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## THE EFFECT OF ICE BREAKING ON MOTIVATING GRADE IV STUDENTS TO LEARN SCIENCE

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### Abstract:

The purpose of this study was to investigate the effect of using one of ice breaking strategies in science learning contexts on students' motivation. This study employed a quantitative approach. The participants involved were 26 students from Class IV A of SD Negeri Daya 1 Makassar City using purposive sampling. Data were collected through observation and questionnaire sheets consisting 30 statements to find students' motivation levels. Descriptive and inferential statistics were utilized for data analysis. The result indicated that most students' learning motivation was categorized as good (53.85%) and very good (38.46%) categories after applying yel-yel, one of ice breaking strategies. Therefore, the implementation of ice breaking strategy had a positive impact on enhancing students' motivation to learn science subjects.

### Abstrak:

Tujuan penelitian ini adalah untuk mengetahui pengaruh penggunaan salah satu strategi ice breaking dalam konteks pembelajaran IPA terhadap motivasi siswa. Penelitian ini menggunakan pendekatan kuantitatif. Partisipan yang terlibat adalah 26 siswa Kelas IV A dari SD Negeri Daya 1 Kota Makassar dengan menggunakan purposive sampling. Data dikumpulkan melalui lembar observasi dan angket yang terdiri dari 30 pernyataan untuk mengetahui tingkat motivasi siswa. Statistik deskriptif dan inferensial digunakan untuk analisis data. Hasil penelitian menunjukkan bahwa sebagian besar motivasi belajar siswa berada pada kategori baik (53,85%) dan sangat baik (38,46%) setelah diterapkannya strategi yel-yel yang merupakan salah satu strategi ice breaking. Oleh karena itu, penerapan strategi icebreaking memberikan dampak positif terhadap peningkatan motivasi belajar siswa pada mata pelajaran IPA.

### Keywords:

Ice Breaking, Learning Motivation, Science Learning

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## INTRODUCTION

The impact of motivation on academic achievement is a crucial topic that has been prominent in the field of education for several decades. Motivation refers to a potent impulse or aspiration to attain specific objectives. In education, it is instrumental in

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shaping the extent of a student's success in learning and obtaining desirable educational outcomes in alignment with predetermined targets (Julyanti, 2021). Learning motivation can impact student learning outcomes, including cognitive development, reading interest, perception, and Technological Pedagogical Content Knowledge (TPCK) (Elvianasti, Lufri, Andromeda, 2022).

McClelland proposed that individuals possess diverse psychological needs, comprising the requirements for accomplishment, affiliation, and power, which could impact their desire to achieve academic goals (Salim & Aseptia, 2019). In contrast, Keller directs his attention towards stimulating and enhancing learning practices to augment the quality of academic results (Najama, Setyosari, & Munzil 2021). The empirical study conducted in this area provides compelling evidence of the significance of motivation in determining learning outcomes. Highly motivated students tend to attain superior academic performance relative to those with low levels of motivation (Reliani, Ugi, & Anwar, 2022; Thohirudin, Herawati, & Lisnawati, 2019). High motivation can generate a positive attitude in students towards educational tasks, allowing for greater enthusiasm and hurdles to be surmounted and personal growth to occur (Indriyati, Indriayu, & Dyah, 2023). However, motivation is a nuanced concept influenced by variables such as learning environment, social support, personal hobbies, and individual aspirations (Hidayati, Triyanto, Sulastri, & Husni, 2022). When students feel supported by teachers and family, their motivation increases (Djalila, 2022; Kusumaningrini & Sudibjo, 2021).

Various factors can influence learning motivation. Previous research indicates that incorporating interesting learning experiences relevant to students' daily lives and utilizing engaging learning media can boost their interest in science learning of nature (Laili, 2017; Marjito & Nurhalipah, 2018). Additionally, positive emotions such as pleasure and enthusiasm, alongside attentive teaching, can also play a role in stimulating students' interest and motivation in this field. Internal factors, such as intelligence, student attention, motivation, and interest, can also impact students' difficulties with learning in science subjects (Helentina, 2017). Therefore, educators and guardians must discover ways to increase students' interest in science subjects to encourage high motivation. One method of accomplishing this is by providing engaging learning experiences, such as icebreakers. Based on research conducted by Febriandari (2018) & Nuryana & Sunardin (2020), teachers' use of creative icebreakers during the learning process significantly impacts students' learning outcomes. This, in turn, enhances student motivation towards learning. Therefore, teachers need to utilize innovative icebreakers to make the learning process more engaging for students. Ice breaking is the process of changing a situation from one that is dull, sleepy, monotonous and stressful to one that is relaxed, invigorating, alert and engaging - thereby capturing the attention and interest of those listening or observing the speaker in front of the classroom (Marzatifa, Agustina, & Inayatillah, 2021).

Motivation plays a crucial role in the learning outcomes of natural science (IPA). Students who feel motivated and enthusiastic about grasping the IPA concepts tend to achieve better learning outcomes. Based on some previous research, it can be concluded

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that motivation in the context of IPA can stem from students' interest in nature. There is an interest in natural phenomena and understanding natural science's relevance in everyday life (Arini, Murda, & Agustiana, 2020; Kusumadewi, Ramdani, & Ula, 2022; Mahdalena, 2022). The impact of motivation can be seen in the context of self-directed learning. Well-motivated students tend to be more independent in their learning, actively seeking additional sources of information and taking the initiative to pursue knowledge beyond the school curriculum (Sumartono & Mardiana, 2022; Utami, Halim, & Yusrizal, 2022; Yushan, Yunus, & Ramlawati, 2022). In their research, Khoerunisa & Amirudin (2020) revealed a significant correlation between the use of icebreakers and student motivation in studying science subjects.

The results from preliminary observations and interviews with teachers at SD Negeri Daya 1 Biringkanaya indicated that only 38% of the 4th-grade students reached the learning objectives in science subjects. In contrast, 62% of students had yet to complete their learning objectives, meaning most had not achieved the minimum passing grade. The students should be able to achieve the minimum passing grade as a sign of successful learning outcomes. The researcher identified issues with students' lack of attention to the learning material during the teaching process, failure to complete assigned tasks diligently, and inadequate adherence to submission deadlines, indicating low commitment to their coursework. The learning activities revealed that students were less active in responding to teacher's questions and enjoyed playing with friends during a lesson.

From the previous explanation, the authors were eager to try an alternative action to overcome the existing problem by implementing a more enjoyable learning process by using icebreakers in the science subject so that students can be more enthusiastic about receiving the material. Using ice breaking strategy while teaching science is expected to create a pleasant and engaging learning environment. This strategy ultimately significantly impacts student motivation when participating in the science class of SDN Daya 1 Biringkanaya.

## RESEARCH METHOD

This research used a quantitative approach. This approach was used to find the effect of the independent variable on the dependent variable with direct manipulation/treatment. This research also observed how the ice breaking strategy affected students' learning motivation (dependent variable). Thus, the independent variable (ice breaking strategy) was the factor controlled in this research. In contrast, the dependent variable (learning motivation) was measured due to the change in motivation.

Referring to the variables that have been mentioned, the research design can be described as follows:

**Table 1.** Research Design

Pre-test	Treatment	Post-test
T1	X	T2

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Description:

T1 : Measurement before the subject was given the ice breaking strategy

X : Treatment (ice breaking strategy)

T2 : Measurement after the subject was given the ice breaking strategy

Referring to the variables already described, the operational definition of this study is classified as follows: 1) The ice breaking is a series of activities aimed at loosening tension and creating a relaxed atmosphere among students before the main learning begins, in this case, through the giving of cheers. 2) Motivation is a person's driving force or incentive to carry out an activity, for example, increased motivation to participate in learning.

Data collection instruments used were an observation sheet with motivation indicators adapted from Aziz (2021) and a questionnaire sheet using a Likert scale consisting of 30 statements related to student learning motivation adapted from Krismony, Parmiti, & Japa (2020). The instruments were given to students before and after learning sessions.

The population in this study were all the 4th-grade students of SD Negeri 1 Biringkanaya Makassar. The population of this study in detail is shown in the following table 2.

**Table 2.** Population of SD Negeri Daya 1 Biringkanaya

No	Class	Male	Female	Total
1	IV A	11	15	26

Arikunto (2010) states that the sample is part of or reflects the studied population. For this study, the chosen sample was 26 students from class IV A in the population mentioned earlier. Purposive sampling was used, with the sample criteria being class IV, the students' previous experience concerning ice breaking strategies, and the diversity of responses and behaviours observed during learning. The study used prerequisite and hypothesis testing (t-test) to conduct data analysis. The outcomes were analyzed via the SPSS version 25 software.

## RESULTS AND DISCUSSION

### Result

#### *Students' Learning Motivation in Science Lessons Before Applying Ice Breaking*

Before implementing the icebreaker strategy with class IV A, students were pre-tested to assess their motivation to learn science. The ensuing data analysis, presented in Table 3 below, used descriptive statistics.

**Table 3.** Questionnaire Data Analysis (Pre-test)

	Statistics	Pre-test
N	Valid	26
	Missing	0
Mean		46.35
Median		50.00

<b>Mode</b>	50
<b>Std. Deviation</b>	13.897
<b>Range</b>	50
<b>Minimum</b>	20
<b>Maximum</b>	70
<b>Sum</b>	1205

Based on the table above, it can be seen that students' science learning motivation in the pre-test has an average score of 46.35. To find out details about the students' motivation pre-test questionnaire results, each student is categorized, and the score recap is presented in the following table.

**Table 4.** Student Learning Motivation Score Using Questionnaire (Pre-test)

Score	Category	Frequency	Percent
80-100	Very Good	0	0
65-79.99	Good	2	7.69%
55-64.99	Enough	15	57.69%
40-54.99	Poor	7	26.93%
0-39.99	Very Poor	2	7.69%
<b>Amount</b>		26	100%

Source Categorization: (Amelia, Zulhelmi, & Syaflita 2021)

Table 4 shows that most students' learning motivation at school was enough category (57.69%). Few students had good learning motivation, and none were in the very good learning motivation category. Therefore, treatment was given to strengthen student learning motivation. The accompanying diagrams and histograms can be found as follows.

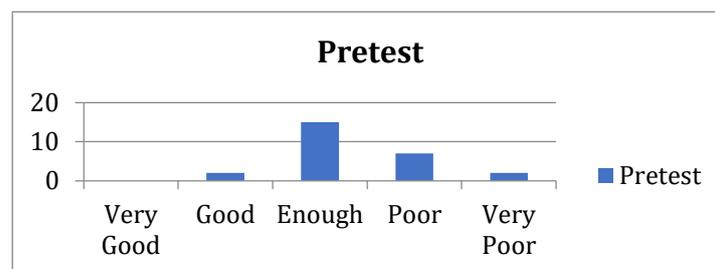


Figure 1. Pre-test Category Score Diagram

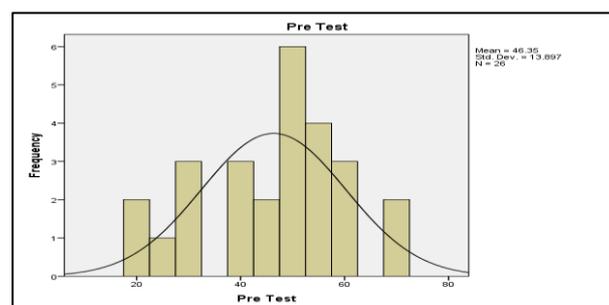


Figure 2. Histogram of Pre-test

The diagram above provides information that, classically, it has not shown success. This suggests that a different treatment is needed to optimize students' learning motivation, especially for students in the very poor learning motivation category.

### ***Students' Learning Motivation in Science Lessons After Applying Ice Breaking***

After employing the ice breaking strategy in science education for class IV A, a post-test questionnaire with identical content to the pre-test was distributed to students. This aims to exhibit the change in student learning motivation for science subjects after using the ice breaking strategy. The study outcomes show a descriptive statistical analysis presented in the following table.

**Table 5.** Questionnaire Data Analysis (Post-test)

<b>Statistics</b>		<b>Post-test</b>
<b>N</b>	Valid	26
	Missing	0
<b>Mean</b>		78.65
<b>Median</b>		80.00
<b>Mode</b>		80
<b>Std. Deviation</b>		9.956
<b>Range</b>		35
<b>Minimum</b>		60
<b>Maximum</b>		95
<b>Sum</b>		2045

Based on Table 5 above, it can be seen that students' science learning motivation on the post-test has an average score of 78.65. Compared to the pre-test, this mean score shows a considerable score increase. To find out more details about the student motivation post-test questionnaire results, the categorization of each student is carried out, and the score recap is presented in Table 6.

**Table 6.** Student Learning Motivation Score Using Questionnaire (Post-test)

<b>Score</b>	<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
<b>80-100</b>	Very Good	10	38.46%
<b>65-79.99</b>	Good	14	53.85%
<b>55-64.99</b>	Enough	2	7.69%
<b>40-54.99</b>	Poor	-	-
<b>0-39.99</b>	Very Poor	-	-
<b>Amount</b>		26	100%

Source Categorization: (Amelia, Zulhelmi, & Syaflita, 2021)

The data in Table 6 shows a difference in student motivation scores from the previous pre-test. The application of ice breaking made 10 students get very good categories and none with poor and very poor learning motivation categories. The diagram and histogram of the information in Table 5 are as follows.

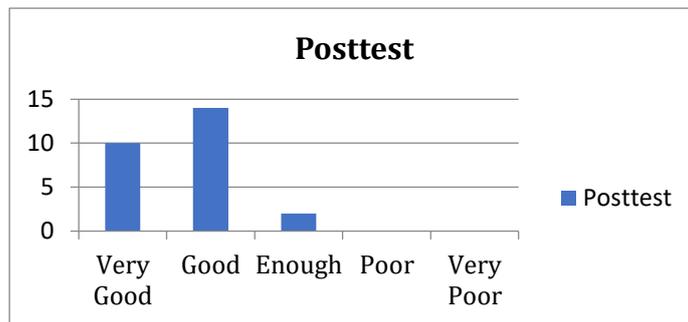


Figure 3. Diagram of Early Post-test Categories

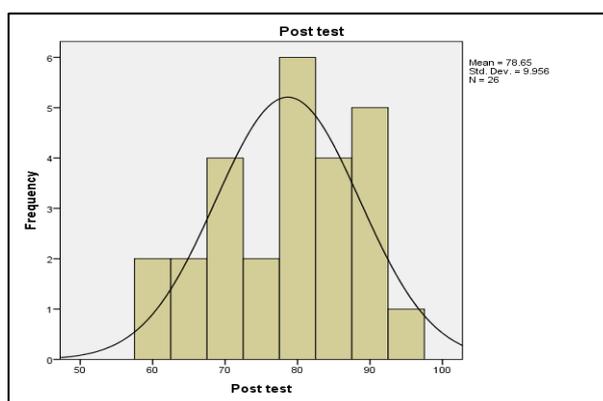


Figure 4. Histogram Post-test

Referring to Figures 3 and 4, the dominant student motivation category is in the good category, and very few are in the enough category. There were no failures in learning, so by using ice breaking, students became more happy to learn that strengthening their learning motivation effectively increases their passion for learning.

### ***Inferential Test***

#### *1. Normality test*

Normality testing was conducted to determine whether the acquired data was normally distributed. The testing criteria for normality state that the data is considered to be normally distributed if the obtained significance level  $> 0.05$ . Conversely, it is said that the data is not normally distributed if the obtained significance level  $< 0.05$ . The results of the normality test for data on learning motivation are presented in Table 7.

**Table 7.** Normality Test Results of Learning Motivation Data

		<b>pre-test</b>	<b>post-test</b>
<b>N</b>		26	26
<b>Normal Parameters<sup>a,b</sup></b>	Mean	69.65	78.65
	Std. Deviation	7.025	9.956
<b>Most Extreme</b>	Absolute	.161	.169

<b>Differences</b>	Positive	.122	.115
	Negative	-.161	-.169
<b>Test Statistic</b>		.161	.169
<b>Asymp. Sig. (2-tailed)</b>		.080 <sup>c</sup>	.054 <sup>c</sup>

Table 7 illustrates that the analysis of learning motivation data is normally distributed. The 2-tailed significant value of the pre-test questionnaire is 0.080, and that of the post-test questionnaire is 0.054. Alternatively, it can be described as the pre-test questionnaire having a significant value of  $0.080 > 0.05$  and the post-test questionnaire with a significant value of  $0.054 > 0.05$ . Based on the normality test results, it was found that the learning motivation questionnaire data, both pre-test and post-test, were normally distributed as the "P-Value (Sig)" value was greater than 0.05.

### 2. Homogeneity test

The test for homogeneity is conducted using the criterion that data is considered homogeneous if the significance obtained is  $> 0.05$ . Conversely, data is deemed non-homogeneous if the significance achieved is  $< 0.05$ . Table 8 shows the homogeneity test results on ice breaking and motivation to learn.

**Table 8.** Homogeneity Test Results of Learning Motivation

<b>Test of Homogeneity of Variances</b>			
Levene Statistic	df1	df2	Sig.
2.692	1	50	.107

Table 8 shows that the homogeneity test result of students' learning motivation is 0.107, which is said to be homogeneous because it is greater than 0.05 or  $0.107 > 0.05$ .

### 3. Hypothesis Test

To determine if there has been a significant change in students' motivation to learn resulting from ice breaking strategies, performing a paired sample t-test is crucial. The gathered data underwent examination through the t-test with the assistance of SPSS. Table 9 displays the result of the SPSS analysis.

**Table 9.** Paired Sample Correlation Output Using SPSS

<b>Pretest &amp;</b>	Correlation	.519**
<b>Posttest</b>	Sig. (2-tailed)	.007
	N	26

According to the table, the data correlating pre-test and post-test scores from 26 students have a correlation coefficient of 0.519 with a significance value of 0.007. As  $\text{Sig. } 0.007 < 0.05$ , this indicates a significant relationship between the variables. Additionally, subsequent analysis using paired-sample testing produced the following results.

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**Table 10.** Results of paired sample T-Test of learning motivation

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	Mean	95% Confidence Interval of the Difference		T	df	Sig. (2- tailed)
		Lower	Upper			
<b>Pretest &amp; posttest</b>	-9.01	-10.19	-7.81	-10.271	25	.000

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According to the output table, the questionnaire on learning motivation (pre-test & post-test) has a significance value of  $0.000 < 0.05$ . Following relevant decision-making guidelines,  $H_0$  is rejected, and  $H_a$  is accepted. Therefore, it can be concluded that there is an average difference in learning motivation between pre-test and post-test. Using ice breaking strategy in science classes for grade four students at SD Negeri Daya 1 in Makassar City positively impact the students' learning motivation. The increase in motivation ranges from  $-10.19$  to  $-7.19$  pre and post-treatment, respectively.

### **Discussion**

This research aimed to assess the impact of ice breaking strategy during science lessons on the learning motivation of fourth-grade students at SD Negeri Daya 1 Kota Makassar. The study used observation sheets and pre-test and post-test questionnaires to collect data from a single sample classroom using ice breaking strategy. The gathered data was analyzed to compare the students' learning motivation before and after implementing ice breaking strategy to ascertain whether ice breaking impacted students' learning motivation.

Before implementing ice breaking strategy in learning, the researchers assessed students' motivation through an observation sheet, focusing on the interactions between the teacher and students and among the students throughout the learning process. Many students had low motivation based on the observation sheet's indicators. The students' lack of motivation to learn stemmed from the unvaried teaching approach and insufficient student engagement in the learning process. The learning process was brief and unfulfilling since the teacher did not provide assignment feedback. The teacher solely assigned group tasks through WhatsApp, leading to reduced student participation and diminished interest in completing assignments. This data aligned with the findings of previous studies, suggesting that suboptimal and monotonous learning processes result in decreased learning motivation, leading to passive student behaviour and decreased independence (Biasi, De Vincenzo, & Patrizi, 2018; Chiang & Lee, 2016).

Furthermore, the student learning motivation before the implementation of ice breaking was determined by the average value of the pre-test questionnaire, which exemplified a score of 46.35. Additionally, 57.69% of students achieved sufficient motivation scores. This accurately portrayed the initial state of students' learning motivation before participating in the ice breaking activity.

A supportive learning environment fosters students' enthusiasm, effectively and efficiently achieving their set learning objectives. Conversely, an unsupportive environment can reduce students' learning focus and motivation. Survey results revealed

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that students feel distracted by noisy classmates during learning activities. This negatively impacted students' learning outcomes as they could not fully comprehend teachers' explanations amid high noise levels during learning sessions. According to Emda (2018) perspective, the learning environment is an external or extrinsic factor that can significantly enhance an individual's learning motivation. Arianti (2019) suggested that teachers play a crucial role in building students' motivation towards learning by establishing a secure and soothing classroom environment and providing consistent support.

Based on the initial observation data, treatment was administered by applying ice breaking strategies such as yel-yel. This initiated a fun classroom atmosphere during the learning process (Lestari, Dwijo, & Widyaningrum, 2021; Suniyati, Dermawan, & Sumantri, 2022). The average score of the questionnaire (post-test) increased by 78.65, with the majority of students scoring in the good category (53.85%) and the very good category (38.46%). Additionally, no students scored in the poor and very poor motivation categories. The implementation of yel-yel ice breaking had enhanced student learning motivation. The observed increase could be attributed to the teacher's use of ice breaking activities to foster enthusiasm and passion for learning among the students. Additionally, the students were taught through playful methods that involved watching instructional videos at home and engaging their bodies, which enhanced the learning experience's significance. These findings aligned with established theory, indicating the significance of ice breaking, such as vocal exercises, in preserving students' emotional resilience and cognitive abilities during the learning process (Hariyadi, Azzajjad, & Ahmar, 2022; Salam & Apriyansyah, 2022), creating a pleasurable atmosphere can develop a positive attitude among students towards the learning process (Kasni & Dewi, 2022), enhance their interest (Suniyati, Dermawan, & Sumantri, 2022; Yahya, Vernando, & Herna, 2022), enthusiasm, and focus on learning (Al Ghifarah & Pusparini, 2023; Zuhariyah & Fahmi, 2022).

The analysis of the hypothesis test, conducted on the Paired Sample Correlation Output, indicated an effect of ice breaking on students' learning motivation. The paired sample test analysis showed acceptance of  $H_a$ . This study highlights the favorable influence of using ice breaker strategy in science (IPA) learning on students' motivation. Subsequently, this can considerably augment the standard of their understanding of the subject matter. The results are supported by prior investigations undertaken by Arimbawa, Suarjana, & Arini (2017); Isnaini (2019); Rahmayanti, Saraswati, & Bhuana (2019). Due to the strong effect between ice breakers and student motivation, this approach offers a promising solution to boost students' motivation to learn in an educational environment.

## **CONCLUSION**

This study has demonstrated the positive and significant impact of one of the ice breaking strategies (yel-yel) on students' motivation in learning science (IPA) of fourth-grade students at SD Negeri Daya 1 Kota Makassar. The findings emphasize the

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importance of creating a relaxed and welcoming atmosphere to enhance learning motivation. Ice breaking (yel-yel) can be considered an effective method to achieve educational objectives. However, it is important to note that this study has limitations, including a small sample size and a narrow focus on only one problem context. As a result, it may not be directly applicable to all educational situations.

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