Improving Reading Skills and Engagement in *Pancasila* Education Using QR-Code-Assisted Snowball Throwing Method

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ABSTRAK

Pemilihan perangkat pembelajaran yang kurang tepat dan kreatif dapat mengurangi minat siswa dalam membaca, yang berdampak pada kesulitan memahami materi dalam pembelajaran Pendidikan Pancasila. Penelitian ini bertujuan untuk menganalisis keefektifan dan perbedaan metode Snowball Throwing berbantuan QR-Code dalam model Problem Based Learning terhadap kemampuan baca dan minat baca siswa sekolah dasar. Penelitian ini menggunakan pendekatan kuantitatif dengan desain kuasi-eksperimen, yaitu Non-Equivalent Control Group Design. Sampel penelitian terdiri atas 43 siswa kelas V, dengan 22 siswa di kelas eksperimen dan 21 siswa di kelas kontrol. Data dikumpulkan melalui wawancara, observasi, tes (pretest dan posttest), serta angket. Analisis data meliputi uji normalitas dan uji homogenitas sebagai prasyarat, serta uji Independent t-test dan uji N-Gain untuk menguji hipotesis. Hasil penelitian menunjukkan bahwa metode Snowball Throwing berbantuan QR-Code dalam model Problem Based Learning efektif meningkatkan kemampuan baca dan minat baca siswa. Selain itu, terdapat perbedaan yang signifikan antara metode ini dan metode pembelajaran konvensional, dengan model inovatif ini menunjukkan hasil yang lebih baik dalam pembelajaran Pendidikan Pancasila. Kesimpulannya, metode ini dapat menjadi alternatif kreatif untuk meningkatkan kualitas pembelajaran di sekolah dasar.

ABSTRACT

The selection of inappropriate and uncreative teaching tools can reduce students' interest in reading, leading to difficulties in understanding material in *Pancasila* Education. This study aims to analyze the effectiveness and differences of the Snowball Throwing method assisted by QR-Code within the Problem-Based Learning model in improving elementary students' reading skills and interest. This research adopts a quantitative approach using a quasi-experimental design, specifically a Non-Equivalent Control Group Design. The study sample comprised 43 fifth-grade students, with 22 students in the experimental group and 21 students in the control group. Data were collected through interviews, observations, tests (pretest and posttest), and questionnaires. Data analysis included normality and homogeneity tests as prerequisites, as well as Independent t-test and N-Gain tests to test the hypotheses. The findings reveal that the Snowball Throwing method assisted by QR-Code within the Problem-Based Learning model is effective in improving students' reading skills and interest. Furthermore, there is a significant difference between this method and conventional teaching methods, with the innovative model demonstrating better outcomes in *Pancasila* Education learning. In conclusion, this method offers a creative alternative to enhance the quality of education in elementary schools.

1. INTRODUCTION

Education has a crusial role in the survival of mankind, where education is a place to develop quality human resources. Education can also help humans adjust to the times in the era of increasingly modern globalization which demands quality human resources. The rapid development of information and communication technology in the era of globalization is very influential on the world of education (Amaliah et al., 2023; Halean et al., 2021). The era of globalization has made it easier for students to interact with subject materials other than those given by their teachers, so that students learning abilities are not only receiving subject matter but also being able to analyze available material as well as possible through strategies, models, methods, and learning media that support each other (Susilowati et al., 2022; Zidan, 2023). Students can actively cultivate the qualities of intelligence, self-control, personality, spirituality, morality, and other skills and knowledge that are required of them by the state, community, and country (Fierna et al., 2023; Lestari & Kurnia, 2022). These guidelines can be a reference in all subjects in schools, especially *Pancasila* Education subjects because they can shape and change the way of thinking or morality

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of students with the values contained in *Pancasila* (Nurohmah & Dewi, 2021; Zalik & Saidi, Mahmuda, 2020). *Pancasila* education also has an important task or function in instilling and cultivating the values of *Pancasila* ideology which contains basic human values and personality to be used as a basis for instilling student character in Indonesia (Fierna et al., 2023; Prastiwi & Khosiyono, 2023).

In the subject of *Pancasila* Education, there are several important aspects, one of which is reading. Reading in *Pancasila* Education is one aspect that affects students understanding and value, especially in the aspect of knowledge. *Pancasila* Education subjects are usually considered a boring subject because it places a lot of emphasis on memorizing theories that cause students to be lazy to read textbooks, thus resulting in a decrease in students' reading ability and interest (Martati et al., n.d.; Yulia & Rafni, 2019). The ability to read is a person's effort in meeting his need for information, because in essence, everyone has the urge to always be curious, and try to fulfill it through reading activities. This is in line with what has been explaining that reading is a process or effort made and used by a reader to obtain a message or information that the author wants to give through the medium of written language or a word (Purba et al., 2023; Radhiyah, 2021). Reading interest is a form of behavior that is directed and useful in doing reading activities as a pleasure because it is fun and provides value (Amir, 2023; Meliyawati, 2016). Interest in reading is a desire of the soul that will encourage someone to do something in reading activities (Meliyawati, 2016; Zelpamailiani, 2020). The ultimate goal of reading is to get information and understand the meaning of a reading text, but the fact is that many students in elementary school still do not achieve that goal. The students at the elementary school level are still often found to have relatively low reading skills, this is due to the lack of motivation or interest in reading students in the learning process. Lack of interest in reading and lack of reading ability of students will also greatly influence the lack of a process of students comprehension ability of the content of a reading material they are reading (Anjani et al., 2019; Arum Setiowati et al., 2018; Kholifah & Kristin, 2021). Students can be said to understand the meaning of reading if they know the meaning of each sentence they read contextually and can provide and correlate a good assessment of the content of the reading they read from their experience (Irma Sari et al., 2021; Nurul Huda & Saputra, 2023).

From the previous reasoning, it is evident that the capacity and interest in reading are very influential on the mastery of students *Pancasila* Education material. This is consistent with the findings of the researchers' observations and interviews at SDN Tambakaji 05 Semarang City. The results of the interview conducted in grade V of SDN Tambakaji 05, obtained information that there is a low understanding of the material in *Pancasila* Education learning due to the low interest in reading students and is shown by scores on aspects of student knowledge that on average have not reached KKTP (Criteria for Achieving Learning Goals). The low understanding of the material is the result of the low reading ability of students in learning *Pancasila* Education. Researchers also obtained information that teachers have not been able to optimally apply learning tools such as learning methods, learning models, and learning media. Such a teacher can surely lead to low interest in reading students, especially in aspects of theory or knowledge. To foster students' interest and reading ability, it is necessary to have a learning tool such as learning methods, learning models, or learning media that are innovative, creative, and interactive for pupils to avoid boredom when requested to comprehend the information that the instructor has presented. The low interest and reading ability of students towards the subject of *Pancasila* Education will be an obstacle to optimal student learning. Students who are not interested in reading will have narrow knowledge which will certainly affect student grades.

One way that can foster students' reading skills and reading interest is to provide learning steps in reading activities by using appropriate, varied, creative, innovative learning models and methods and by creating a conducive and regular learning environment (Noermanzah, 2020; Sari & Aprilia, 2023). Determining a learning model that suits the characteristics and interests of students can help foster student interest and focus in paying attention and observing the teacher during learning (Apriliana, 2021; Zidan, 2023). The learning model that can solve problems in grade V SDN Tambakaji 05 is the Problem Based Learning model, where this learning model requires students to find their concepts through real problem solving. Innovative teaching approaches such as the Problem Based Learning model can foster student interest in learning and motivation in reading (Noordzij & Wijnia, 2020; Rahayu Ningtyas et al., 2023; Sabela Fitria Khamsa, 2020). The use of the Problem Based Learning model on reading skills and reading interests is expected so that students will not be passive or inactive in interacting with their peers and be able to motivate students to read with their group friends and foster students' interpersonal relationships in group work. This is because, in the Problem Based Learning learning model, Students are required to have the ability to think critically, be curious at work, and have skills and interests in themselves to read (Purwanti et al., 2023; Rillero et al., 2017; Sumarni et al., 2021). This is to the results of other studies that say that one of the learning models that has an important role in fostering students' interest and reading comprehension skills is the Problem Based Learning model (Nurul Huda & Saputra, 2023; Susilowati et al., 2022).

The Problem Based Learning teaching model is frequently used in learning, so that the model does not seem monotonous, researchers use the Snowball Throwing learning method which can allow students to work together in groups and depend on each other. Based on research conducted by previous researchers, it was found that Snowball Throwing learning makes learning more meaningful by obtaining theories by not only reading but also understanding them, so in this study Snowball Throwing learning has a positive and significant influence on increasing student scores (Amaliah et al., 2023; Nasution & Simanjuntak, 2023). Other studies show that Snowball Throwing is very helpful for students in referring to reading skills which can also foster active learning abilities and is shown by satisfactory percentage results (Fajrianti & Hutami, 2022; Islamiati et al., 2024). The application of the Snowball Throwing method is also influential in increasing the value of *Pancasila* Education on ethnic diversity material in Indonesia caused of the fun learning atmosphere with Snowball Throwing (Bera, 2020; Iswara et al., 2023). Snowball throwing is a lesson that in its implementation is carried out by throwing paper that is kneaded so that it resembles a snowball and contains a question made by students in groups and then thrown to different group friends to be answered (Muslita & Gani, 2022; Rosada et al., 2021). Each group member must be able to prepare themselves because in the round they have to answer questions from other groups who throw the paper ball. According to other studies snowball throwing is a way of delivering the learning process where students will be formed into several groups, after each of the groups is chosen one person as the leader of the group gets an assignment from the teacher then each student or group writes several questions on paper and then forms them like a paper ball (question paper), after that it is thrown to other students or groups, the other group has to answer questions from the obtained paper balls exactly (Hisbullah & Firman, 2018; Trio Nugroho et al., 2018).

Learning with the Problem Based Learning model and contextual-based Snowball Throwing method that will be applied in this research can also collaborate with technology in the era of rapidly growing globalization. The use of QR-Code technology that is incorporated into the delivery of material in the Snowball Throwing game compiled by researchers can be used as an aid in the learning process studies carried out by earlier researchers, the use of QR-Code can help in accuracy and speed up students access to information that is provided by the material being taught in a limited time (Ariyani et al., 2021; Virdinarti & Aries, 2022). QR-Code provides web pages, documents, images, videos, contact cards, restaurant menus, invitations, locations, or detailed information provided by reading QR-Code images that take up very little space in everyday human life with devices such as mobile phones or tablets (İçinde, 2022; Majid et al., 2021). This is in line with other opinions that say that QR-Code is a type of two-dimensional matrix that can store information in the form of text, URLs, phone numbers, or other data. QR-Code can be scanned using a smartphone camera that has been equipped with a QR Code scanner application, or they can also use the help of scanner websites on the internet (Susilowati et al., 2022; Widagdo & Vidya, 2023).

Based on the previous research previously described, the use of the Problem Based Learning learning model and the Snowball Throwing method is considered to foster students' reading skills and reading interest as shown by increased student grades or learning outcomes. However, the research still tends to be contextually based and has not been collaborated with the current technological sophistication. Further research is needed to test the effectiveness of the Snowball Throwing method in the Problem Based Learning model in collaboration with QR-Code technology as a tool. Therefore, it can be said that the novelty of this research lies in using QR-Code technology as a tool used in learning with the Snowball Throwing method in the Problem Based Learning model.

The purpose of this study is to analyze and disseminate the difference between reading ability and reading interest in students who use the QR-Code assisted Snowball Throwing method in the Problem Based Learning approach with pupils that use traditional learning frameworks and techniques. This research also aims to analyze and describe the effectiveness of the Snowball Throwing method assisted by QR-Code in the Problem Based Learning model in terms of students' reading ability and reading interest. It is anticipated that the findings of this study will play a beneficial function and contribute to the creation of more innovative and effective learning models and methods for fostering students' reading skills and reading interest in elementary schools.

2. METHOD

This research is quantitative with a quasi-experimental design. The quantitative approach with research methods to be used in this study is the non-equivalent control group design (Branch, 2010). This study had two groups: those in the control class and those in the experimental class. To ascertain the starting state, a pretest was administered to each group. The control group received instruction using traditional learning models and techniques four times, whereas the experimental group received instruction utilizing the Problem Based Learning model's QR-Code assisted Snowball Throwing approach

four times. Following treatment, a posttest was administered to both groups to determine their ultimate status. Table 1 displays the design of the study.

Table 1. Nonequivalent Control Drup Design Research

Group	Pretest	Treatment	Posttest
Control	O_1	X_1	O_2
Experiment	O_3	X_2	O_4

Based on Table 1 shows that this study uses non-probability sampling techniques with the type being saturated sampling. Saturated sampling type is a technique for determining a sample if every member in a population is sampled. The sample in this study amounted to 43 students consisting of 22 students of the VA class as an experimental class and 21 students of the VB class as a control class. The research instruments used were pretest and posttest reading ability questions, as well as student reading interest questionnaires. Before being used, the instrument was first tested at SDN Tambakaji 02 with a sample of 27 students. After testing, both instruments were tested for validity and reliability. Instrument analysis using validity tests with the Product Moment Correlation formula and reliability tests with Cronbach's alpha formula. The question instrument grid is be presented in Table 2.

Table 2. Question Instrument Grid

Question Indicator	Question Form	Question Number	Total
Presented with a statement, students can analyze the reasons for the emergence of diversity in Indonesia correctly	Multiple choice	7, 8, 9, 10, 11, 12	6
Presented with a statement about diversity in Indonesia, students can determine the challenges of diversity correctly	Multiple choice	13, 14, 15, 16, 17, 18	6
Presented with a statement about diversity, students can determine the benefits of diversity in Indonesia correctly	Multiple choice	5, 6, 19, 20	4
Presented with a statement about diversity in Indonesia, students can properly examine attitudes that can damage diversity in Indonesia	Multiple choice	3, 4, 27, 29, 30	5
Presented with a statement about religious diversity in Indonesia, students can analyze how to maintain diversity in Indonesia appropriately	Multiple choice	1, 2, 21, 22, 23, 24, 25, 26, 28	9
Amount			**30**

Note: Scoring for one correct answer is 1, and 1 incorrect answer is 0

The validity of the question instrument was tested using the Product Moment Correlation formula, and it was found that the r table was 0.38 (27 students). A question is declared valid if $r_{count} > r_{table}$. After analysis, the results show that there are 21 questions with valid status. The instrument questions were re-tested for levels of difficulty and different strengths and the result was that only 20 questions had good criteria to be used as pretest and posttest questions. The instrument's reliability was also tested using Cronbach's alpha formula, and a result of 0.82 was obtained in the very high category and was declared reliable. The list of questions that are declared valid and have good criteria is shown in Table 3.

Table 3. List of Questions that are Declared Valid and have Good Criteria

Valid or Invalid	Question Number	Total
Valid	1, 3, 4, 6, 11, 13, 14, 15, 16, 17, 18, 19, 20, 23, 24, 25, 26, 27, 28, 29	20
Invalid	2, 5, 7, 8, 9, 10, 12, 21, 22, 30	10

A questionnaire instrument was also used in this research to measure students' reading interest. The questionnaire instrument grid is be presented in Table 4.

Table 4. Questionnaire Instrument Grid

Indicator	Description	Item Number	Total
Reading pleasure	Feel happy with reading activities	2, 7, 14,	3
	Feel satisfied when reading a book you like	3, 20	2

Indicator	Description	Item Number	Total
Awareness of the benefits of reading	Read of your own accord	15, 16, 17, 18,	4
	Awareness as a student of the benefits of reading	5, 9, 10, 11	4
Reading frequency	Frequency in reading	6	1
	A lot of time is spent reading	13,	1
Quantity of reading sources	Try to find your own reading sources	1, 4, 12	3
	Read varied reading	8, 19	2
Amount			**20**

Note: Scoring has 4 scales, namely always 4 points, often 3 points, sometimes 2 points, and never 1 point

The questionnaire instrument was tested for validity using the Product Moment Correlation formula, and it was found that the r table was 0.38 (27 students). Questionnaire items are declared valid if $r_{count} > r_{table}$. After analysis, the results show that 15 questions with valid status can be used as questionnaires before and after treatment in this study. The questionnaire instrument was also tested for reliability using Cronbach's alpha formula, and a result of 0.68 was obtained in the high category and was declared reliable. The list of questionnaire items that were declared valid is shown in Table 5.

Table 5. List of Questionnaire Items Declared Valid

Valid or Invalid	Item Number	Total
Valid	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 17	15
Invalid	15, 16, 18, 19, 20	5

Based on Table 5 this analysis, the number of questions that were declared valid and reliable was 20 questions, while the number of questionnaire statements that were declared valid and reliable was 15 statements. The data analysis techniques used in this study are descriptive analysis techniques and inferential data analysis techniques. Descriptive analysis is used to describe or provide an overview of the data that has been done by the researcher. Inferential data analysis is used to analyze sample data and the results can be inferred as population (Sugiyono, 2013). The inferential analysis of this study uses the normality test and homogeneity test as a prerequisite test as well as the Independent T Test and N-Gain test as a hypothesis test used to determine the average score between the experimental class and the control class according to predetermined categories and criteria. Testing was carried out with the help of IBM SPSS Statistics 25 and Microsoft Excel programs. The interpretation of the average n-gain score can be shown in Table 6.

Table 6. Interpretation of the Average N-gain Score (N-Gain Effectiveness Interpretation Category)

Percentage (%)	Interpretation
<40	Ineffective
40 – 55	Less Effective
56 – 75	Quite Effective
>76	Effective

3. RESULT AND DISCUSSION

Result

Based on the quantitative data analysis described above, the results of the descriptive analysis of students' reading ability and reading interest are presented in Table 7.

Table 7. Results of Quantitative Descriptive Analysis of Student Reading Ability

Groups	N	Range	Minimum	Maximum	Mean	Std. Deviation
Pretest Experiments	22	35	35	70	51.82	11.603
Posttest Experiments	22	35	60	95	80.91	8.949
Pretest Control	21	45	25	70	47.14	12.803
Posttest Control	21	40	45	85	66.19	12.640
Valid N (listwise)	21					

Based on Table 7, the pretest averages for the experimental class were 51.82 and the control class was 47.14, as can be seen in the above table. In the experimental class, the average posttest score was 80.91, whereas in the control class it was 66.19. The research indicates that after receiving the QR-Code assisted Snowball Throwing technique treatment in the Problem Based Learning model, students' reading skills in *Pancasila* Education learning have improved. Testing the hypothesis's preconditions comes next, based on the findings of the descriptive analysis. Testing the homogeneity and normality of instrument data in control and experimental classes is one of the prerequisite tests. Table 8 displays the findings from the homogeneity and normalcy tests.

Table 8. Student Reading Ability Normality Test Results

Groups		Kolmogorov-Smirnov			Shapiro-Wilk		
		Statistics	Df	Sig.	Statistics	Df	Sig.
Reading ability	Pretest Experiments	0.131	22	0.200	0.934	22	0.149
	Posttest Experiments	0.155	22	0.186	0.948	22	0.288
	Pretest Control	0.128	21	0.200	0.964	21	0.597
	Posttest Control	0.142	21	0.200	0.942	21	0.242

Based on Table 8, the results of the data normality test using Shapiro-Wilk have a sig value of > 0.05. Experimental class pre-test scores (0.149>0.05), experimental class post-test scores (0.288 >0.05), control class pre-test scores (0.597>0.050), and control class post-test scores (0.242>0.05) were seen. So it can be concluded that all data is normally distributed. These results show that the normality requirements on the student's reading ability variable have been met, so that the analysis can continue. Furthermore, the results of the variable homogeneity test of students' reading ability (pre-test) can be shown in Table 9.

Table 9. Results of Student Reading Ability Homogeneity Test (Pretest)

	Parameters	Levene Statistic	df1	df2	Sig.
Reading ability	Based on Mean	0.098	1	41	0.756
	Based on Median	0.102	1	41	0.751
	Based on the Median and with adjusted df	0.102	1	39.990	0.751
	Based on trimmed mean	0.099	1	41	0.754

Table 9 indicates that if the sig value is more than 0.05, the data can be considered homogenous. The sig value is displayed in the above table. Where the value is 0.756 > 0.05, the mean is 0.756. Thus, it can be said that there is equal homogeneity between the experimental class's and the control class's pretest results for the readability variable. Additionally, Table 10 displays the findings of the post-test, or variable homogeneity test, of the students' reading proficiency.

Table 10. Results of Student Reading Ability Homogeneity Test (Posttest)

	Parameters	Levene Statistic	df1	df2	Sig.
Reading ability	Based on Mean	3.691	1	41	0.062
	Based on Median	2.611	1	41	0.114
	Based on the Median and with adjusted df	2.611	1	35.222	0.115
	Based on trimmed mean	3.622	1	41	0.064

Table 10 indicates that if the sig value is more than 0.05, the data can be considered homogenous. The sig value is displayed in the above table. Where the result is 0.062 > 0.05, the mean is 0.062. Thus, it may be said that there is equivalent homogeneity between the posttest results for the readability variable in the experimental and control classes. Conducting a hypothesis test comes next, following the declaration of all data contained in the required tests for homogeneity and normalcy. An N-Gain test and an independent T test were used to evaluate the hypothesis. Table 11 shows the outcomes of the hypothesis testing.

Table 11. Results of the Independent T Test for Student Reading Ability

Parameters		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Reading ability	Equal variances assumed	3.691	0.062	4.424	41	0.000	14.719	3.327	7.999	21.438
	Equal variances not assumed			4.389	35.893	0.000	14.719	3.354	7.916	21.521

Table 11 indicates that the Independent T Test of pupils' reading proficiency has a significance value (2-tailed) of 0.000. As a result of the t-test's significant value being less than 0.05 (0.000 < 0.05), Ha is approved while Ho is refused. Thus, it can be said that students who utilize the QR-Code assisted Snowball Throwing method in the Problem Based Learning model have a different reading ability than students who use traditional learning models and methods. Additionally, Table 12 displays the reading proficiency of the children as determined by the N-Gain Test.

Table 12. N-Gain Test Results of Student Reading Ability

Parameters	Experiment	Control
Max Score	95	85
Pretest	51.8	47.1
Posttest	80.9	66.2
N-Gain Percent	60%	34%
Category	Quite Effective	Ineffective

Based on Table 12, shows that experimental classes whose learning uses the QR-Code assisted Snowball Throwing method in the Problem Based Learning model obtained an n-gain score of 60% which met the requirements with the category of quite effective. Control classes that engage students in conventional learning models and methods, produce an n-gain score of 34%, indicating an ineffective category level based on predetermined criteria. Additionally, Table 13 presents the findings of a quantitative descriptive study of the reading interests of the pupils.

Table 13. Results of Quantitative Descriptive Analysis of Student Reading Interest

Groups	N	Range	Minimum	Maximum	Mean	Std. Deviation
Before Experimental Treatment	22	10	60	70	64.68	2.966
After Experimental Treatment	22	14	78	92	85.27	3.508
Before Treatment Control	21	12	55	67	60.90	2.948
After Control Treatment	21	22	63	85	71.43	4.925
Valid N (listwise)	21					

Base on Table 13, the aforementioned data indicates that the experimental class had an average value of 64.68 before to treatment, whereas the control class had an average of 60.90. Following treatment, the experimental class's average score was 85.27 and the control class's was 71.43. The findings indicates that after using the QR-Code assisted Snowball Throwing approach in the Problem Based studying paradigm, students' reading interest in studying *Pancasila* Education increased. Testing the hypothesis's preconditions comes next, based on the findings of the descriptive analysis. Testing the homogeneity and normality of instrument data in control and experimental classes is one of the prerequisite tests.

Furthermore, the results of the normality test of student reading interest variables can be shown in Table 14.

Table 14. Student Reading Interest Normality Test Results

Groups		Kolmogorov-Smirnov			Shapiro-Wilk		
		Statistics	Df	Sig.	Statistics	Df	Sig.
Reading Interest	Questionnaire Before the Experiment	0.146	22	0.200	0.937	22	0.171
	Post-Experiment Questionnaire	0.143	22	0.200	0.972	22	0.761
	Pre-Control Questionnaire	0.144	21	0.200	0.942	21	0.242
	After the Questionnaire on Control	0.139	21	0.200	0.938	21	0.201

Based on Table 14, the results of the data normality test using Shapiro-Wilk have a sig value of > 0.05. It can be seen the questionnaire value before treatment in the experimental class (0.171>0.05), the questionnaire value after treatment in the experimental class (0.761>0.05), the questionnaire value before treatment in the control class (0.242>0.050) and the questionnaire value after treatment in the control class (0.201>0.05). So it can be concluded that all data is normally distributed. These results show that the normality requirements on the student's reading interest variable have been met, so that the analysis can continue. Moreover, Table 15 displays the findings of the homogeneity test conducted on the variable representing students' reading interest (before to treatment).

Table 15. Results of the Homogeneity Test of Student Reading Interest (Before Treatment)

	Parameters	Levene Statistic	df1	df2	Sig.
Reading Interest	Based on Mean	0.132	1	41	0.719
	Based on Median	0.089	1	41	0.767
	Based on the Median and with adjusted df	0.089	1	39.316	0.767
	Based on trimmed mean	0.140	1	41	0.710

Table 15 indicates that if the sig value is more than 0.05, the data can be considered homogenous. The sig value is displayed in the above table. The value of 0.719 > 0.05 is based on the mean, which is 0.719. Thus, it can be said that there is equivalent homogeneity between the pre-treatment questionnaire data for the reading interest variable in the experimental class and the control class. Additionally, Table 16 displays the findings of the student reading interest variables homogeneity test (after treatment).

Table 16. Results of the Homogeneity Test of Student Reading Interest (After Treatment)

	Parameters	Levene Statistic	df1	df2	Sig.
Reading Interest	Based on Mean	1.696	1	41	0.200
	Based on Median	1.589	1	41	0.215
	Based on the Median and with adjusted df	1.589	1	35.377	0.216
	Based on trimmed mean	1.736	1	41	0.195

Table 16 indicates that if the sig value is more than 0.05, the data can be considered homogenous. The sig value is displayed in the above table. Where the value is 0.200>0.05, the mean is 0.200. Thus, it can be said that there is equivalent homogeneity between the questionnaire data on reading interest in the experimental class and the control class following treatment. Conducting a hypothesis test comes next, following the declaration of all data contained in the required tests for homogeneity and normalcy. An N-Gain test and an independent t-test were used to evaluate the hypothesis. Table 17 shows the outcomes of the hypothesis testing.

Table 17. Results of the Independent T Test for Student Reading Interest

Parameters		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Reading Interest	Equal variances assumed	1.696	0.200	10.656	41	0.000	13.844	1.299	11.220	16.468
	Equal variances not assumed			10.574	36.014	0.000	13.844	1.309	11.189	16.500

Table 17 indicates that the Independent T Test of student reading interest has a significance value (2-tailed) of 0.000. As a result of the t-test's significant value being less than 0.05 (0.000 < 0.05), Ha is approved while Ho is refused. Therefore, it can be said that students who use the QR-Code assisted Snowball Throwing method in the Problem Based Learning model and students who utilize traditional learning models and methods differ in terms of their interest in reading. Furthermore, the results of the N-Gain Test of students' reading interest can be shown in Table 18.

Table 18. N-Gain Test Results of Student Reading Interest

Parameters	Experiment	Control
Max Score	92	85
Before Treatment	65	61
After Treatment	85	71
N-Gain Percent	58%	27%
Category	Quite Effective	Ineffective

Based on Table 18, shows that experimental classes whose learning uses the QR-Code assisted Snowball Throwing method in the Problem Based Learning model obtained an attractive n-gain score of 58% which met the requirements with the category of quite effective. Control classes that engage students in conventional learning models and methods, produce an n-gain score of 27%, indicating an ineffective category level based on predetermined criteria.

Discussion

The use of teaching tools such as creative and innovative learning models and methods can make students feel happy and interested in the learning process. In addition, with the help of technology that is growing rapidly, it can also help students digest the learning material provided by the teacher (Aisyah et al., 2021; Amaliah et al., 2023). The results showed that there was a significant difference between reading ability and reading interest in students who used the QR-Code assisted snowball throwing method in the problem based learning model with students who used conventional learning models and methods. In addition to significant differences, the research result also indicates that the implementation of the snowball throwing learning method assisted by QR-Code in the problem based learning model is more effective than conventional models and methods in terms of the reading ability and reading interest of fifth-grade students at SDN Tambakaji 05 (Rahayu et al., 2018; Savitri et al., 2021).

Based on the results of the independent t test of students' reading ability and reading interest, which gets a significance value (2-tailed) of 0.000, if the significant value of the t test < 0.05 (0.000 < 0.05) then Ha is accepted and Ho is rejected. So, based on the results of the independent t test, it can be seen that there is a difference between reading ability and reading interest in students who use the QR-Code assisted Snowball Throwing method in the problem based learning model with students who use conventional learning models and methods (Aini et al., 2020; Halili, 2019). In addition, in the n-gain reading test, it was discovered that the experimental class obtained an n-gain score of 60% which met the requirements in the category of quite effective, while the control class produced an n-gain score of 34% which showed an

ineffective level based on predetermined criteria. Then, in the n-gain test of students' reading interest, it was also found that the experimental class obtained an n-gain score of 58% which met the requirements in the category of quite effective, while the control class produced an n-gain score of 27% which showed the level of ineffectiveness based on predetermined criteria. The n-gain score and effectiveness of the QR-Code assisted Snowball Throwing method in the problem based learning model used in the experimental class are higher than the n-gain score and effectiveness level in the control class (Palupi et al., 2022; Widyasari et al., 2019).

Thus, based on the analysis of n-gain test data, it can be seen that the application of the QR-Code assisted Snowball Throwing method in the Problem Based Learning model is more effective than conventional learning models and methods in terms of students' reading ability and reading interest. This is in line with the findings of previous studies which stated that reading texts using the Snowball Throwing method can foster students' reading comprehension skills (Islamiati et al., 2024; Nasir et al., 2021). The application of the QR-Code assisted Snowball Throwing method in this Problem Based Learning model helps students understand *Pancasila* Education material about diversity. In this material, many reading texts require comprehension skills and interest in reading them.

The significant difference in the level of reading ability and reading interest between the experimental class and the control class conducted by the researcher is due to the application of the QR-Code assisted snowball throwing method in the problem based learning model students are required to be able to read and understand the entire reading text to answer questions appropriately. The application of the QR-Code assisted snowball throwing method in the problem based learning model also gives students the willingness and interest to read the text carefully so that they can get satisfactory grades (Aini et al., 2020; Halili, 2019). QR-Code technology integrated into the snowball throwing method and problem based learning model also makes the classroom atmosphere fun so that it helps students overcome the boredom that they often experience while learning. The findings presented in this study are consistent with other studies showing that activities with the Snowball Throwing method can effectively build students' abilities in their reading comprehension and elicit students' social interaction with peers (Gani et al., 2017; Juwandi, 2020).

Discoveries in other research also state that learning using the Snowball Throwing method can foster reading interest and students' reading comprehension skills because this learning creates a pleasant classroom atmosphere makes students active and enthusiastic but still concentrates on the material studied, and helps build students' confidence in the ability to read and answer questions (Agustin et al., 2019; Ginting et al., 2021). Learning using the Snowball Throwing method makes students not only get information about the material obtained from the teacher, but students are also required to be active individuals in seeking their knowledge through reading activities. The Snowball Throwing method is also able to overcome student problems when getting questions and finding solutions or answers after the reading process. In this case, students can also simultaneously verify all the questions that they do not understand (Muslita & Gani, 2022; Pramita Dewi et al., 2021).

In this case, it can be said that it is very important for teachers as educators to have a good capacity in teaching by developing interesting and relevant learning activities, making decisions in the selection of subject matter, and utilizing technology in classroom learning. In short, the selection of appropriate learning activities such as the application of the QR-Code assisted Snowball Throwing method in the Problem Based Learning model is considered effective in fostering students' reading skills and reading interest in the subject of *Pancasila* Education diversity material. The effectiveness of this learning can also be seen from the significant difference in values in each instrument between experimental classes using the QR-Code assisted Snowball Throwing method in the Problem Based Learning model and control classes using conventional learning models and methods.

4. CONCLUSION

The results of this study show that there is a difference between reading ability and reading interest in students who use the QR-Code assisted Snowball Throwing method in the Problem-Based Learning model with students who use conventional learning models and methods. In addition, this study also shows that the application of the QR-Code assisted Snowball Throwing method in the Problem-Based Learning model is more effective than conventional learning models and methods in terms of reading interest in *Pancasila* Education for Class V students of SDN Tambakaji 05 Semarang City. This research is expected to provide input for principals to guide teachers in conducting creative and engaging teaching and learning processes. This research is also expected to provide input for teachers in designing and implementing more creative and interesting learning and can be a reference for future research on learning with the QR-Code assisted Snowball Throwing method in the Problem-Based Learning model.

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