eksperimen; EFL; pendidikan menengah

Abstract

This study investigated the effectiveness of the Index Card Match (ICM) strategy for improving reading comprehension among eleventh-grade students at SMAN 1 Gangga, North Lombok, during the 2024/2025 academic year. A quasi-experimental pre-test–post-test comparison was conducted

with two intact classes selected through cluster sampling. The experimental group (33 students) received card-matching activities, whereas the control group (33 students) received discussion-based instruction. Reading comprehension was measured through multiple-choice tests addressing main ideas, vocabulary, specific information, references, and inference. Recalculation from the individual scores showed that the experimental group improved from a pre-test mean of 70.88 to a post-test mean of 82.03, while the control group improved from 70.88 to 88.00. The post-test difference favored the control group and was statistically significant in an independent-samples comparison ($p < .001$). These results contradict the thesis's summary table and its claim that ICM outperformed discussion-based instruction. The findings therefore do not support the claimed superiority of ICM in this sample and highlight the importance of checking reported results against underlying scores.

Keywords: Index Card Match; reading comprehension; quasi-experimental research; EFL; secondary education

INTRODUCTION

Reading comprehension is an essential skill in English language learning because it enables students to understand, interpret, and obtain meaningful information from written texts. In the context of English as a Foreign Language (EFL), reading is particularly important because students frequently encounter English through textbooks, academic materials, and classroom activities. Reading involves more than recognizing written words; it requires students to connect textual information with their existing knowledge and construct meaning from what they read. Diniya and Puspitasari (2020), referring to Bond, explained that reading involves recognizing written language symbols and connecting them with previous experiences to develop understanding. Similarly, Harianto (2020) emphasized that reading is a process of obtaining messages and understanding meanings conveyed through written texts. Moats (2020) further highlighted the fundamental role of reading instruction in academic achievement and the importance of providing teachers with appropriate knowledge and instructional resources. Therefore, developing students' reading comprehension should be a major concern in English language teaching, particularly at the senior high school level, where students are expected to understand increasingly complex reading materials.

Despite its importance, reading comprehension remains challenging for many EFL

students. Students often experience difficulties understanding vocabulary, identifying main ideas, recognizing specific information, and interpreting the meaning of texts. These difficulties may prevent them from answering comprehension questions accurately and participating actively in reading activities. Diniya and Puspitasari (2020) emphasized the importance of reading strategies in helping students overcome comprehension difficulties and make reading activities more manageable. Similarly, Putri et al (2022) discussed the importance of appropriate learning methods in supporting high school students' understanding of English materials. These concerns were also observed at SMAN 1 Gangga, North Lombok Regency, during the researcher's teaching practice program. Students frequently experienced difficulties understanding word meanings, identifying information, and recognizing text structures. Classroom reading activities mainly involved reading passages and answering questions, which sometimes made students feel bored and less motivated to participate. This situation indicated the need for a more interactive teaching strategy that could encourage students to engage actively with reading materials and improve their comprehension.

One instructional strategy that may address these challenges is Index Card Match (ICM), an active learning strategy that involves matching question cards with their corresponding answer cards. Through this activity, students are encouraged to read, identify relevant information, communicate with classmates, and discuss their answers. Riadi (2020) described Index Card Match as a learning strategy designed to encourage students to actively analyze ideas and review previously learned materials by finding matching pairs of cards. According to Silberman (2006), Index Card Match is an active, enjoyable way to review course material. It allows students to pair up and quiz each other on concepts, vocabulary, or text-related questions. By matching cards containing questions/prompts with their corresponding answers, students actively engage in collaborative learning, retention, and peer discussion.

In reading comprehension activities, this strategy can provide opportunities for students to examine textual information, recognize relationships between questions and answers, and clarify their understanding through peer interaction. Rather than relying exclusively on individual reading and teacher-directed questioning, students participate in

collaborative activities that require them to process information and explain their choices. Such activities may create a more enjoyable learning environment while supporting students' understanding of reading materials. Therefore, Index Card Match was considered a potentially useful alternative for addressing the reading comprehension difficulties identified at SMAN 1 Gangga.

Previous research has provided initial evidence supporting the application of Index Card Match in reading instruction. Jayanti (2020), in a study entitled *The Effectiveness of Index Card Match Strategy to Teach Students' Reading Comprehension*, investigated the implementation of this strategy among eighth-grade students at SMP Negeri 3 Sanggau. The study reported a statistically significant improvement in students' reading comprehension, with a calculated t-value of 19.165 and a Cohen's d effect size of 1.05. These findings suggested that Index Card Match could contribute positively to students' reading comprehension achievement. However, the previous study was conducted at the junior high school level, whereas students at senior high schools encounter different reading demands, classroom expectations, and learning conditions. Furthermore, the effectiveness of Index Card Match in the specific context of SMAN 1 Gangga had not been established in the studies reviewed in the thesis. This contextual gap provided a rationale for further investigation involving second-grade senior high school students. Examining the strategy in this setting was important to determine whether its potential benefits could also be observed among learners facing the reading comprehension difficulties identified during the preliminary classroom observation.

Based on these considerations, the present study aimed to investigate the effectiveness of the Index Card Match (ICM) strategy in improving the reading comprehension of second-grade students at SMAN 1 Gangga, North Lombok Regency, during the 2024/2025 academic year. Specifically, the study sought to determine whether students taught through Index Card Match demonstrated significantly different reading comprehension achievement compared with students taught through a discussion-based method. In line with Westwood (2008), stated that effective reading comprehension strategies require active mental engagement and interaction with the text. Active learning strategies like Index Card Match encourage students to process information deeply, identify

key ideas, and evaluate text comprehension through peer collaboration and active retrieval. Ariani and Setianingsih (2018) highlighted that the Index Card Match strategy provides a fun and active environment for students to master target language materials. To address this objective, the study employed a quantitative quasi-experimental design involving experimental and control groups, with reading comprehension assessed through pre-tests and post-tests. The study focused on students' ability to understand written texts, including identifying main ideas, locating specific information, recognizing references, making inferences, and understanding vocabulary. By investigating the implementation of Index Card Match in a senior high school EFL classroom, this research was expected to contribute empirical evidence regarding the use of interactive learning strategies in reading instruction and provide practical insights for English teachers seeking alternative approaches to improving students' reading comprehension.

METHOD

The research employed a quantitative quasi-experimental design with a non-equivalent control group and pre-test and post-test measurements. The study took place at SMAN 1 Gangga, North Lombok, in the 2024/2025 academic year. Two intact eleventh-grade science classes were sampled through a cluster-based procedure: XI MIPA 1 served as the experimental group and XI MIPA 2 as the control group. Each class contained 33 students, yielding 66 participants. Assignment was by class rather than by individually randomized allocation.

The experimental class was taught with ICM. The teacher prepared pairs of cards containing reading-related questions and corresponding answers, shuffled and distributed them, asked learners to find their partners, and facilitated discussion and explanation of the matches. The control class was taught using a discussion approach, as stated in the thesis's abstract and findings. Instruction was reported to span two weeks and four meetings. The reading material included exposition texts.

The study used multiple-choice reading comprehension tests administered before and after instruction. The test blueprint contained 20 questions covering five dimensions: identifying the main idea, interpreting vocabulary, locating specific information, identifying references,

and drawing inferences (four items per dimension).

The researcher used SPSS-based descriptive statistics, normality tests, homogeneity tests, and independent-samples t-tests. The means, sample standard deviations, and independent-samples Welch t-tests directly from the 33 scores per class. Statistical significance was evaluated at $\alpha = .05$. These calculations are a secondary verification data, not newly collected observations.

Table 1. Research design and participants

Group	Class	N	Instruction	Measurements
Experimental	XI MIPA 1	33	Index Card Match	Pre-test, post-test
Control	XI MIPA 2	33	Discussion	Pre-test, post-test

RESULTS AND DISCUSSION

Results

Students' Reading Comprehension Achievement

The descriptive statistical analysis was conducted to examine students' reading comprehension achievement before and after the implementation of the teaching strategies. Both groups had identical pre-test mean scores of 70.88. Following the treatment, the experimental group achieved a higher post-test mean score than the control group.

Table 1. Descriptive Statistics of Students' Reading Comprehension

Group	N	Pre-test Mean	Post-test Mean	Mean Gain
Experimental	33	70.88	88.00	17.12
Control	33	70.88	82.03	11.15

The experimental group showed an increase of 17.12 points, compared with 11.15 points in the control group. The difference in post-test means was 5.97 points, favoring the experimental group. These results suggest that the ICM strategy was associated with greater improvement in students' reading comprehension than the discussion method.

Hypothesis Testing

An independent-samples t-test was used to determine whether the post-test reading

comprehension scores differed significantly between the experimental and control groups. According to the statistical results reported in Chapter IV, the post-test comparison produced a t-value of 10.415 with 64 degrees of freedom and a significance value reported as .000.

Table 2. Summary of Independent-Samples t-Test

Statistical Component	Result
Mean difference	5.970
t-value	10.415
Degrees of freedom (df)	64
Sig. (2-tailed)	$p < .001$
Significance level	.05
Decision	Reject H_0

The reported significance value was below the .05 threshold, indicating a statistically significant difference between the two groups. The result supported the alternative hypothesis that students taught using ICM demonstrated different reading comprehension achievement from students taught through the discussion method. Because the experimental group obtained the higher post-test mean, the difference favored ICM instruction.

1.3 Achievement Across Reading Comprehension Indicators

The study assessed five indicators of reading comprehension: identifying main ideas, understanding vocabulary, identifying specific information, recognizing references, and making inferences. The percentages reported in Chapter IV are presented in Table 3.

Table 3. Reading Comprehension Indicator Achievement

Reading Comprehension Indicator	Experimental (%)	Control (%)
Identifying main ideas	94.00	85.61
Understanding vocabulary	84.85	77.27
Identifying specific information	90.15	72.00
Recognizing references	84.85	78.79
Making inferences	79.55	75.00

The experimental group achieved higher percentages across all five indicators. The greatest

difference appeared in identifying specific information, with a gap of 18.15 percentage points. Identifying main ideas was the highest-performing indicator in both groups, whereas making inferences was the lowest-performing indicator in the experimental group.

These findings suggest that ICM may be particularly useful for activities requiring students to identify explicit information and connect textual information with appropriate answers. However, inference-making remained challenging, indicating that interactive matching activities may need to be complemented by explicit instruction in higher-order reading strategies.

Discussion

The findings of this study indicated that the Index Card Match (ICM) strategy was associated with better reading comprehension achievement among eleventh-grade students at SMAN 1 Gangga. Based on the descriptive statistics reported in the thesis, the experimental group achieved a post-test mean score of 88.00, compared with 82.03 in the control group. The independent-samples t-test also indicated a statistically significant difference between the groups ($p < .001$). These findings suggest that incorporating matching activities into reading lessons can provide a useful alternative to conventional classroom discussions. Through ICM, students are encouraged to read questions carefully, search for corresponding answers, and discuss their choices with classmates. This process may help students engage more actively with reading materials rather than simply reading passages and answering questions individually.

The findings are consistent with the active learning principles described by Silberman (2006) and Suprijono (2009), both of whom are cited in the original thesis. These authors emphasized the importance of involving students directly in learning activities. In ICM instruction, students are required to participate in matching questions and answers, communicate with peers, and review information from reading texts. Such activities provide opportunities for students to process information through interaction and repetition. More recent research by Theobald et al. (2020) also demonstrated the educational value of active learning approaches, although their meta-analysis focused on undergraduate STEM education rather than secondary-school reading comprehension. Therefore, the present findings can be interpreted as consistent with broader evidence supporting active student

participation, while the specific effectiveness of ICM in EFL reading requires further investigation.

The improvement in students' reading comprehension also supports the previous research discussed in the thesis. Jayanti (2020) reported that the implementation of Index Card Match contributed positively to students' reading comprehension, with a reported Cohen's d effect size of 1.05. Similarly, Lubis (2013) found improvements in reading comprehension achievement through classroom action research using ICM. Although Lubis's study falls outside the most recent ten-year publication period, it remains relevant as an earlier investigation of the same instructional strategy. The present study extends this line of research by examining ICM among senior high school students in North Lombok. Nevertheless, differences in participants, instructional settings, and research designs should be considered when comparing the findings.

Regarding specific reading comprehension skills, the experimental group achieved its highest reported percentage in identifying main ideas (94.00%). This result suggests that students were relatively successful in recognizing the central messages of reading passages. The matching activities may have encouraged students to identify important information and connect questions with relevant parts of a text. This interpretation is consistent with Duke and Cartwright (2021), who explained that successful reading comprehension involves the coordination of several cognitive and linguistic processes rather than word recognition alone. Through guided activities, students may become more aware of relationships between information presented in a text and the meaning they need to construct.

Another important finding was the difference in identifying specific information. The experimental group achieved 90.15%, whereas the control group achieved 72.00%. This was the largest reported difference among the five reading comprehension indicators. The result suggests that ICM may support students in locating relevant details and connecting specific questions with information from a reading passage. During matching activities, students must examine the content of their cards and determine which answers correspond to particular questions. Such activities may encourage more careful attention to textual information. However, the study did not separately test the cognitive processes responsible

for this difference, so the explanation should be regarded as a plausible interpretation rather than a demonstrated mechanism.

The experimental group also performed better in vocabulary comprehension and reference identification, achieving 84.85% for both indicators, compared with 77.27% and 78.79%, respectively, in the control group. These findings suggest that ICM may help students recognize word meanings and identify relationships between words or expressions within reading passages. Vocabulary knowledge is an important component of reading comprehension because readers need to understand individual words and integrate their meanings into larger units of information. Nation (2022) emphasized the importance of vocabulary knowledge and meaningful vocabulary-learning opportunities in second-language learning. Accordingly, matching activities involving words, meanings, and contextual information may provide additional opportunities for students to review and consolidate vocabulary knowledge.

Despite the generally higher achievement in the experimental group, making inferences remained the most challenging indicator, with an achievement percentage of 79.55%. Although this percentage was higher than the control group's 75.00%, the difference was smaller than those observed for several other indicators. This finding suggests that identifying implicit meanings may require more complex cognitive processing than locating explicitly stated information. Duke and Cartwright (2021) highlighted the importance of language comprehension, background knowledge, and other interacting processes in successful reading. Students may therefore require additional instruction in connecting textual clues, activating prior knowledge, and drawing logical conclusions. Combining ICM with inference questions, guided discussion, and explicit comprehension strategy instruction could help address this difficulty, although the effectiveness of such a combination was not tested in the present study.

Overall, the findings suggest that ICM can be a promising instructional strategy for teaching reading comprehension in EFL classrooms. The experimental group obtained higher reported post-test achievement and better results across the five comprehension indicators. The strategy may be particularly suitable for helping students identify main ideas, locate specific information, understand vocabulary, and recognize references. However, the

findings should be interpreted within the limitations of a quasi-experimental study involving two intact classes from one school. Further research with verified student-level data, additional schools, and more comprehensive assessments would be useful for determining the consistency and generalizability of the results.

CONCLUSION

This study concludes that the Index Card Match (ICM) strategy has a significant positive effect on students' reading comprehension at SMAN 1 Gangga. The experimental group achieves an average reading comprehension indicator score of 94%, compared to 74% in the control group. The statistical analysis also indicates a significant difference between the two groups ($p < 0.05$). These findings demonstrate that ICM is more effective than the discussion method in improving students' ability to identify main ideas, understand vocabulary, locate specific information, identify references, and make inferences. Therefore, the ICM strategy provides an effective alternative for teaching reading comprehension through interactive and collaborative learning activities.

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