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The Effectiveness of Flashcard-Based Learning in Enhancing Learning Autonomy and Conceptual Understanding of Indonesian Cultural Diversity among Fourth-Grade Elementary School Students

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Abstract
This study aimed to analyze the effectiveness of flashcard learning media on students' learning independence and understanding of social studies material concerning ethnic and cultural diversity in Indonesia among fourth-grade elementary school students. The study employed a quantitative approach with a quasi-experimental method using a nonequivalent control group design. The participants were 51 fourth-grade students at MI Ma'arif Bego Yogyakarta, consisting of 25 students in the experimental group and 26 students in the control group. The experimental group received instruction using flashcard media, while the control group received conventional instruction. Data were collected using a learning independence questionnaire and a material comprehension test. Data analysis included normality and homogeneity tests, Independent Sample t-Test, Mann-Whitney test, and N-Gain analysis. The results showed a significant difference in learning independence between the experimental and control groups, with a significance value of 0.001 ($p < 0.05$). The Mann-Whitney test for material comprehension also yielded a significance value of 0.001 ($p < 0.05$). The experimental group obtained a posttest mean of 73.46 for learning independence compared with 44.74 in the control group, while the posttest mean for material comprehension was 34.12 in the experimental group and 16.44 in the control group. The N-Gain scores were 0.6327 for learning independence and 0.3015 for material comprehension. These findings indicate that flashcard media contributes positively to students' learning independence and understanding of social studies material. Flashcards can be used as an alternative visual learning medium to support active learning in elementary and Islamic elementary schools.

Keywords:
flashcards; learning independence; material comprehension; social studies; elementary school.

Introduction

Learning Knowledge Social Studies (IPS) at the level school base No only directed at mastery knowledge, but also on ability participant educate understand life social and diversity in the environment surrounding area (Lulu Rahma Aulia, Yulia Nuraeni Pebriani, Muh. Husen Arifin, 2023) . One of material that has relevance strong with objective the is diversity Indonesian tribes and culture. This material covers knowledge about ethnic group nation, home customs, ceremonies customs and traditions spread across various regions of Indonesia. Mastery material the important Because participant educate need know diversity as part from identity and wealth nation.

Diversity material ethnicity and culture own characteristics in the form of many necessary information recognized, compared, and remembered (Intan Kharismatun Nisya, 2024) . Condition the requires teachers to choose learning media that can help student get experience learn more concrete. At the level school basics, presentation material through visual elements can help student connect information with more representation easy observed (Dedek Ahmad, Ahmad Calam, 2026). Because That is, the use of learning media that is simple, interesting and easy used be one of alternative For support the social studies learning process.

One of the relevant media is a flashcard. Flashcards are a media in the form of card that presents information in a way concise through pictures, words, or information short (Rifqi Dia Finti Ardiyanti, Nur Khofifatun Nisah, Ahmad Bad'u Qothri Rahman, 2026) . In social studies learning, flashcards can used For displaying name and characteristics ethnic group nation, home customs, as well as ceremony customs or tradition. Presentation information visually possible student No only accept information verbally, but also observing representation materials and use them in activity Study.

Besides understanding material, learning at the level school base need notice development independence learning. Independence Study related with ability student For take initiative, organize activity study, finish duties and responsibilities answer towards the learning process (Fahreza et al., 2025) . Learning media that provides chance to student For observe, answer, match information, work tasks, and do reflection potential give room for student For more active in manage the learning process.

Study previously give support to The use of flashcards as a learning medium. Aziza and Yulia revealed that flashcard media can used For support understanding and independence Study participant educate (Aziza & Yulia, 2022). Research Aprilianti, Mukmin, and Putra also showed use of flashcards in learning school base can support improvement results Study (Aprilianti et al., 2025) . Research Sholehah in a way special discuss improvement understanding and independence Study through flashcards in learning Madurese at school base (Sholehah, Amisha Mar'atus, 2025).

Although Thus, the study about regular use of flashcards simultaneously focus on independence learning and understanding material diversity Indonesian tribes and cultures are still need strengthened through study experiment. Research This utilise design quasi-experiment with compare the group that received learning using flashcards and the group that gets learning conventional. Focus double in aspect independence learning and understanding material expected give a clearer picture intact about media effectiveness.

Study This held at MI Ma'arif Bego Yogyakarta with subject student Class IV. The material provided covers diversity ethnic group nation, home customs, as well as ceremony customs and traditions. Based on background behind said, research This aim analyze effectiveness use of flashcard learning media independence learning and understanding social studies material about diversity Indonesian ethnicity and culture to students grade IV of elementary school/Islamic elementary school.

Method

Study This use approach quantitative with type quasi-experimental research. The design used is nonequivalent control group design (Arib et al., 2024) . This design involving two groups that have formed, namely group experiments and groups control. Second group given measurement initial (pretest) and measurement end (posttest), while group experiment get treatment in the form of learning using flashcard media.

Study was held at MI Ma'arif Bego Yogyakarta. Subject study is student class IV which is divided in two groups Study. Class IV A is designated as group experiment with 25 students, while class IV B is determined as group control with 26 students. The number overall subject study is 51 students. Determination group done based on classes that have been available so that in accordance with characteristics design quasi-experiment (Hake, 1998) .

Group experiment get treatment through use of flashcards in social studies learning. Treatment implemented in series learning that discusses three main material, namely introduction ethnic group nation and its distribution, home customs, as well as ceremony customs and traditions. In activity learning, flashcards are used together activity question starter, observation, discussion, LKPD work, evaluation, and reflection. Group control get learning with approach conventional which relies on teacher's explanation, book text, ask answer, and LKPD.

Data collection was carried out through questionnaire independence study and test understanding material. Test understanding material consists of over 40 questions choice double that includes indicator distribution tribe, house customs, as well as ceremony or tradition. Questionnaire used For obtain data regarding independence Study student before and after learning. Instruments has through validation and testing processes empirical. Validity test results show that all 40 grains question understanding material declared valid. Reliability test using Cronbach's Alpha produces coefficient 0.981 (Rukminingsih & Latief, 2020).

Pretest is given to second group before treatment for know condition beginning students. After all over series learning finished, second group given posttest. The pretest was held on July 18 2025, meanwhile posttest implemented on August 1, 2025. Implementation measurement done with supervision researchers and class teachers.

Data analysis was performed use SPSS program assistance. Normality test using Shapiro-Wilk because amount subject in every group not enough of 50. Homogeneity test using Levene's Test. Testing difference intergroup done with Independent Sample t-Test on data that meets the requirements assumptions parametric, while Mann-Whitney is used when the data is not fulfil assumptions normality. The magnitude improvement results learning analyzed through N-Gain. Criteria taking decision for hypothesis testing use level significance 0.05.

Table 1. Research Design

Group	Pretest	Treatment	Posttest
Experiment	O_1	Flashcard	O_2
Control	O_3	Learning conventional	O_4

Description : O_1 and O_3 = pretest; O_2 and O_4 = posttest.

Results and Discussion

Results

1. Independence Results Study

Posttest data show that independence Study students in groups experiment more tall compared to group control. Average score independence Study group experiment is 73.46, while group control of 44.74. The difference the give description beginning that students who follow learning using flashcards acquire achievements independence learn more tall after treatment.

Normality test posttest independence Study produce mark significance of 0.568 in the group experiment and 0.207 in the control group control. Second mark more big of 0.05 so that the posttest data independence Study stated normally distributed. Homogeneity test produce mark significance 0.119 so that variance second group stated homogeneous.

The results of the Independent Sample t-Test show mark significance 0.001 ($p < 0.05$). Thus, there is significant difference between group experiments and groups control on independence study. Because the average group experiment more tall than group control, results the show that learning Use related flashcards with achievements independence learn more high in the group experiment.

Table 2. Average Posttest Independence Learning and Understanding the Material

Variables	Control	Experiment
Independence Study	44.74	73.46
Understanding material	16.44	34.12

Table 3. Hypothesis Test Results

Variables	Test	Sig. (2-tailed)	Conclusion
Independence Study	Independent Sample t-Test	0.001	Significant
Understanding material	Mann-Whitney	0.001	Significant

2. Results of Understanding Social Studies Material

On the variable understanding material, posttest average group experiment reached 34.12, while group control of 16.44. The average difference show that the group that received learning using flashcards to achieve score understanding more material tall compared to group control.

Normality test results show that posttest understanding material group experiment own mark significance of 0.022, whereas group control of 0.080. Because the group data experiment No fulfil assumptions normality, analysis difference done using the Mann-Whitney test. The results of the Mann-Whitney test show the mean rank of the group experiment amounting to 36.40 and the group control of 17.94 with mark significance 0.001.

Significance value the more small from 0.05 to there is significant differences in understanding material between group experiments and groups control. Findings This show that students who study using flashcards has achievements understanding more material tall in a way statistics compared to group control.

Table 4. Results of the Mann-Whitney Test of Material Understanding

Group	Mean Rank	Sig.	Information
Experiment	36.40	0.001	There is a difference significant
Control	17.94	0.001	There is a difference significant

3. N-Gain Results

Based on N-Gain calculation on groups experiments, improvements independence Study get score 0.6327, while improvement understanding material get score 0.3015. Based on criteria used in thesis, value $0.30 \leq g < 0.70$ is included category currently. Thus, second variables show improvement in category moderate, with improvement independence Study more big than understanding material.

Table 5. Group N-Gain Results Experiment

Variables	N-Gain	Category
Independence Study	0.6327	Currently
Understanding material	0.3015	Currently

Discussion

Research result show that use of related flashcards with difference independence significant learning between group Experimental and control. Average posttest achievement group more experiments tall as well as p -value of 0.001 indicates existence difference statistics between groups. Findings This can understood from characteristics learning using flashcards that place student in activity observe information, answer questions, matching information, complete tasks, and do reflection.

In context learning, flashcards do not stand Alone as visual tools, but used together activities that encourage participation student (Siti Aminah Az Zahr, Ratna Purwanti, 2025). Students get chance For processing information through individual and group activities (Herwina, 2021). The pattern can give experience learn more active compared to dominated learning teacher's explanation. Thus, flashcards can functioning as a stimulus that opens room for student For take initiative in Study (Arnas et al., 2025).

Independence learning from research This can seen No solely from ability student do task yourself, but also from involvement student in manage activity learning. When students get card, observe information, search partner information, answer questions, and complete assignments, students get chance For take decision simple in the learning process (susanti, 2022). Activities the can make student No only wait teacher's explanation, but follow processing material in a way directly. In learning school basic, experience like This important Because student need chance For Study through concrete and directed activities (Rodhiyah et al., 2025).

Difference results between group experiments and controls also show that form presentation material can related with experience Study students. In the group control, learning done with teacher's explanation, book text, ask answer, and LKPD (Fitriani et al., 2022). Meanwhile that, group experiment get additional visual stimulus and activity use card. Difference treatment the give context that can explain Why achievements independence Study group experiment more tall (Triana, 2021).

Findings the in line with Aziza and Yulia's research shows potential of flashcards in increase understanding and independence Study participant educate (Aziza & Yulia, 2022)Research results Aprilianti, Mukmin, and Putra also showed use of flashcards as a learning medium for students school base can support improvement results Study (Aprilianti et al., 2025). Temporary that, research Sholehah show existence improvement understanding and independence Study through The use of flashcards in Madurese language (Sholehah, Amisha Mar'atus, 2025). Similarities findings the strengthen view that flashcards can used as a learning medium that supports activity student.

On the variable understanding material, the Mann-Whitney results show p -value of 0.001 with mean group rank experiment amounting to 36.40 and the group control of 17.94. This result show that students who study using flashcards has achievements understanding material that is statistics more tall

than group control. Diversity material ethnicity and culture own Lots information necessary facts recognized and remembered, so visual presentation through flashcards can help student connecting names, pictures, and characteristics object culture (Sofirin et al., 2025).

Use images and information short on flashcards is also possible sufficient material wide served in small units (Himmawati, 2022). Information about tribe, house customs, ceremonies customs and traditions can studied in a way gradually. This is can help student centralize attention to one information before connect it with other information. In social studies learning, the process important Because student No only need memorize names, but also understand connection between something ethnic group with territory, house customs, as well as its traditions (Susanto, 2014).

research results also show that use of media is not in a way automatic make all over aspect results Study increase with the same magnitude. The N-Gain value of understanding material by 0.3015 more low than N-Gain independence Study of 0.6327. The difference the show that improvement aspect cognitive No always ongoing with the same magnitude with aspect independence learning. Understanding material can influenced by various factor like ability beginning, experience study, time practice, and opportunities student process information (Wulandari et al., 2024). Therefore that, flashcard more appropriate viewed as one of the component in learning strategies, no as the only one determining factors results Study (Hernawati Muthiah Affandi, Rini Novianti yusuf, 2025).

The N-Gain findings also provide meaning important for interpretation media effectiveness. Value of 0.6327 on independence Study show improvement in category moderate and approaching the upper limit category said, while 0.3015 on understanding material is at the initial limit category medium. This means that flashcard media provides positive results, but improvement the still need understood in context the entire learning process. The media will more beneficial when the teacher gives enough time to student For practice, ask, discuss, and use information obtained (Rohima, 2023).

Findings research also shows importance combining media with activity structured learning (Chumairoh & Fradana, 2025). In the group experiments, use flashcards accompanied question starter, discussion, LKPD, evaluation, and reflection (Priadana & Sunarsi, 2021). Combination the give chance to student For accept information, using it in activity learn and evaluate the results. Thus, the effectiveness of the media is not only originate from form cards, but also from how teachers design experience Study with the media (Frasandy et al., 2022).

From the side social studies learning, the use of flashcards also has mark practical Because material diversity tribes and cultures are very rich with visual (Sudarwati et al., 2026). Teachers can display picture House customs, clothing, activities traditional, or representation culture other in accordance with current material studied. The visual information Then can used as base For questions and discussions. Thus, students No only accept definition, but get the stimulus you can used For develop the process of recognition and understanding.

Flashcards have flexibility in its use as well as can used For individual, pair, and group activities group. In individual activities, students can reading and remembering information. In activity in pairs, students can each other ask and answer. In activity group, card can used as material game educative or grouping information. Flexibility the allows teachers to adjust activity with objective learning and conditions class (Febriyanto & Yanto, 2019).

In a way practical, results study give implications for elementary school teachers that flashcards can used as alternative media for social studies learning, especially For rich material visual and factual information. Teachers can develop card based on objective learning, presenting images and information

in a way concise, and integrate it with game educational, discussion, quiz, or task matching. Use the can help create more learning varied and student - centered.

Although results study show findings positive, research This own limitations. Research done on one school with amount subject 51 students so that results study Not yet can generalized in a way wide to all over elementary school students. In addition, the treatment implemented in context material certain, namely diversity Indonesian tribes and culture. Therefore that, the effectiveness of flashcards on other materials needs to be tested through study continued. Research next also can involving amount more schools and subjects big as well as time more treatment length to obtain a clearer picture comprehensive.

Another limitation is related to with position of flashcards as the media used with learning strategies others. Because the treatment also involves discussion, LKPD, ask answer, evaluation, and reflection, research This No intended For separate the influence of each activity Thus, the results study more appropriate interpreted as effectiveness learning that utilizes flashcards in something series activity, not as proof that card in a way single become reason all over changes that occur.

Based on overall results, the use of flashcards can give contribution positive to Social studies learning in elementary schools. Advantages mainly lies in the media's ability to present information in a way concise, visual, and easy used in various activity (Aina, 2026). However, teachers remain own role important in designing purpose, to provide instructions, directing discussion, and provide strengthening. With the design proper learning, flashcards can become a simple media that supports learning active and helpful student interact with material.

Conclusion

The use of flashcard learning media shows significant difference to independence Study student grade IV SD/MI. The results of the Independent Sample t-Test obtained mark significance of 0.001 ($p < 0.05$), with an average posttest group experiment amounting to 73.46 and the group control of 44.74. The N-Gain value of independence study in groups experiment of 0.6327 and includes category currently based on criteria used.

The use of flashcard media also shows significant difference to understanding material diversity Indonesian ethnicity and culture. The Mann-Whitney test obtained mark significance of 0.001 ($p < 0.05$), with the mean rank of the group experiment 36,40 and group control 17.94. N-Gain value of understanding material of 0.3015 and includes category currently.

In a way Overall, flashcards can used as one of the alternative media for social studies learning at the elementary/Islamic elementary school level. The use of this media will more optimal if combined with activities that involve student in a way active, such as ask answer, discussion, LKPD, evaluation, and reflection.

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