Index Card Match Model in Primary School: Effects on Learning and Civic Attitudes

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Abstrack

Civic education at the primary level in Indonesia often lacks effectiveness due to conventional instructional methods that fail to engage students meaningfully or foster participatory civic dispositions. The existing literature rarely explores integrative learning models that simultaneously address cognitive understanding and civic attitudes within a single framework. This quasi-experimental study investigates the effect of the Index Card Match (ICM) model on the learning outcomes and civic attitudes of fifth-grade students in civic education. Sixty students from Pekanbaru were divided into experimental and control groups, with pre- and post-tests administered. Data were analyzed using independent t-tests, showing statistically significant improvements in the experimental group for learning outcomes ($p = 0.001$) and civic attitudes ($p = 0.003$). The effect sizes were moderate to large, indicating statistical significance and meaningful pedagogical impact. The strength of this study lies in its integrated evaluation of cognitive and affective domains, demonstrating how structured collaborative activities foster deeper conceptual understanding and internalization of civic values such as responsibility, tolerance, and cooperation. These findings offer actionable insights for curriculum developers and teachers to adopt interactive learning models that reinforce academic content and character formation within the elementary civic education context.
Keywords: Index Card Match, civic attitudes, civic education, collaborative learning

Abstrak

Pendidikan kewarganegaraan di tingkat sekolah dasar di Indonesia masih menghadapi tantangan efektivitas karena pendekatan konvensional yang kurang melibatkan siswa secara aktif maupun membentuk sikap partisipatif. Literatur yang ada jarang mengeksplorasi model pembelajaran yang mampu secara simultan mengembangkan pemahaman kognitif dan sikap kewarganegaraan. Penelitian ini menggunakan desain kuasi-eksperimen untuk menguji pengaruh model Index Card Match (ICM) terhadap hasil belajar dan sikap kewarganegaraan siswa kelas V di Pekanbaru. Sebanyak 60 siswa dibagi ke dalam kelompok eksperimen dan kontrol, dan diberikan pre-test serta post-test. Analisis menggunakan uji t menunjukkan peningkatan signifikan pada kelompok eksperimen baik dalam hasil belajar ($p = 0.001$) maupun sikap kewarganegaraan ($p = 0.003$). Ukuran efek berada pada kategori sedang hingga tinggi, menandakan pengaruh pedagogis yang substansial. Keunggulan penelitian ini terletak pada evaluasi terpadu domain kognitif dan afektif, yang membuktikan bahwa aktivitas kolaboratif yang terstruktur mampu memperdalam pemahaman konsep serta menginternalisasi nilai kewarganegaraan seperti tanggung jawab, toleransi, dan kerja sama. Temuan ini memberikan kontribusi praktis bagi guru dan pengembang kurikulum untuk mengadopsi model pembelajaran interaktif dalam pendidikan kewarganegaraan sekolah dasar.
***Keywords**: Kartu Indeks, sikap kewarganegaraan, pendidikan kewarganegaraan, pembelajaran kolaboratif*

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INTRODUCTION

Character education is a cornerstone of primary education in Indonesia, aiming not only to produce academically competent individuals but also to cultivate responsible, tolerant, and participatory citizens. Civic education is among the central pillars of character formation, which plays a critical role in shaping students' understanding of national identity, unity, and democratic values from an early age. However, despite its strategic position in the curriculum, the implementation of civic education at the elementary level remains largely ineffective. A key contributing factor is the persistent reliance on traditional, teacher-centered instructional methods that emphasize rote learning and passive information absorption. These methods often fail to foster affective engagement or meaningful participation, thereby limiting students' internalization of civic values (Hardiansyah & Mas'odi, 2022). One important aspect of character education is the strengthening of national attitudes, which aims to shape a young generation that is not only academically intelligent but also has the awareness and enthusiasm to maintain national unity and integrity (Hartikainen et al., 2021). Civic education is vital in this context as it is the primary vehicle for shaping students' national attitudes from an early age (Liu et al., 2024). However, despite its noble objectives, the implementation of civic education in many elementary schools still faces various challenges, including the development of teaching materials and the formation of students' national attitudes (Delle-Vergini et al., 2024). Various studies indicate that traditional teaching methods, such as lectures and textbook-based learning, are ineffective in capturing students' attention and motivating them to become more engaged in learning (Sáez-López et al., 2022).

One promising learning model for enhancing student engagement in learning is the Index Card Match (ICM) model. This model is a collaborative learning method that emphasizes student interaction in solving problems in a fun and effective way (Alscher et al., 2022; Foulds, 2023). Several studies indicate that this method can improve student learning outcomes in various subjects, including civic education (Favaro et al., 2020; Llorent et al., 2023). However, despite some research on the Index Card Match model in various disciplines, its application in civic education in elementary schools has not been extensively studied. Therefore, this study aims to examine the effectiveness of the Index Card Match model in improving the learning outcomes and civic attitudes of elementary school students in civic education. This model is expected to address existing learning problems by combining interactive and collaborative approaches (Yang et al., 2023). This research is particularly important considering the challenges that elementary education faces in Indonesia, especially in improving the quality of civic education aimed at developing national attitudes (Brownlee et al., 2019; Feitosa, 2020).

The urgency of this research is further reinforced by findings that conventional teaching approaches, which are overly structured and do not actively involve students, often result in a decline in students' interest in civic education. A more interactive learning model, such as the Index Card Match model, which involves students, can be a highly relevant solution to increase student engagement in civic education, ultimately impacting learning outcomes and strengthening nationalistic attitudes (Contreras et al., 2023; Hüning, 2022). According to data from the Ministry of Education and Culture (Kemendikbud), only about 30% of students in Indonesia demonstrate an adequate understanding of the values of Pancasila (Hardiansyah, 2022). More than 60% of students feel no emotional attachment to national values (Kemendikbud, 2022). Furthermore, according to a survey by the Indonesian Democracy Index (IDI), only 35% of young

people exhibit proactive attitudes in defending the country and their nationality (Hardiansyah & AR, 2022). These data reveal a significant disparity between the expected goals of Pancasila education and the actual reality. Civic education must transcend mere knowledge transmission and actively engage students in reflective, collaborative, and contextually meaningful experiences to facilitate the internalization of values. This calls for a pedagogical shift from passive to participatory learning models.

In response to these challenges, the Index Card Match (ICM) model emerges as a promising instructional alternative. ICM is a cooperative learning strategy that involves peer interaction, card-based concept matching, and collaborative problem-solving—all of which align with the democratic values at the heart of civic education. Its interactive and visual nature is particularly suited for elementary students, as it transforms abstract civic concepts into tangible experiences while simultaneously encouraging the development of social skills such as responsibility, tolerance, and dialogue. Despite its theoretical promise, there is a notable paucity of research applying the ICM model specifically in civic education at the primary level. Most existing studies focus on its impact on cognitive outcomes in subjects such as science or mathematics (Oz & Dolapçıoğlu, 2019; Makar et al., 2023), without exploring its affective potential or role in civic character formation.

Based on these issues, this study poses several important questions that need to be addressed. First, can applying the Index Card Match model improve students' learning outcomes in civic education in elementary schools? Second, how does the Index Card Match model influence the development of students' national attitudes? Third, what factors influence the success of this model's application in elementary schools? These questions will focus on an experimental research design conducted in several elementary schools in Indonesia. The primary objective of this study is to examine the impact of the Index Card Match model on students' learning outcomes in civics education within elementary schools. In addition, this study also aims to identify the effect of this model on the development of students' national attitudes. This study will likely make a significant contribution to understanding how collaboration and interaction-based learning models, such as Index Card Match, can be integrated into civic education to create students who are not only academically intelligent but also possess a strong sense of national identity.

This study will also review previous literature relevant to this topic, including both general discussions of interactive learning models and those specifically regarding the application of Index Card Match in learning. For example, a study Oz & Dolapçıoğlu (2019) found that collaborative learning models, such as Index Card Match, can increase students' motivation and learning outcomes in social studies. Similarly, research has Simonova et al (2019) and Makar et al (2023) shown that using interactive learning methods can help develop students' social skills. However, there has been little research that explicitly tests the application of this model in the context of civic education and national attitudes, so this study aims to fill the gap in the existing literature.

A gap analysis of the literature shows that most existing studies focus on applying the Index Card Match learning model in other subjects, such as mathematics and science, without directly linking it to civic education. Additionally, while some studies have demonstrated the success of this model in improving academic outcomes, few have examined its impact on civic attitudes, a key component of civic education in elementary schools. Therefore, this study focuses on aspects that have not been explored much and provides new contributions to the literature on civic education.

This study's uniqueness and contribution lie in its novelty, namely the application of Index Card Match in the context of civic education to improve the learning outcomes and civic attitudes of elementary school students. By focusing on these two important variables, this study can provide new insights into how this learning model enhances academic outcomes and contributes to the development of students' national character. Additionally, this study provides important justification for implementing more interactive and collaborative learning approaches in elementary schools, particularly in citizenship education, which aims to shape the nation's character. This study is expected to provide practical benefits for educators, particularly civic education teachers, in better understanding and implementing collaborative learning models in their teaching. Furthermore, the results of this study are expected to enrich the literature on innovative learning strategies that not only improve student learning outcomes but also contribute to strengthening national values in elementary education in Indonesia.

METHOD

This study uses a quantitative approach with a quasi-experimental design. The selection of the quantitative approach is based on the research objective to test the effect of the Index Card Match learning model on students' learning outcomes and civic attitudes in an objective and measurable manner through numerical data. Meanwhile, the Quasi-Experimental design was chosen because the researcher does not have complete control over the natural grouping of research subjects within the existing school population. This design enables valid comparisons between the group that received treatment (experimental class) and the group that did not receive treatment (control class), without disrupting the existing class structure. The experimental design employed is the "Nonequivalent Control Group Design," which involves two groups, each receiving a pre-test and a post-test. Only one group receives treatment in the form of the Index Card Match learning model. This design is logical to apply because it still allows for the measurement of changes that occur after the intervention, even though the allocation of students to the experimental and control groups is not entirely random at the individual level.

The population in this study is all fifth-grade students at a public elementary school in the Pekanbaru area, Riau. The selection of this location was based on considerations of the availability of relevant subjects, ease of access for researchers, and institutional support for implementing educational experiments. Random sampling techniques were employed to select two classes from all available fifth-grade classes, ensuring that each class had an equal chance of being chosen as the research sample. From the randomisation results, two classes were formed, each consisting of 30 students, resulting in a total research sample of 60 students. One class was designated as the experimental class, which received instruction using the Index Card Match model, while the other class served as the control class, receiving conventional instruction. The use of random sampling at the class level—rather than the individual level—ensures the validity of the experiment within the institutional context of elementary education without disrupting the scheduled learning process. With a sufficient sample size, this design provides adequate statistical power to test the hypothesis.

The intervention in the experimental class was conducted over four sessions (two 35-minute sessions per session) within a two-week period, fully integrated into the Civic Education subject. The procedure was designed to ensure consistency and adherence to the principles of cooperative learning. The following stages detail the implementation

process: Preparation of Index Cards-The researcher prepared a total of 30 index cards for each session, consisting of two types: (a) question cards, each containing a civic education question or prompt related to the learning objectives (e.g., "What is the meaning of national unity?" or "Give one example of democratic behaviour at school"), and (b) answer cards, each containing the correct answer or explanation. Questions were constructed based on the syllabus and competency indicators. Cards were printed on thick paper (7 × 10 cm), with clear fonts and colour coding to differentiate between question and answer cards.

Grouping and Instructions-Students in the experimental class were divided into small groups of 4–5 members using a random assignment method to ensure heterogeneity in ability. Before the activity began, the teacher explained the session's objectives, the game's rules, and the process of how the Index Card Match works. Emphasis was placed on collaboration, respect for others' ideas, and active participation. Activity Flow: Distribution: Each student received a question or an answer card. Matching Process: Students stood up and moved around the classroom to find their corresponding card pair (question with correct answer) within a set time limit (5–7 minutes). Pair Discussion: Once a match was found, pairs discussed the concept or example on their cards to ensure mutual understanding. Group Sharing: Pairs returned to their original groups and shared their matched concepts with group members, expanding the collective knowledge of the topic. Class Debriefing: The teacher facilitated a whole-class discussion to review answers, clarify misconceptions, and highlight key civic values.

Duration and Frequency: The ICM model was applied twice a week for two consecutive weeks, with each session lasting approximately 70 minutes (2 × 35 minutes). The first 10–15 minutes were allocated for introduction and instructions, 40–45 minutes for the ICM activity, and the remaining 10–15 minutes for class discussion and reflection. Examples of Specific Activities- In one session focusing on "Responsibility and Cooperation," question cards contained scenarios such as "A student sees litter on the classroom floor—what should they do?" Answer cards provided appropriate actions (e.g., "Pick it up and dispose of it in the bin"). In another session on "Democratic Decision-Making," question cards described situations requiring consensus, while answer cards outlined democratic solutions. This contextualised approach ensured students engaged with real-life examples relevant to their daily school and community experiences. This detailed implementation procedure was designed to create an engaging, student-centered learning environment, encourage active participation, and foster cognitive understanding and affective internalization of civic values.

To ensure the internal validity of the study and isolate the effect of the Index Card Match (ICM) model on students' learning outcomes and civic attitudes, several measures were taken to control potential confounding variables: Before the intervention, the experimental and control groups were administered identical pre-tests for cognitive outcomes and civic attitudes. The results indicated no statistically significant differences between the groups at baseline, confirming equivalence in prior academic knowledge and initial attitudes. This step reduced the likelihood that observed post-test differences were due to pre-existing disparities. Additionally, demographic data such as age, gender, and socio-economic background were collected to ensure balanced group composition through random class-level sampling. Both classes were taught within the same school building under similar environmental conditions (e.g., classroom size, seating arrangement, availability of teaching aids). The learning schedule was arranged so that sessions for both groups were conducted at similar times to minimize the effects of time

of day on student concentration and participation. Disruptions from external school activities were minimised by coordinating with school administrators before the intervention period.

The same teacher conducted lessons in experimental and control classes to ensure consistency in instructional style, subject matter expertise, and classroom management. The teacher received prior training on implementing the ICM model to ensure fidelity in the experimental group and was instructed to follow conventional teaching methods in the control group, without introducing elements of ICM. To further reduce bias, the teacher adhered to a structured lesson plan for each group, and the researcher observed several sessions to monitor procedural compliance and prevent cross-contamination between instructional approaches. These controls were implemented to minimize the influence of variables unrelated to the intervention, ensuring that differences in post-test scores could be attributed primarily to the application of the Index Card Match model.

The primary instrument used in this study was a learning achievement test developed to measure participants' understanding of concepts and application of civic values in the subject of Civic Education. The test consists of 30 multiple-choice questions, developed by competency achievement indicators and content guidelines. The following is the Table of Test Instrument Indicators:

Table 1.
Research Instrument Indicators

Cognitive variables	Affective variable
Explains the meaning of national values (e.g., nationalism, unity)	Demonstrates responsibility as a member of school and community
Identifies examples of applying national values in daily life	Shows tolerance toward differences in ethnicity, religion, and opinion
Describes the role of citizens in maintaining unity and integrity	Demonstrates care for the environment and others
Distinguishes between tolerant and intolerant behavior in social contexts	Exhibits honesty, fairness, and democratic behavior in daily life
Analyzes the implementation of democratic values at school and community	Actively participates in discussions and cooperative activities
Concludes the benefits of cooperation and deliberation in decision-making	Obeys rules and norms at school and in the community

The measurement instruments in this study comprised two components: a cognitive test to assess students' learning outcomes in Civic Education, and an affective scale to evaluate students' civic attitudes. For the cognitive domain, indicators were derived directly from the national Civic Education syllabus and competency achievement indicators set by the Ministry of Education and Culture. These indicators encompassed key concepts, including the significance of national values, examples of their application in daily life, and the role of citizens in upholding unity and integrity. For the affective domain, indicators were selected to reflect core civic attitudes emphasized in character education policy, including responsibility, tolerance, honesty, cooperation, and adherence to rules. Both theoretical frameworks in civic education and empirical studies on citizenship competencies in primary education guided the selection.

The cognitive test consisted of 30 multiple-choice items, each with four options, designed to measure different levels of Bloom's taxonomy—from remembering and understanding to application and analysis—within the context of Civic Education. The affective scale included 30 statements rated on a 4-point Likert scale (1 = strongly disagree to 4 = strongly agree). Instrument development involved a multi-stage process: Item Drafting: The researcher prepared initial items based on the selected indicators. Expert Review: Two Civic Education lecturers and one experienced elementary school teacher reviewed the items for content validity, clarity, and alignment with the learning objectives. Peer Review: A peer research group further examined the draft instruments to ensure the language was simple and appropriate for fifth-grade students. Pilot Testing: A preliminary trial was conducted with 15 students outside the research sample to assess clarity, difficulty level, and time allocation.

Content validity was ensured through the expert and peer review stages. Empirical validity was examined using the Pearson Product-Moment correlation to assess the relationship between each items and total scores. Items with r-count ≥ r-table ($\alpha = 0.05$, $N = 30$) were retained; items below the threshold were revised or discarded. Reliability testing used the KR-20 formula for the cognitive test (obtained coefficient = 0.81) and Cronbach's Alpha for the affective scale (obtained coefficient = 0.87), both exceeding the ≥ 0.70 standard, indicating high to very high internal consistency. This process ensured that the instruments accurately measured the intended constructs and yielded stable, reliable results when applied in similar contexts.

In addition to the Independent Samples t-test used to assess the statistical significance of differences between the experimental and control groups, supplementary analyses were conducted to provide a more comprehensive interpretation of the intervention's impact. Effect size was calculated using Cohen's d for learning outcomes and civic attitudes to determine the magnitude of the observed differences. The interpretation followed conventional benchmarks, where values between 0.20 and 0.49 indicate a small effect, values between 0.50 and 0.79 indicate a medium effect, and values of 0.80 or higher indicate a large impact. This measure allowed the study to evaluate whether the differences were statistically significant and the practical significance of the intervention in an educational context.

Where available, qualitative feedback from students and the teacher was also analysed to enrich the interpretation of quantitative findings. Student reflections collected after the intervention were reviewed to identify common themes such as enjoyment, engagement, and perceived improvement in understanding civic concepts. Teacher observations were used to capture classroom dynamics, collaboration patterns, and any challenges encountered while applying the Index Card Match model. These qualitative insights helped contextualise statistical results and highlight areas for refinement in future implementations.

Before conducting the main analyses, the pre-test and post-test data from both groups were examined for normality using the Shapiro–Wilk Test. A p-value greater than 0.05 indicated that the data were normally distributed. Levene's Test was then performed to check the homogeneity of variances between the experimental and control groups. If both assumptions of normality and homogeneity were met, the Independent Samples t-test was applied to compare mean scores. When one or both assumptions were not met, the non-parametric Mann–Whitney U Test was used. This combination of statistical significance testing, effect size measurement, and qualitative feedback ensured that the

evaluation of the Index Card Match model considered both measurable outcomes and experiential factors, providing a holistic assessment of its effectiveness.

RESULT AND DISCUSSION

This study aims to examine the effectiveness of the Index Card Match learning model in improving learning outcomes and civic attitudes of elementary school students. To that end, data from two groups were analysed: the experimental group, which received treatment in the form of learning using the Index Card Match model, and the control group, which received conventional learning. Before testing the hypothesis, the validity and reliability of the instruments were tested to ensure the suitability of the measuring tools used.

Table 2.
Summary of Item Validity Test Results for Learning Outcomes and Civic Attitude Instruments

Variable	Total Items	r-value Range	r-table (N=30, α=0.05)	Number of Valid Items	Description
Learning Outcomes (Cognitive)	30	0.378 – 0.622	0.361	30	All items are valid
Civic Attitudes (Affective)		0.384 – 0.679			

Based on Table 2, the r-calculated values range from 0.378 to 0.622, all of which are higher than the r-table value of 0.361 (at a significance level of 5%, N = 30). For the cognitive aspect, the calculated r-values range from 0.384 to 0.679, with all items exceeding the r-table value of 0.361 for the affective aspect. All 30 items meet the validity criteria, indicating that each item effectively measures the intended construct. High item validity suggests that the items effectively capture differences in students' abilities according to the measured indicators. The varied but significant distribution of correlation values also reflects that the items are not redundant or too similar, thereby enhancing the overall discriminative power of the instrument. This validity supports the quality of the instrument's construct and ensures that the learning outcome data obtained is representative of students' academic performance in the citizenship domain. Additionally, the attitude dimension measured aligns with the character education indicators outlined in the national curriculum policy and is consistent with global standards for citizenship education.

Table 3.
Reliability Test Results for Learning Outcomes and Civic Attitude Instruments

Variable	**Number of Items**	**Reliability Coefficient**	**Reliability Method**	**Criteria**	**Description**
Learning Outcomes (Cognitive)	30	0.81	KR-20	≥ 0.70 = Reliable	High internal consistency
Civic Attitudes (Affective)		0.87	Cronbach's Alpha	≥ 0.70 = Reliable	Very high reliability

This value indicates that the instrument has a high level of internal consistency, meaning that all items consistently measure the same construct, namely, understanding and mastery of concepts in Civic Education. This ensures that differences in student

scores are due to their actual abilities, not measurement fluctuations or instrument errors. Additionally, all attitude scale items have strong internal relationships and support each other in measuring civic attitudes, such as responsibility, tolerance, honesty, and cooperation. Thus, this instrument can be relied upon to consistently and validly evaluate students' affective aspects.

Table 4.
Shapiro–Wilk Normality Test Results for Learning Outcomes and Civic Attitude Variables

Variable	Group	Test Type	Sig. (Shapiro–Wilk)	Description
Learning Outcomes (Pre-test)	Experimental	Pre-test	0.241	Data is normal
Learning Outcomes (Pre-test)	Control	Pre-test	0.192	Data is normal
Learning Outcomes (Post-test)	Experimental	Post-test	0.216	Data is normal
Learning Outcomes (Post-test)	Control	Post-test	0.143	Data is normal
Civic Attitudes (Pre-test)	Experimental	Pre-test	0.198	Data is normal
Civic Attitudes (Pre-test)	Control	Pre-test	0.214	Data is normal
Civic Attitudes (Post-test)	Experimental	Post-test	0.157	Data is normal
Civic Attitudes (Post-test)	Control	Post-test	0.225	Data is normal

All Shapiro-Wilk significance values for learning outcome variables, both pre-test and post-test in the experimental and control groups, were above 0.05. This indicates that the data are typically distributed and meet the requirements for parametric statistical testing. Similarly, all Shapiro–Wilk test results for citizenship attitude data show significance values exceeding 0.05. This means that the data from the attitude scale is also normally distributed and can be analysed using parametric techniques because the number of items is sufficient and the distribution is close to normal.

Table 5.
Levene’s Test Results for Homogeneity of Variance

Variable	Test Type	Sig. (Levene’s Test)	Interpretation
Learning Outcomes (Pre-test)	Pre-test	0.462	Variances are equal
Learning Outcomes (Post-test)	Post-test	0.315	Variances are equal
Civic Attitudes (Pre-test)	Pre-test	0.488	Variances are equal
Civic Attitudes (Post-test)	Post-test	0.267	Variances are equal

The significance value of Levene's Test for the learning outcome variable in the pre-test was 0.462, and in the post-test, it was 0.315. Both were above the significance threshold of 0.05. This indicates that there was no significant difference in the variance of learning outcome scores between the experimental and control groups. Thus, the data is homogeneous. The results of Levene's Test for the civic attitude variable in the pre-test were 0.488, and in the post-test were 0.267, both of which were also greater than 0.05.

This indicates that the distribution of attitude scores from both groups had equivalent variance (homogeneous).

Table 6.
Independent Samples t-Test Results for Learning Outcomes and Civic Attitudes

Variable	Group	N	Mean	SD	Sig. (2-tailed)	t-value	Interpretation
Learning Outcomes (Post-test)	Experimental	30	84.13	6.22	0.001	3.427	Significant difference
	Control	30	75.60	7.05			
Civic Attitudes (Post-test)	Experimental	30	88.02	5.87	0.003	3.102	Significant difference
	Control	30	79.33	6.44			

The average post-test score of the experimental group (84.13) was higher than that of the control group (75.60), with a significant difference (Sig. = 0.001 < 0.05. This indicates a statistically significant difference between the two groups, meaning that the use of the Index Card Match model has a positive effect on student learning outcomes. The average post-test score for civic attitudes in the experimental group (88.02) was also higher than that of the control group (79.33), with a Significant Difference. = 0.003 < 0.05. This suggests that the learning model also has a significant impact on improving students' civic attitudes. The t-test results support the hypothesis that the Index Card Match model is effective in significantly improving both cognitive learning outcomes and affective (civic) attitudes of elementary school students compared to conventional learning.

Table 7.
Effect Size (Cohen's d) for Post-test Learning Outcomes and Civic Attitudes

Variable	Mean Exp	SD Exp	Mean Ctrl	SD Ctrl	Cohen's d	Interpretation
Learning Outcomes	84.13	6.22	75.60	7.05	1.25	Large
Civic Attitudes	88.02	5.87	79.33	6.44	1.38	Large

The results indicate that the Index Card Match model had a substantial impact on both measured domains. For Learning Outcomes, the Cohen's d value of 1.25 represents a large effect size, suggesting that the intervention produced statistically significant differences and had strong practical implications for improving students' academic performance in Civic Education. For Civic Attitudes, the Cohen's d value of 1.38 is also categorized as a large effect size and is slightly higher than that of the cognitive domain. This finding suggests that the ICM model was particularly effective in promoting positive civic attitudes, including responsibility, tolerance, cooperation, and active participation. The higher effect in the affective domain supports the model's alignment with interactive and collaborative pedagogies that emphasize the internalization of values alongside knowledge acquisition. These results reinforce the pedagogical relevance of the ICM model in elementary Civic Education by demonstrating its capacity to strengthen conceptual understanding and cultivate civic character simultaneously.

The results of this study indicate that the implementation of the Index Card Match learning model significantly improves both the learning outcomes and civic attitudes of elementary school students. The average post-test scores in the experimental group were consistently higher than those in the control group, both in cognitive and affective variables. This confirms that collaborative activity-based learning methods and

educational games can create a more participatory, enjoyable, and meaningful learning environment for elementary school students. Theoretically, these findings are consistent with the social constructivist perspective developed by Nieuwelink et al (2019 and Piedade et al (2023) which emphasizes that knowledge is socially constructed through interactions between individuals. The Index Card Match model, which is based on card exchange and cooperation among students, creates space for dialogue, idea exploration, and social conceptual reinforcement. This process supports the transition from the actual development zone to the proximal development zone of students, where peer interaction encourages a deeper understanding of the subject matter (Maass et al., 2022).

In the context of citizenship education, the results of this study also underscore the importance of active learning approaches in shaping civic attitudes. Character education and democratic values cannot be instilled through one-way lectures; instead, they require learning situations that allow students to experience, reflect on, and internalise these values through real-world activities (Ruiz-Ordóñez et al., 2020). Structured social interactions through this model implicitly train students to be tolerant, listen to one another, respect differences, and work together to solve problems. These findings align with research by Joris & Agirdag (2019), which demonstrated that cooperative learning enhances academic achievement and social attitudes. Furthermore, these results reinforce studies Florit & Cain (2019) that have shown that an active participation-based approach holds great potential in developing civic skills and democratic attitudes in early childhood.

Furthermore, these findings are supported by the principles of cooperative learning (Lundberg & Abdelzadeh, 2022; Martínez-Hita et al., 2021), which state that positive interdependence and individual responsibility in group learning settings can enhance academic achievement and interpersonal development. In this study, group-based interactions through Index Card matches improved conceptual understanding and fostered civic attitudes such as tolerance, mutual respect, and national pride. Previous empirical research also provides additional confirmation. Studies hav Oberle et al 2020 anda Weinberg (2022) shown that cooperative learning strategies, such as Think-Pair-Share and Jigsaw, positively impact academic performance and affective outcomes in elementary education. This study builds upon these findings by demonstrating that the Index Card Match model—although not yet widely researched—produces robust outcomes, particularly in value-laden subjects such as citizenship education.

One interesting aspect of these findings is the difference in scores between the affective and cognitive domains. Although both show promising results, higher affective scores indicate that the Index Card Match model is well-suited for character education. The nature of the activities dialogue-based, collaborative, and involving the collective interpretation of national values inherently supports achieving practical goals. Conversely, some cognitive concepts, such as Indonesia's role in the international arena, may require additional scaffolding or the integration of digital media to be more easily understood by elementary school students (Parisis et al., 2022; Mulder, 2023).

This study has several implications for educational theory and classroom teaching practices. Theoretically, these findings support the notion that cooperative and constructivist learning models can foster comprehensive student development. Success in both domains simultaneously shows that students do not have to choose between academic success and character development; with the right pedagogical approach, both can be achieved simultaneously. This insight is crucial for educational systems aiming to produce students who are not only competent but also ethical and socially responsible.

This study recommends that citizenship education teachers at the elementary school level adopt the Index Card Match model as a viable teaching strategy. This model is relatively easy to implement, does not require advanced technology, and naturally integrates active and student-centered learning elements. Teachers can use it to discuss themes of national identity, rights and obligations, and diversity in a critical and emotional manner (Garcia-Mila et al., 2021). This becomes increasingly relevant in diverse classrooms, where respect and unity are primary goals. These findings also have implications for curriculum development. Curriculum developers may consider integrating cooperative learning models into the national curriculum framework, particularly in subjects that emphasize character development. This has the potential to strengthen the impact of moral and civic education across all levels of education.

Although the results are promising, this study has several limitations. First, the study was conducted on a relatively small and homogeneous sample of 60 fifth-grade students in a specific geographical and cultural context. Therefore, the results should be cautiously generalized to a broader population. Further studies involving diverse school backgrounds, regions, and student demographics are needed to test the external validity of these findings. Second, the research design was cross-sectional, capturing only immediate outcomes following the intervention. While short-term gains in learning and civic attitudes were encouraging, the sustainability of these effects over the long term remains unknown. Longitudinal research is crucial for determining whether the observed benefits can persist and evolve into lasting changes in attitudes and behavior. Third, measuring the affective domain relies on students' self-reported data, which may be susceptible to social desirability bias. Although efforts were made to maintain anonymity and provide clear instructions, there remains a possibility that students responded to social expectations. Further studies could combine data with teacher observations, peer evaluations, or behavioral assessments to enhance the validity of effective instruments.

Based on the results of this study, several directions for further research can be explored. First, this study can be replicated at different grade levels (e.g., fourth or sixth grade) and in various types of schools (urban, rural, public, private) to test the consistency of the model's effectiveness. This will help build a broader empirical foundation for Index Card Match as a scalable teaching method. Second, a mixed-methods approach is highly recommended, combining quantitative surveys with qualitative interviews or classroom observations. This design allows for a deeper understanding of students' learning experiences and the internalization process of citizenship values.

Additionally, the complex dynamics of classroom interactions can be captured more comprehensively. Third, longitudinal studies can be conducted to measure the sustainability of learning outcomes from the Index Card Match. This could include delayed post-tests, re-evaluation of attitudes after several months, or long-term case studies to observe fundamental behavioral changes in students' lives. Fourth, integrating digital media into this model is also worth exploring. For example, interactive digital cards or online matching platforms may increase student engagement, especially for abstract topics such as Indonesia's global role.

The findings of this study have significant social and ethical implications. Socially, the increase in nationalistic attitudes among elementary school students indicates that cooperative learning models can effectively build social cohesion from an early age. In a diverse society such as Indonesia, instilling unity, tolerance, and national pride through education is crucial for maintaining democratic harmony and social stability. Ethically, this study emphasizes the importance of educators and policymakers

to prioritize character education alongside academic content. In the era of classroom digitalization, it is important to ensure that technology is used to support not replace the development of human values. Educational technology must be designed and implemented to strengthen dialogue, empathy, and ethical reasoning. With its participatory and straightforward characteristics, the Index Card Match model is an ethical alternative to learning that is overly dominated by screens. Amidst the flood of digital content that tends to be passive and superficial, this model offers balance through active engagement and moral reflection. In conclusion, the findings of this study not only validate the pedagogical value of the Index Card Match model but also emphasize its broad relevance in shaping students who think critically, engage actively, and act responsibly. Amid the dual challenges of modern education—between academic excellence and character development—these findings offer a promising path forward.

CONCLUSION

This study confirmed that the Index Card Match (ICM) model significantly enhances both the learning outcomes and civic attitudes of elementary school students. The large effect sizes for both domains indicate that this interactive, collaborative approach is statistically effective and educationally meaningful. The findings suggest that teachers can adopt the ICM model to create more engaging and participatory learning environments in Civic Education. In different school contexts, the model can be tailored to suit various classroom sizes, cultural settings, and available resources. However, implementation may face limited preparation time, teacher unfamiliarity with active learning strategies, or insufficient instructional materials. To address these, schools should consider providing targeted teacher training and developing supporting resources—such as ready-to-use index card templates and step-by-step implementation guides—that simplify adoption and ensure fidelity to the model's core principles.

The study's small and relatively homogeneous sample limits the generalizability of its findings. It remains uncertain whether similar results would be observed in schools with differing socio-economic profiles, rural–urban divides, or more diverse student populations. Additionally, the measurement of civic attitudes relied solely on self-reported questionnaires, which may be subject to social desirability bias. Future research should employ triangulation methods, such as direct classroom observations, peer assessments, and structured interviews, to provide a more robust and nuanced understanding of attitude changes. Further studies could employ longitudinal designs to examine the long-term sustainability of the ICM model's effects. Exploring the integration of digital tools—such as online matching platforms or gamified card activities—may enhance student engagement, particularly for abstract concepts related to civic issues. Qualitative approaches, including focus group discussions and in-depth interviews, could also shed light on the internalisation process of civic values during ICM activities, offering deeper insights into the mechanisms that drive cognitive and affective gains.

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