



# Quartet Card Media Based on Banyumas Local Wisdom for Fourth Grade Elementary School Science and Social Studies Learning

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## Abstrak

Pembelajaran konvensional menimbulkan kejenuhan dan kekurangan motivasi siswa dalam proses pembelajaran yang berakhir pada penurunan prestasi belajar Ilmu Pengetahuan Alam dan Sosial (IPAS). Tujuan penelitian ini yakni mengembangkan Kartu Kuartet Berbasis Kearifan Lokal Banyumas dalam pembelajaran IPAS kelas IV SD khususnya pada materi Keunikan Kebiasaan Masyarakat di Sekitarku. Jenis penelitian ini yaitu penelitian dan pengembangan (R&D) dengan menggunakan model ADDIE. Subjek penelitian ini adalah 1 ahli media pembelajaran dan 1 ahli materi pembelajaran, Subjek uji coba yaitu siswa kelas IV SD dengan jumlah 15 orang. Metode pengumpulan data yaitu observasi, wawancara, angket, dan tes. Instrumen pengumpulan data yaitu lembar kuesioner dan soal tes. Penelitian ini menggunakan teknik analisis deskriptif kuantitatif, analisis deskriptif kualitatif, dan statistik inferensial. Hasil penelitian yaitu hasil penilaian dari ahli media 92%, ahli bahan 90%, uji coba kelompok kecil 94,6%, uji coba kelompok besar 96,6%, dan respon guru 100% sehingga secara keseluruhan penilaian tersebut ditempatkan kategori sangat layak. Hasil uji T-test menunjukkan perbedaan yang signifikan dalam prestasi belajar siswa sebelum dan sesudahnya penerapan media kartu kuartet dalam proses pembelajaran. Hasil uji N-gain menunjukkan bahwa media Kartu Kuartet Berbasis Kearifan Lokal Banyumas memiliki keefektifan sedang dalam meningkatkan hasil belajar IPAS. Disimpulkan media Kartu Kuartet Berbasis Kearifan Lokal Kabupaten Banyumas yang dikembangkan sangat layak digunakan untuk melanjutkan pembelajaran IPAS. Implikasi penelitian yaitu media yang dikembangkan dapat membantu siswa belajar IPAS.

**Kata Kunci:** Media Kartu Kuartet, Kearifan Lokal Banyumas, Sekolah dasar

## Abstract

Conventional learning causes boredom and a lack of student motivation in the learning process, resulting in a decline in learning achievement in Natural and Social Sciences (IPAS). This research aims to develop Quartet Cards Based on Banyumas' Local Wisdom in science and science learning for fourth-grade elementary school, especially on the Unique Habits of the People Around Me. This type of research is research and development (R&D) using the ADDIE model. The subjects of this research were one learning media expert and one learning materials expert. The test subjects were 15 grade IV elementary school students. Data collection methods are observation, interviews, questionnaires, and tests. Data collection instruments are questionnaire sheets and test questions. This research uses quantitative descriptive analysis techniques, qualitative descriptive analysis, and inferential statistics. The research results were the assessment results from media experts 92%, materials experts 90%, small group trials 94.6%, large group trials 96.6%, and teacher responses 100%, so overall, the assessment was placed in the appropriate category. The results of the T-test show a significant difference in student learning achievement before and after the application of quartet card media in the learning process. The results of the N-gain test show that the Quartet Card media based on Banyumas Local Wisdom has moderate effectiveness in improving science learning outcomes. It was concluded that the Quartet Card media based on local wisdom in Banyumas Regency that was developed was very suitable for continuing science learning. The research implication is that the media developed can help students learn IPAS.

**Keywords:** Quartet Card Media, Banyumas Local Wisdom, Elementary School

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## 1. INTRODUCTION

Teachers have an essential role in education, which determines the effectiveness of the learning process. In the learning process, teachers must master essential competencies in education, including professional, pedagogical, social, and personality competencies. Competent teachers can create an exciting and enjoyable learning atmosphere so students can

learn optimally (Beardsley et al., 2021; Hartanti & Yuniarsih, 2018; Sappaile, 2017; Wulandari & Nurhaliza, 2023). Teachers must also have pedagogical competence to manage the educational process effectively. Teachers must deeply understand student characteristics, design and implement learning activities, assess learning outcomes, and facilitate the expression of diverse student potential (Beardsley et al., 2021; Sappaile, 2017; Wulandari & Nurhaliza, 2023). Teachers must be required to design effective learning so that educational goals can be achieved well. One of the lessons that elementary school students get is Natural and Social Sciences.

Natural and Social Sciences (IPAS) is a science that studies living things, inanimate objects in the universe, and their interactions, as well as human life as individuals who interact with their environment (Aini et al., 2024; Sa'adah, 2023). IPAS is expected to enable students to study natural phenomena in a practical context, along with the interactions that occur therein. This interaction can take the form of problem-solving efforts in the environment around students. Apart from that, IPAS is expected to be able to explore and deepen students' information regarding the wealth of local wisdom that exists in Indonesia so that it can be implemented in solving existing problems (Surya et al., 2023; Wanti & Chastanti, 2023). This is by the country of Indonesia, which has diverse cultures. With knowledge of local wisdom in their environment, students can contribute actively to maintaining order (Novalia & Ramadan, 2023; Nurasiah et al., 2022).

However, conditions in the field show that the low quality of teachers is one of the causes of the low quality of education in Indonesia. This proves that many teachers still have not mastered essential competencies in the field of education (Rigianti, 2020; Sasmita & Darmansya, 2020). Previous research findings stated that the low competence of teachers is indicated by the fact that there are still many conventional learning processes that are teacher-centered, which has an impact on minimal student involvement in the learning process (Mahdiyanto et al., 2017; Purnamasari & Herman, 2017). Other research states that teachers need more creativity in the learning process, resulting in a lack of enthusiasm and interest in students' learning, thereby affecting the achievement of learning goals (Paramita et al., 2019; Yolanda et al., 2022).

Based on interviews conducted with the class IV homeroom teacher at SDN 1 Kedungwringin, it is known that there are obstacles in implementing Natural and Social Sciences learning, namely the need for more student enthusiasm in the learning process. The rapid onset of boredom and loss of student focus during the learning process indicates a lack of enthusiasm. This lack of enthusiasm hurts their understanding of the material, resulting in low learning outcomes and not achieving the learning goals that have been set. Teachers only use conventional methods and minimal use of media in the learning process, resulting in teacher-centered learning. This results in a lack of active student participation in learning and a monotonous and boring learning atmosphere.

Based on this, the solution is to develop learning media that supports learning in Natural Sciences and Social Sciences. Media development can solve this problem because science and social studies material are complex and abstract, so media needs to be more creative, innovative, and fun according to its characteristics. Elementary school-age children prefer to learn while playing (Adnyana & Yudaparmita, 2023; Karnajaya & Wulandari, 2023). One of the media that can be developed is the Quartet Card media based on Banyumas' Local Wisdom, which is based on the material in Chapter 6, namely, Indonesia is Rich in Culture. Learning media is one of the facilities and infrastructure in the world of education that has a vital role in achieving effective learning (Supartayasa & Wibawa, 2022; Syahmi et al., 2022). Learning media can foster excitement and attention, increase motivation and enthusiasm in the learning process, and influence student psychology (Hartati et al., 2022; Rudini & Saputra, 2022; Supartayasa & Wibawa, 2022; Syahmi et al., 2022). Quartet

cards are a type of visual media in the form of cards. Visual media can facilitate understanding and strengthen students' memory through elaboration, structure, and organization. By utilizing visual media in the teaching and learning process, it will be easier for students to imagine and understand the material being studied, and teachers can demonstrate the concepts they want to convey (Isnaini et al., 2021; Mustari & Sari, 2017). Quartet cards contain images and text with various themes that two to four players can play.

Previous research findings state that learning media can make it easier for students to understand learning material (Srintin et al., 2019; Sutopo, 2019). Other research shows that card media can significantly increase student enthusiasm and learning outcomes (Sumantri et al., 2017; Wulandari & Ambara, 2021). However, there has yet to be a study regarding Quartet Card Media Based on Banyumas' Local Wisdom for Learning Science and Social Sciences in Fourth Grade Elementary Schools. The advantage of Quartet Card Media Based on Banyumas Local Wisdom is that quartet cards do not require an internet connection or other devices, so they are suitable for use as learning media in schools that do not have adequate facilities and infrastructure. Apart from that, the development of Quartet Card Media Based on Banyumas Local Wisdom can introduce students to Banyumas Local Wisdom so that it can increase students' love for Banyumas local wisdom. Based on this, this research aims to develop Quartet Card Media Based on Banyumas' Local Wisdom for Fourth Grade Elementary School Science and Social Studies Learning. It is hoped that the Quartet Card Media based on Banyumas Local Wisdom can help students learn science and social studies.

## 2. METHODS

This type of research is research and development (R&D). Media development in this research adheres to the ADDIE model, which includes five stages: Analysis, Design, Development, Implementation, and Evaluation (Sugiyono, 2019). The ADDIE model is used in media development to create media that suits pre-existing needs. Environmental observations are carried out at the analysis stage to determine what needs and products need to be developed. At the design stage, the product is designed according to needs based on existing problems, and then the product that has been developed is tested by experts. At the implementation stage, the product being developed is used. In the ADDIE development model, product use is carried out through small-scale or group trials and large-scale/group trials. The evaluation stage is the final step in this development model. At this stage, an assessment is carried out regarding the product being developed to determine the level of product effectiveness. The evaluation stage is divided into two forms: formative evaluation, which is carried out at the end of each lesson for a week, and summative evaluation, which is carried out after the whole semester ends.

The research was conducted in Class IV of SD Negeri 1 Kedungwringin. The subjects of this research were 1 learning media expert and 1 learning materials expert. The test subjects were class IV students at SD Negeri 1 Kedungwringin, with 15 students, consisting of 9 male students and 6 female students. Meanwhile, the object of this research is the Quartet Card Based on Local Wisdom in the Banyumas Regency. The methods used to collect data are observation, interviews, questionnaires, and tests. In this research, the observation carried out is participatory observation, where the researcher participates in the research subject's activities. Observations in this research were carried out during the implementation stage by observing student behavior in the learning process. In this research, the type of interview used is a structured interview; researchers need to prepare a list of questions and a cell phone to record the answers of respondents or research subjects. In this research, the subjects interviewed were the fourth-grade homeroom teacher and fourth-grade

students. The questionnaire used in this research was closed; research subjects were asked to choose the options provided. The learning outcomes test in this research is in the form of pretest and posttest questions before and after applying the media developed in learning. The instruments used to collect data were questionnaire sheets and test questions. The instrument grid is presented in [Table 1](#), [Table 2](#), and [Table 3](#).

**Table 1. Grid of Expert Material Instrument**

<b>Aspects</b>	<b>Indicators</b>
Suitability	Suitability with Learning Outcomes
	Suitability with learning objectives
	The images used to clarify the learning material
Material feasibility	Suitability of material with cognitive level students
	The material used facilitates student understanding
	The material, images, and colours composition used can attract attention and add insight into students
Usefulness of the material	The material used increases student knowledge
	Enhance pupils' ability to remember the material
	Stimulate students' curiosity in learning independently and in groups
	Questions in the material can motivate and stimulate students to help each other solve problems.

**Table 2. Grid of Expert Media Instrument**

<b>Aspects</b>	<b>Indicators</b>
Content/Material Appropriateness	Suitability with Learning Outcomes
	Suitability with learning objectives
	Media presentation is equipped with clear images
Technical Quality	Images and colours composition are exciting and support the material
	Media display design fosters student curiosity
	Media display design can attract students' interest and motivation in learning
Quality	Appropriateness in the use of font types in the media
	All media components can be seen clearly
	The suitability of the size of the media and the elements in it
Efficiency	The combination of text, colours, and image is harmonious
	Easy to use in learning, both by teachers and students
	Instructions for using the media are clear and complete
	Easy to store
	Reusable and durable
	Appropriate to the level of student development

**Table 3. Teacher Response Questionnaire Instrument Grid**

<b>Aspects</b>	<b>Indicators</b>
Content/Material Appropriateness	Suitability with Learning Outcomes
	Suitability with Learning Objectives
	Enhance pupils' ability to remember the material
Technical Quality	Images and colour composition are exciting and support the material
	Media display design can attract students' interest and motivation in learning

Aspects	Indicators
Quality	Appropriateness in the use of font types in the media
	The combination of text, colours, and image is harmonious
Efficiency	Easy to use in learning, both by teachers and students
	Easy to store
	Reusable and durable

This research uses quantitative descriptive analysis techniques, qualitative descriptive analysis, and inferential statistics for data analysis. Next, the analyzed data is transformed into a score, adjusted based on the percentage of media suitability. After testing the validity of the media, inferential statistical analysis was carried out on the pretest-posttest results through normality tests, T-tests, and N-Gain tests to determine the effectiveness of the media in learning.

### 3. RESULTS AND DISCUSSION

#### Result

This research uses the ADDIE development paradigm, which consists of five stages: Analysis, Design, Development, Implementation, and Evaluation. The first stage is analysis. At this stage, interviews and observations were conducted with the class IV homeroom teacher and class IV students at SD Negeri 1 Kedungwringin to discover the obstacles faced in science and science learning. This analysis stage was carried out to find out the needs of teachers and students by looking at constraints, student characteristics, and learning tools so that a theoretical basis was obtained for determining the media to be developed. Based on interviews conducted with the class IV homeroom teacher at SDN 1 Kedungwringin, it is known that there are obstacles in implementing Natural and Social Sciences learning, namely the need for student enthusiasm for learning. The teacher only uses conventional methods and image media displayed on the LCD during the learning process. The choice of methods and media teachers use causes teacher-centered learning, resulting in students' need for more active participation in learning. Students quickly feel bored, resulting in low learning outcomes and not achieving predetermined targets learning objectives.

The second stage is Design. At this stage, data is collected regarding the local wisdom of Banyumas Regency, image selection, quartet card design, and applications that can be used for media development. The third stage is development. In the development stage, the activities are [1] preparing accompanying teaching modules using Canva and [2] Creating a quartet card using Canva. Color selection considers the color theory in print media, namely Cyan, Magenta, Yellow, and Key (Black), which is usually called CMYK and is known to be better used in print media. Apart from that, the colors used are also based on the logo for the 452nd Anniversary of Banyumas Regency, namely green, blue, red, and orange, each of which has meaning. [3] Design a quartet card container using the CorelDRAW application; [4] Create a way to use quartet cards. The media display is shown in [Figure 1](#).

After the media was developed, media experts and material experts carried out a validity test on the Banyumas Regency Local Wisdom-Based Quartet Card media to determine its level of suitability, which was measured through a questionnaire. The fourth stage is implementation. At the implementation stage, improved media was applied in class IV of SD N 1 Kedungwringin, especially in science and science learning the Unique Habits of People Around Me. The trial was carried out in two stages, namely small group trials and large group trials. Pretest-posttest questions and questionnaires were provided to determine the effectiveness of using the Banyumas Regency Local Wisdom-Based Quartet Card media in science learning. The results of the media validity test are listed in [Table 4](#).





Figure 1. Developed Quartet Card Media

Table 4. Media Validation Results for Quartet Card Media Based on Local Wisdom

Trial Subjects	Validity Result	Criteria
Media Expert	92%	Very Feasible
Material Expert	90%	Very Feasible
Teacher	100%	Very Feasible
Small Group Trial	94,6%	Very Feasible
Large Group Trial	96,6%	Very Feasible

Based on the table above, a score of 92% was obtained from the media expert's assessment with very appropriate criteria, and a score of 90% was obtained from the material expert's assessment with very appropriate criteria. Meanwhile, the assessments of class IV homeroom teachers and class IV students were obtained from teacher and student response questionnaires after testing/implementing the media in science and science learning. From the results of the class IV homeroom teacher's assessment, a score of 100% was obtained in the very appropriate category, 94.6% was obtained in the small group test, and 96.6% in the large group test. Based on the scores obtained, the Quartet Card media based on local wisdom in Banyumas Regency is said to be very suitable for use in learning.

The fifth stage is evaluation. At the evaluation stage, data analysis is carried out based on the results of a series of previous stages to perfect the media and determine the level of suitability of the media being developed. The evaluation applied in this research is a formative evaluation where the data analyzed is expert assessment data, student and teacher response questionnaire results, and pretest-posttest results. Based on the input and suggestions from the experts above, improvements were made to the quartet card media, where printing was carried out on the teaching support module, and changes to the images, which were all in the form of cartoons and original photos, were changed to real photos so that reprinting was carried out on the quartet cards. Pretest and posttest findings were analyzed using the N-Gain test and T-test to assess the effectiveness of the media created. Before carrying out the n-gain test and t-test, it is necessary to carry out a normality test to ensure whether the data obtained follows a normal distribution. The normality test results are shown in Table 5.

Table 5. Pretest-Posttest Normality Test Results

Trial Subjects	Test	Statistic	df	Sig.	Criteria
Small Group	Pretest	999	3	927	Normal Data
	Posttest	1.000	3	1.000	Normal Data

Trial Subjects	Test	Statistic	df	Sig.	Criteria
Large Group	Pretest	.867	15	0,031	Normal Data
	Posttest	.917	15	0,176	Normal Data

In the normality test, data is considered to be normally distributed if the significance level (sig) is  $> 0.05$ . Based on Table 5, the pretest data is normally distributed in small groups with a value of  $s\ ig = 0.927 > 0.05$  and the posttest data is normally distributed with a value of  $s\ ig = 0.1000 > 0.05$ . In the large group trial, the normality test of the pretest data showed that the results were normally distributed with a value of  $s\ ig = 0.031 > 0.05$  and the posttest data had a normal distribution with a value of  $s\ ig = 0.176 > 0.05$ . In calculating the pretest-posttest average difference using SPSS version 16 with sig. (2-tailed) value 0.000. A fairly large difference in values between pretest and posttest data is shown when sig. (2-tailed) value  $< 0.05$ . The t-test findings show that both datasets have sig. (2-tailed) of  $0.000 < 0.05$ . Therefore, there is a significant difference in pretest and posttest scores between the small group and the large group. The results of the N-gain test in the pretest-posttest are presented in Table 6.

**Table 6.** N-Gain Test Results on Pretest-Posttest

Trial Subjects	Average		N-Gain	Criteria
	Pretest	Posttest		
Small Group	37.00	85.67	0,4235	Medium
Large Group	45.80	90.57	0,5133	Medium

There are three criteria for interpreting the N-gain score, namely N-gain  $ss \geq 0.7$ , which is in the high category,  $0.3 \leq ss < 0.7$ , which is in the medium category, and the lowest category with N-gain  $ss < 0.3$ . In the N-Gain test, through calculations using SPSS version 16 in Table 7, a gain value of 0.4235 was obtained in the small group and a gain value of 0.5133 in the large group. Both gain values are in the interval 0.3 to 0.7 in the medium category. Based on these results, it can be said that the use of Banyumas Local Wisdom-Based Quartet Cards in learning has moderate effectiveness with an n-gain value in the interval  $0.3 \leq ss < 0.7$ .

## Discussions

Based on the results of the data analysis above, the Quartet Card media based on local wisdom in Banyumas Regency is very suitable for use in the science and science learning process due to several factors, as follows. First, the Quartet Card Based on Local Wisdom in Banyumas Regency has proven effective in improving student learning outcomes on the material Unique Habits of People Around Me. The Quartet Card is included in visual media, making it easier for students to conceptualize the material being studied. Previous research revealed that using cards in learning can improve student learning outcomes compared to conventional methods (Oktafyani et al., 2022; Srintin et al., 2019; Wulandari & Ambara, 2021). Learning media is a tool that supports the learning process by clarifying the message or material delivered to achieve learning goals and create effective learning (Frasandy et al., 2022; Nida et al., 2020; Pratomo et al., 2020). Therefore, providing media in education is very important to support effective teaching and learning activities. Teachers must utilize media in the learning process, especially with complex and abstract material, such as natural

sciences, to clarify concepts to support effective learning (Adnyana & Yudaparmita, 2023; Karnajaya & Wulandari, 2023).

Second, using Banyumas Regency Local Wisdom-Based Quartet Cards in learning can increase students' motivation and interest in learning. Picture cards can significantly increase early childhood learning motivation because of their attractive and interactive designs (Nida et al., 2020; Pertiwi et al., 2019; Pratomo et al., 2020). An attractive design can arouse students' interest and make them more enthusiastic about learning (Amini & Suyadi, 2020; Mahsun & Koiriyah, 2019). Using quartet cards in learning can create a pleasant learning atmosphere that can raise students' learning motivation (Prawoko et al., 2019; Vitasari et al., 2017). Using quartet cards in the learning process will allow students to learn while playing. The use of quartet cards in the learning process will allow students to learn while playing; this is very in line with the characteristics of elementary school students. This can create fun learning and make it easier for students to visualize the concepts taught (Dewi et al., 2018; Furima et al., 2023). Learning while playing can make students understand the material better and achieve predetermined learning goals. A pleasant learning environment can arouse student motivation; this influences the learning process (Surahman et al., 2018; Sutama et al., 2020).

Third, quartet cards can increase student participation and activity in the learning process because using quartet cards requires students to play in groups and communicate with each other. Using picture cards can increase children's involvement in the learning process. Children's involvement in learning media can improve learning outcomes and increase learning motivation (Nabila et al., 2021; Rachmawati et al., 2023). Variations in picture card learning media can increase student learning activity. Various media can maintain students' interest and make them more active in learning (Dadi et al., 2019; Safitri, 2019). Quartet cards facilitate student retention of acquired knowledge. As stated in the second point, incorporating games into the learning process will foster a positive learning environment, facilitating students' understanding of the subject matter. Through learning activities, students indirectly gain knowledge and experience while playing and can remember information quickly and effectively (Dadi et al., 2019; Lestari et al., 2021; Paramida & Permadi, 2019; Safitri, 2019). Additionally, the use of quartet cards helps students retain information by presenting short messages on the cards.

Previous research findings stated that using relevant card media allows students to obtain complete grades in learning (Nurmalasari et al., 2022; Sabella et al., 2022). Other research states that using media can increase students' motivation to learn social studies to optimize learning activities (Prehanto et al., 2021; Rahmatiya & Zulfiati, 2020). Therefore, incorporating quartet card media into the learning process positively impacts students and has proven effective in increasing learning activities. The limitation of this research is that the Banyumas Regency Local Wisdom-Based Quartet Card developed is only intended for elementary school students. The research implies that developing Quartet Cards Based on Local Wisdom in Banyumas Regency supports the science learning material for class IV; The Unique Habits of People Around Me. Using quartet card media in the learning process can improve student learning outcomes by increasing student motivation and interest. Using quartet cards makes students more enthusiastic about learning. It creates a pleasant learning atmosphere so that the material sticks in students' memories, which has implications for improving student learning outcomes.

#### **4. CONCLUSION**

Based on the results of media development research, the Quartet Card Based on Local Wisdom in Banyumas Regency received very good qualifications from experts, teachers and



students. The results of the t test showed that there was a significant difference in pretest and posttest scores between the small group and the large group. The results of the N-gain test also show that the Banyumas Regency Local Wisdom-Based Quartet Card uses the Banyumas Local Wisdom-Based Quartet Card in learning to have moderate effectiveness. It was concluded that the Quartet Card Based on Local Wisdom in Banyumas Regency can improve science and social studies learning outcomes for fourth grade elementary school students.

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