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Level of Knowledge of Grade IX Students Regarding Breasttroke Swimming at Bhakti Praja Margasari Junior High School in 2026

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Abstract
The purpose of this study is to determine the level of knowledge of ninth-grade students regarding breaststroke swimming at Bhakti Praja Margasari Junior High School in 2026. This study uses a quantitative descriptive research design through a test data collection technique. The research method used is a survey through a test data collection technique. The instrument is a multiple-choice test consisting of: (1) general knowledge of the breaststroke; (2) breaststroke gliding movements; (3) breaststroke arm movements; (4) breaststroke leg movements; and (5) breaststroke breathing. The data were analyzed using descriptive percentage statistics. The research population consisted of 215 Grade IX students at Bhakti Praja Margasari Junior High School in the 2025/2026 academic year. The cluster random sampling technique was used to select 25% of the population as the sample. Thus, 54 students were used as the sample. The results of the study showed that "The Level of Knowledge of Ninth Grade Students Regarding Breaststroke Swimming at SMP Bhakti Praja Margasari in 2026" was categorized as poor. The details of the presentation are as follows: the "poor" category with a presentation of 40.74%, the "fair" category with a presentation of 25.93%, the 'good' category with a presentation of 22.22%, the "very good" category with a presentation of 9.26%, and the "very poor" category with a presentation of 1.85%.

Keywords: knowledge level; grade xi students; breastsroke swimming

1. Introduction

Physical education is an integral part of the overall education system that aims to develop physical fitness, motor skills, sports knowledge, and a positive attitude towards physical activity (Sari et al., 2024). Physical education is a compulsory subject taught at all levels of education, from elementary school to high school.

In physical education, the learning process uses movement activities as a means to achieve educational goals(Syaputra et al., 2023), which include motor skills such as traditional and modern games, as well as sports that have been systematically designed to develop basic motor skills, technical skills, and students' understanding of physical activities. One of the sports taught in physical education is swimming, which has many benefits in terms of health, safety, and athletic achievement.

Swimming is a sport that can be enjoyed by people of all ages, from toddlers to seniors, and can be practiced in both fresh and salt water. It involves floating, moving around in the water, and lifting the body to prevent sinking (Narlan et al., 2023). There are several styles in swimming that

are listed in the word aquatics, including butterfly, backstroke, freestyle, and breaststroke. Swimming also has many health benefits, such as improving endurance, strengthening muscles, and training breathing and balance. In a study (Nurajab & Hasmarita, 2021), swimming was found to significantly improve concentration in children. Because it has a low impact on the joints, swimming is suitable for all ages, especially the elderly, and is also considered a recreational sport (Syahputra & Arwandi, 2019).

Swimming is one of the sports that is widely known by the public (Firdaus & Salahudin, 2024). Swimming is a physical activity performed in water with specific body movements to move from one place to another. In swimming, the movements used are very complex and systematic. Although it is relatively easy to learn, mastering swimming still requires systematic training. The movements that need to be practiced include gliding movements, leg movements, arm movements, breathing techniques, and the coordination of all four movements into one style.

The breaststroke is one of the most popular swimming strokes because it is very easy to perform (Gani et al., 2021). The breaststroke itself has been regulated by World Aquatics since the organization was founded on July 19, 1908. Russian swimmer Nikolai Pankin is known as the key figure who developed the modern breaststroke in 1966 through the innovation of the "European breaststroke," which added a hand recovery phase to increase speed and efficiency of movement. This change made the arm position more streamlined in front of the head before the next pull, thereby reducing air resistance and allowing swimmers to maintain a more stable rhythm.
In the learning curriculum, swimming remains part of Physical Education, Sports, and Health (PJOK) lessons. The focus of swimming lessons in this curriculum is more flexible, adapting to the needs and conditions of students and the school environment. This aims to provide a means for students to develop basic swimming skills as part of their motor skills.

Breaststroke is one of the swimming techniques taught at the junior high school level. According to (Priana, 2019), training methods that use aids can make it easier for students to learn basic swimming techniques, enable students to be more independent in their training, and help make the training process more effective. Additionally, learning needs to be adapted to the physical and psychological development stages of students through the application of varied learning methods and the use of interesting learning media. (Afifah & Maheswari, 2025)In practice, not all students are able to master the breaststroke well. This is influenced by several factors, such as the students' experience and the teaching methods provided by the physical education teacher. In addition, supporting facilities such as the availability of swimming pools and adequate equipment also play an important role in the success of swimming lessons.

SMP Bhakti Praja Margasari is one of the schools that implements swimming lessons in its physical education curriculum. During direct observation, swimming lessons for ninth grade students were only conducted once per semester. This was because SMP Bhakti Praja Margasari did not have adequate facilities for teaching swimming

Breaststroke swimming lessons have so far focused more on practical activities, resulting in students' understanding of the theoretical aspects of breaststroke swimming remaining relatively low. This is due to the delivery of theoretical material being carried out simultaneously with practical activities in the swimming pool, meaning that the theoretical learning process cannot take place optimally.

Based on the above findings, it is necessary to conduct research on the level of students' knowledge of breaststroke swimming at Bhakti Praja Margasari Junior High School. This study aims to determine the extent to which grade IX students at Bhakti Praja Margasari Junior High School have mastered or understand proper breaststroke swimming techniques. Through this research, it is hoped that solutions or strategies will be provided for physical education teachers to implement more effective learning methods in improving students' understanding of breaststroke techniques at Bhakti Praja Margasari Junior High School.

2. Method

Research Types

This type of research uses quantitative descriptive research. According to (Kusuma et al., 2024), quantitative descriptive is a method that aims to describe or describe phenomena systematically based on numerical data using statistical processing techniques, without intending to test the cause-and-effect relationship between variables. Based on the above classification of methods, data was obtained using multiple-choice test instruments, with sampling using random sampling techniques of 25% of the population of class 215, resulting in 54 research samples. This was then analyzed using descriptive statistics in the form of percentages, averages, frequencies, and diagrams.

Data Collection Techniques

The data collection technique in this study used a test that had been trialed on students in the form of multiple-choice questions related to breaststroke swimming activities with five ability factors found in breaststroke swimming

Research Instrument Trial

The research instrument was tested at Bhakti Praja Margasari Junior High School with 20 students as respondents. This test was conducted in class after PJOK learning activities. The research instrument consisted of 30 multiple-choice questions using Google forms that were distributed to students. The data from the instrument test was then analyzed using item analysis techniques with the help of Microsoft Excel software.

The analysis results showed that of all the questions tested, 18 questions were declared valid with a very high level of instrument reliability, namely 0.88. Based on the difficulty level analysis, the proportion of questions in the difficult category was 5.6%, while 77.8% were in the moderate category and 16.7% were in the easy category. Furthermore, the results of the discrimination power analysis showed that 50% of the questions were in the very good category, 22.2% were in the good category, and 11.1% were in the poor category. In the distractor analysis, there were nine answer options in the multiple-choice questions that were declared non-functional (rejected), while the other distractors were declared to be functioning properly.

Data Analysis Techniques

This study uses descriptive statistical data analysis techniques to process the data obtained. To facilitate the grouping of research data, a standard score or T-score is used, which is classified into five categories. Based on (Sugiyono, 2019), these five categories are used as assessment guidelines, as follows:

Table 1. Assessment norms

Intervals	Category
X > M + 1,5 Sd	Very Good
M + 0,5 Sd < X ≤ M + 1,5 Sd	Good
M - 0,5 Sd < X ≤ M + 0,5 Sd	Fair
M – 1,5 Sd < X ≤ M – 0,5	Poor
X ≤ M – 1,5 SD	Very Poor

(Source: Sudijono, 2010: 175)

Explanation:
X = Total responses
M = Mean
SD = Standard deviation

3. Result

The results of the study on the Level of Knowledge of Grade IX Students Regarding Breaststroke Swimming at Bhakti Praja Margasari Tegal Junior High School in 2026 showed that there were 18 questions distributed to 54 students. The statistical analysis of the research data as a whole yielded a mean of 10.8, a median of 11, a mode of 8, and a standard deviation of 3.45. The distribution table of the research results on the Knowledge Level of Ninth Grade Students Regarding Breaststroke Swimming at SMP Bhakti Praja Margasari in 2025 can be categorized as follows:

Table 2. Grade IX students' knowledge level of breaststroke swimming

Interval	Category	Number	Persent (%)
X > 15,97	Very Good	5	9,26
12,52 < X ≤ 15,97	Good	12	22,22
9.07 < X ≤ 12,52	Fair	14	25,93
5,17 < X ≤ 9.07	Poor	22	40,74
X ≤ 5,17	Very Poor	1	1,85
Amount		54	100%

The results of the study, when presented in diagram form, can be seen in the image below:

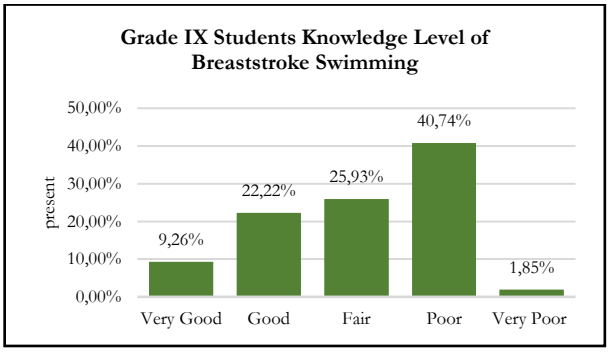

Figure 1. Graph showing the knowledge level of ninth grade students regarding breaststroke swimming

Based on the bar chart above, the level of knowledge of ninth-grade students regarding breaststroke swimming at Bhakti Praja Margasari Tegal Junior High School in 2026 is mostly in the "poor" category with a percentage of 40.74%, the "fair" category with a percentage of 25.93%, "good" with a percentage of 22.22%, "very good" with a percentage of 9.26%, and "very poor" with a percentage of 1.85%. These results indicate that the level of knowledge of ninth grade students regarding breaststroke swimming at SMP Bhakti Praja Margasari Tegal in 2026 is mostly in the poor category.

This study is based on factors that influence the Level of Knowledge of Grade IX Students Regarding Breaststroke Swimming at SMP Bhakti Praja Margasari Tegal in 2026, which can be described as follows:

1. Ability to Know General Knowledge About Breaststroke Swimming

The knowledge gained by students in learning the breaststroke based on their ability to understand general knowledge about the breaststroke is based on four multiple-choice questions. The results can be seen in the following table:

Table 3. Ability to know general knowledge about breaststroke swimming

Question	True	False	Amount
1	39	15	54
2	42	12	54
3	22	32	54
4	41	13	54
Amount	144	72	216
present	66,66%	33,33%	100%

Knowledge results, on the factor of being able to know general knowledge about breaststroke swimming, it is known that most respondents answered correctly at 66.66% and answered incorrectly at 33.33%. Based on these results, most students were able to answer the questions correctly. The results of the statistical analysis of the overall research data obtained a mean = 2.67, median = 3, mode = 3, and standard deviation = 1.04. The distribution table of the research results on the aspect of being able to know general knowledge about breaststroke swimming can be categorized as follows:

Table 4. Description of ability to know general knowledge about breaststroke swimming

Interval	Category	Amount	Persent (%)
$X > 4{,}23$	Very Good	0	0
$3{,}71 < X \leq 4{,}23$	Good	13	24,07
$2{,}15 < X \leq 3{,}71$	Fair	20	37,03
$1{,}11 < X \leq 2{,}15$	Poor	11	20,37
$X \leq 1{,}11$	Very Poor	10	18,51
Amount		54	100%

The results of the study, when presented in diagram form, can be seen in the image below:

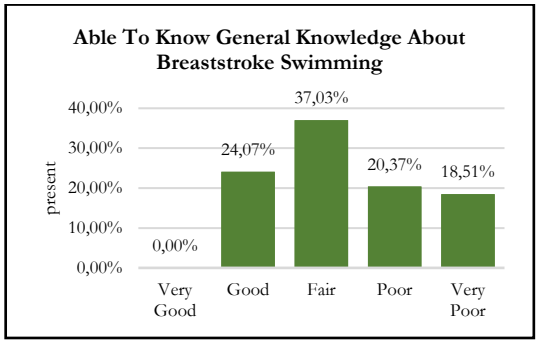

Figure 2. Graph showing ability to know General knowledge of breaststroke swimming

Based on the bar chart above, students' ability to demonstrate general knowledge about breaststroke swimming is mostly categorized as fair (37.03%), good (24.07%), poor (20.37%), very poor (18.51%), and very good (0%). These results indicate that students' ability to demonstrate general knowledge about breaststroke swimming is mostly categorized as adequate.

2. Ability to Recognize Breaststroke Gliding Movements

The knowledge gained by students in learning the breaststroke based on the factor of being able to understand the breaststroke gliding movement is based on three multiple-choice questions. These results can be seen in the following table:

Table 5. Ability to recognize gliding movements breaststroke swimming

Question	True	False	Amount
5	49	5	54
6	31	23	54
7	39	15	54
Amount	119	42	162
Present	73,45%	25,92%	100%

The results of the knowledge test on the ability to perform the breaststroke swimming stroke show that most respondents answered correctly (73.45%), while 25.92% answered incorrectly. Based on these results, most students were able to answer the questions correctly.

The statistical analysis of the overall research data obtained a mean = 2.20, median = 2, mode = 2, and standard deviation = 0.81. The distribution table of the research results on the ability to recognize the breaststroke gliding movement can be categorized as follows:

Table 6. Description ability to know gliding movements breaststroke swimming

Interval	Category	Amount	Persent (%)
$X > 3,45$	Very Good	0	0
$2,60 < X \leq 3,45$	Good	22	40,74
$1,80 < X \leq 2,60$	Fair	23	42,59
$0,98 < X \leq 1,80$	Poor	7	12,96
$X \leq 0,98$	Very Poor	2	3,70

Interval	Category	Amount	Persent (%)
Jumlah		54	100%

The results of the study, Percentwhen presented in diagram form, can be seen in the image below:

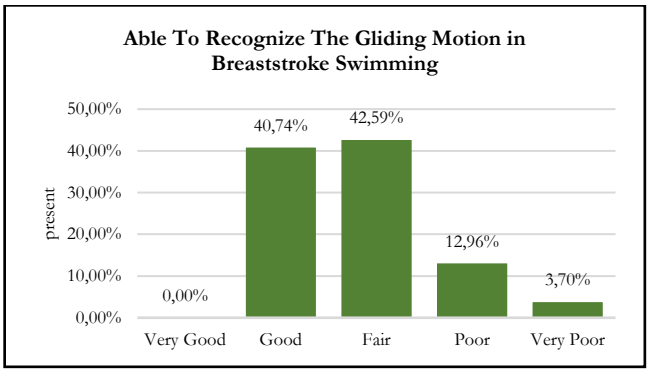

Figure 3. Graph showing ability to know gliding movements breaststroke swimming

Based on the bar chart above, the ability to perform the breaststroke gliding movement is mostly in the fair category with a score of 42.59%, the good category with a score of 40.74%, the poor category with a score of 12.96%, the very poor category with a score of 3.70%, and the very good category with a score of 0%. These results indicate that students' ability to understand the breaststroke gliding movement is mostly in the adequate category.

3. Ability to Recognize Breaststroke Hand Movements

The knowledge gained by students in learning the breaststroke based on the factor of being able to identify the arm movements of the breaststroke was assessed using three multiple-choice questions. The results are shown in the following table:

Table 7. Ability to recognize hand movements breaststroke swimming

Question	True	False	Amount
8	26	28	54
9	14	40	54
10	15	39	54
Amount	55	107	162
Present	33,95	66,04	100%

The results of the knowledge factor, on the ability to recognize breaststroke hand movements, showed that most respondents answered correctly (33.95%) and answered incorrectly (66.04%). Based on these results, most students answered the questions incorrectly.

The results of the statistical analysis of the overall research data obtained a mean = 1.02, median = 1, mode = 1, and standard deviation = 0.87. The distribution table of the research results on the aspect of being able to recognize breaststroke hand movements can be categorized as follows:

Table 8. Description ability to recognize hand movements breaststroke swimming

Interval	Category	Amount	Persent (%)
X > 2,32	Very Good	4	7,40
1,45 < X ≤ 2,32	Good	9	16,66
0,58 < X ≤ 1,45	Fair	25	46,29
0.28< X ≤ 0,58	Poor	16	29,62
X ≤ 0,28	Very Poor	0	0
Amount		54	100%

The results of the study, when presented in diagram form, can be seen in the image below:

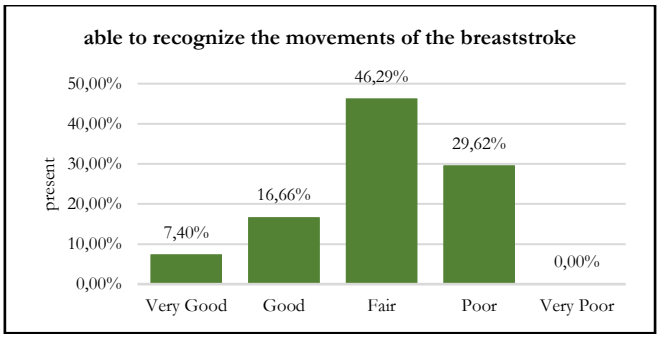

Figure 4. Graph showing Ability to recognize hand movements breaststroke swimming

Based on the bar chart above, the ability to perform the breaststroke gliding movement is mostly in the fair category with a score of 42.59%, the good category with a score of 40.74%, the poor category with a score of 12.96%, the very poor category with a score of 3.70%, and the very good category with a score of 0%. These results indicate that students' ability to understand the breaststroke gliding movement is mostly in the adequate category.

4. Ability to Recognize Breaststroke Leg Movements

The knowledge gained by students in learning the br eaststroke based on the factor of being able to identify the leg movements of the breaststroke was assessed using three multiple-choice questions. The results are shown in the following table:

Table 9. Ability to recognize leg movements breaststroke swimming

Question	True	False	Amount
11	31	23	54
12	37	17	54
13	28	26	54
Amount	96	66	162
Present	59,25	40,74	100%

The results of the knowledge test on the ability to identify breaststroke leg movements show that most respondents answered correctly (59.25%) and answered incorrectly (40.74%). Based on these results, most students were able to answer the questions correctly.

The statistical analysis of the overall research data obtained a mean = 1.78, median = 2, mode = 2, and standard deviation = 0.76. The distribution table of the research results on the ability to identify breaststroke leg movements can be categorized as follows:

Table 10. Description ability to recognize leg movements breaststroke smimming

Interval	Category	Amount	Persent (%)
X > 2,92	Very Good	9	16,66
2,16 < X ≤ 2,92	Good	0	0
1,4 < X ≤ 2,16	Fair	26	48,14
0,64 < X ≤ 1,4	Poor	17	31,48
X ≤ 0,64	Very Poor	2	3,70
Amount		54	100%

The results of the study, when presented in diagram form, can be seen in the image below:

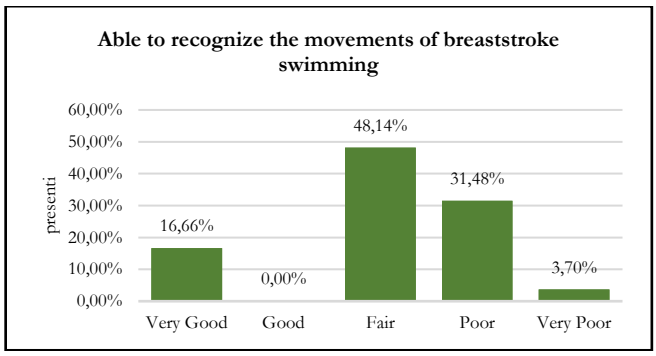

Figure 5. Graph showing ability to recognize leg movements breaststroke smimming

Based on the bar chart above, the ability to recognize breaststroke leg movements mostly falls into the adequate category with a presentation of 48.14%, the poor category with a presentation of 31.48%, the very good category with a presentation of 16.66%, the very poor category with a presentation of 3.70%, and the good category with a presentation of 0%. These results indicate that students' ability to understand breaststroke swimming movements is mostly in the adequate category.

5. Ability to Recognize Breaststroke Breathing Movements

The knowledge gained by students in learning the breaststroke based on the factor of being able to understand the breathing movements of the breaststroke is based on 5 multiple-choice questions. These results can be seen in the following table:

Table 11. Ability to recognize breathing movements Breaststroke swimming

Question	True	False	Amount
14	29	25	54
15	29	25	54
16	31	23	54
17	41	13	54
18	40	14	54
Amount	170	100	270
Present	62,96	37,03	100%

The results of the knowledge test on the ability to identify the breathing movements in breaststroke swimming show that most respondents answered correctly (62.96%) and answered incorrectly (37.03%). Based on these results, most students were able to answer the questions correctly.

The statistical analysis of the overall research data obtained a mean = 3.15, median = 3, mode = 5, and standard deviation = 1.43. The distribution table of the research results on the ability to understand the breathing movements in breaststroke swimming can be categorized as follows:

Table 12. Description ability to recognize breathing movements breaststroke swimming

Interval	Category	Amount	Persent (%)
X > 5,295	Very Good	0	0
3,89< X ≤ 5,29	Good	13	24,07
2,43< X ≤ 3,89	Fair	22	40,74
1,05 < X ≤ 2,43	Poor	11	20,37
X ≤ 1,05	Very Poor	8	14,81
Amount		54	100%

The results of the study, when presented in diagram form, can be seen in the image below:

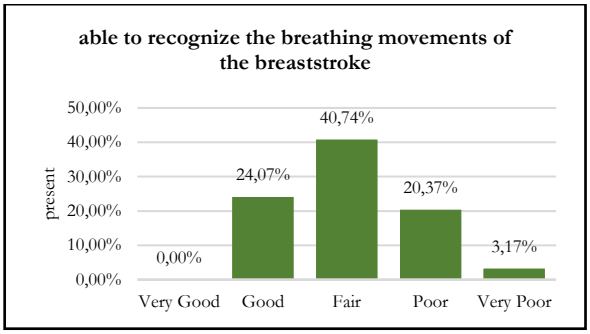

Figure 6. Graph showing ability to recognize breathing movements breaststroke swimming

Based on the bar chart above, the ability to recognize the breathing movements in breaststroke swimming mostly falls into the fair category with a presentation of 40.74%, the good category with a presentation of 24.07%, the poor category with a presentation of 20.37%, the very poor category with a presentation of 3.17%, and the very good category with a presentation of 0%. These results

indicate that students' ability to understand the knowledge of breaststroke gliding movements is mostly categorized as adequate.

4. Discussion

Swimming is one of the most popular water sports because it is enjoyable and can be practiced by people of all ages, from toddlers to the elderly. This is supported by the availability of swimming pools in various regions, which makes swimming a means of recreation as well as a medium for people to pursue their interests and hobbies in this sport. Additionally, swimming is a water sport that can be practiced in both freshwater and saltwater environments, such as the ocean.Swimming is one of the sports taught in physical education classes at school, especially at the junior high school level. However, the implementation of swimming lessons faces various obstacles, particularly limited facilities and infrastructure. These conditions mean that many teachers are only able to conduct swimming lessons once per semester, and the material is only taught in conjunction with practical activities in the swimming pool.

Based on the results of the study, it is known that "The Level of Knowledge of Grade IX Students Regarding Breaststroke Swimming at Bhakti Praja Margasari Junior High School in 2026" is categorized as poor. The details of the presentation are as follows: the "poor" category with a presentation of 40.74%, the "fair" category with a presentation of 25.93%, the 'good' category with a presentation of 22.22%, the "very good" category with a presentation of 9.26%, and the "very poor" category with a presentation of 1.85%. These results indicate that the level of knowledge of grade IX students regarding breaststroke swimming at SMP Bhakti Praja Margasari in 2026 is "poor." From these results, it can be concluded that ninth-grade students at Bhakti Praja Margasari Junior High School have not fully mastered swimming techniques, especially the breaststroke.

5. Conclusion and Recommendation

Based on the results of research on the Level of Knowledge of Grade IX Students Regarding Breaststroke Swimming at Bhakti Praja Margasari Junior High School in 2026, with details of the "poor" category with a presentation of 40.74%, the "fair" category with a presentation of 25.93%, the "good" category with a percentage of 22.22%, the "very good" category with a percentage of 9.26%, and the "very poor" category with a percentage of 1.85%. These results indicate that most ninth-grade students at Bhakti Praja Margasari Junior High School still have a low level of knowledge. In addition, the results also reveal that on the indicator of knowing breaststroke arm movements, most students still answered many questions incorrectly. This shows that students do not yet fully understand the breaststroke learning material.

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