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Analysis of Table Tennis Forehand and Backhand Learning Results: Independent Learning Curriculum with A Scientific Approach

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Abstract

This study aims to determine the learning outcomes of forehand and backhand strokes in table tennis using a scientific approach in class VIII students of SMP Negeri 2 Ulaweng. The variables in this study were the learning outcomes of forehand strokes and the learning outcomes of backhand strokes in table tennis games. The population in this study were all class VIII students of SMP Negeri 2 Ulaweng, totaling 127 students consisting of 59 male students and 68 female students. The research sample was 31 students of class VIII SMP Negeri 2 Ulaweng. Data collection techniques in this study used observation sheets. The data analysis technique used was descriptive statistics using the SPSS version 20 program. The results obtained were 10 students in the good category with a percentage of 32%, 21 students in the very good category with a percentage of 68%. So it can be concluded that the learning outcomes of forehand and backhand strokes in table tennis using a scientific approach in class VIII students of SMP Negeri 2 Ulaweng are in the very good category with a percentage of 68%.

Keywords: Forehand, Backhand, Table Tennis.

INTRODUCTION

Physical education is an integral part of the overall education system. Physical education is education through and about physical activity or in the original language is physical education is education off and through movement. There are 3 keywords in the definition, namely 1) education (education) which is reflected in the competencies that students want to achieve, 2) through and about, as conjunctions that describe the closeness of the relationship that is expressed by directly and indirectly related, motion (movement) is a study as stated in the physical education curriculum. One of the many sports that students have to learn is small ball games, one of which is table tennis. Table tennis is one of the sports games that is starting to be in great demand by the people of Indonesia, and has even become a popular sport in the world, this is because table tennis is not too complicated to follow. In addition, table tennis is a sport that can be played by everyone regardless of age, as stated by (Simpson, 2007) "table tennis is a sport that knows no age limit, children and adults can play together. ".

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In PJOK learning on table tennis material at SMPN 2 Ulaweng it is hoped that students will be able to perform forehand and backhand strokes correctly in accordance with the basic competencies that have been determined in accordance with the Free Learning Curriculum. The Free Learning curriculum has its own characteristics, namely the application of a scientific or scientific approach in the learning process. The Ministry of Education and Culture provides its own conception that a scientific approach or scientific approach in learning includes components: observing, asking, trying, processing, presenting, concluding, and creating according to Kurniasih and Sani A. R (2014)

From the results of previous observations, SMPN 2 Ulaweng has implemented the Merdeka Learning curriculum using a scientific method/approach in PJOK learning. One approach that has been considered student-centered is the scientific approach. Permendikbud no. 65 of 2013 concerning process standards for primary and secondary education has hinted at the need for a learning process that is guided by the principles of a scientific or scientific approach. The scientific approach is a basic concept that embodies, inspires, strengthens and underlies thoughts about how learning methods are applied based on certain theories (Ministry of Education and Culture, 2013). with a scientific approach that requires students to have a broad mind so that they have good PJOK learning skills.

According to Hosnan (2014) a scientific approach is a learning process designed in such a way that students actively construct concepts, laws or principles through the stages of observing (to identify or find problems), formulating problems, submitting or formulating hypotheses, collecting data with various techniques. , analyze data, draw conclusions and communicate the concepts, laws or principles found. scientific approach is a learning process designed in such a way that students actively construct concepts, laws or principles through the stages of observing (to identify or find problems), formulating problems, submitting or formulating hypotheses, collecting data with various techniques, analyzing data, drawing conclusions and communicate the concepts, laws or principles found, Sufairoh (2016).

According to Kurniasih (2014) a scientific approach is a learning process that is designed in such a way that students actively construct learning concepts through the stages of observing (to identify or find problems) formulating problems, submitting or formulating hypotheses, collecting data with various techniques, analyzing data. , draw conclusions and communicate concepts. Meanwhile, according to M. Lazim (2013) a scientific approach is a learning process designed in such a way that students actively construct concepts, laws or principles through the stages of observing (to identify or find problems) formulating problems, submitting or formulating hypotheses, collecting data by

various techniques, analyze data, draw conclusions and communicate the concepts, laws or principles found. Conceptually, the scientific approach is more directed towards a humanist education model, namely education that provides space for students to develop according to their potential intelligence (Ni Made Sinta Suwastini et al., 2022). The scientific approach is carried out through five learning steps, namely observing, asking, trying, reasoning and communicating (Izzuddin, 2021). Based on the opinion above, this scientific approach when applied to table tennis learning by observing learning, observing games, trying games and reasoning and communicating among friends is very good to be applied in table tennis learning. Active learning is a learning approach that involves several student activities to find different information and knowledge to learn in classroom learning (Fitrah et al., 2022).

From the description above, it is not yet known the certainty of the effectiveness of implementing the independent learning curriculum with a scientific approach, so researchers will examine more deeply PJOK learning, especially in table tennis material.

METHOD

The method used in this research is a quantitative descriptive research method. The population in this study were class VIII students of SMP Negeri 2 Ulaweng, totaling 127 students consisting of 59 male students and 68 female students. The simple random sampling technique was used to obtain the research sample so that 31 students were selected as the research sample. The instrument used to collect data in this study was an observation sheet of table tennis forehand and backhand skills. The data analysis technique used is descriptive statistics using the SPSS version 20 program.

RESULTS AND DISCUSSION

Cognitive indicator learning outcomes

In the results of this data description will discuss the average, standard deviation, median, the highest and lowest values of learning outcomes cognitive indicators.

Table 1. Descriptive data based on learning outcomes cognitive indicators

Variable	N	Rate-rate	Median	SD	Minimum	Maximum
COGNITIVE	31	88.42	93.00	12.635	60	100

Based on table 1 above, it shows that the learning outcomes of forehand and backhand strokes in table tennis games using a scientific approach in class VIII students of

SMP Negeri 2 Ulaweng have cognitive indicators. That the mean value is 88.42 with a median of 93.00 standard deviation12.635 minimum 60 and maximum 100.

Table 2. Distribution of data on the frequency of learning outcomes for cognitive indicators.

No	Value Range	Category	Frequency	Presentase (%)
1	86 - 100	Very Good (A)	31	100%
2	71 – 85	Good (B)	0	0%
3	56 – 70	Enough (C)	0	0%
4	≤ 55	Less (D)	0	0%
	Amount		**31**	**100%**

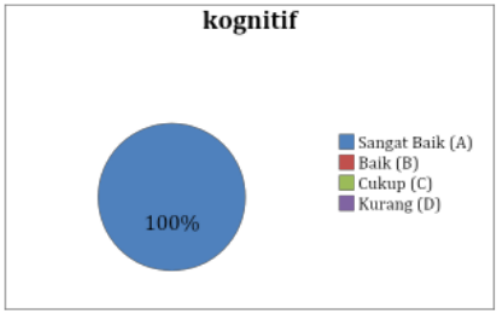

Figure 1. Cognitive indicator learning outcomes pie chart.

Based on the table above, it can be seen that the criteria for learning outcomes are cognitive indicators. 0 students or 0% for less category, 0 students or 0% enough category, then for good category there are 0 or 0% students, very good category 31 or 100% students. So it can be concluded that the learning outcomes of forehand and backhand strokes in table tennis using a scientific approach to class VIII students of SMP Negeri 2 Ulaweng cognitive indicators are in the very good category with a percentage of 100%.

Affective indicator learning outcomes

In the results of the description of this data will discuss the average, standard deviation, median, highest and lowest scores learning outcomes forehand and backhand strokes in table tennis games using a scientific approach to class VIII students of SMP Negeri 2 Ulaweng with affective indicators.

Table 3. Descriptive data based on learning outcomes of forehand and backhand strokes in table tennis game affective indicators

Variable	N	Rate-rate	Median	SD	Minimum	Maximum
AFFECTIVE	31	89.03	90.00	4.902	80	95

Based on table 3 above, it shows that the learning outcomes of forehand and backhand strokes in table tennis games using a scientific approach in class VIII students of SMP Negeri 2 Ulaweng. That the mean value is 89.03 with a median of 90.00, a standard deviation of 4.902, a minimum of 80 and a maximum of 95.

Table 4. Distribution of affective indicator learning frequency data.

No	Value Range	Category	Frequency	Presentase (%)
1	86 - 100	Very Good (A)	22	100%
2	71 – 85	Good (B)	5	0%
3	56 – 70	Enough (C)	4	0%
4	≤ 55	Less (D)	0	0%
	Amount		**31**	**100%**

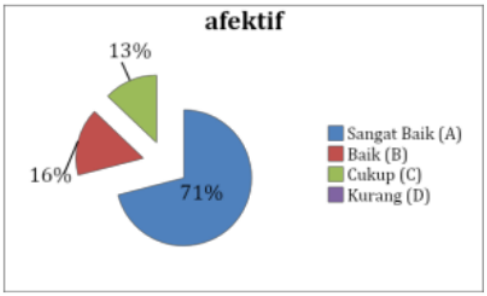

Figure 2 circle diagram of affective indicator learning outcomes

Based on the table above, it can be seen that there are criteria of affective indicator learning outcomes. 0 students or 0% for less category, 4 students or 13% enough category, then for good category there are 5 students or 16% students, very good category 22 students or 71% students. So it can be concluded that the learning outcomes of forehand and backhand strokes in table tennis using a scientific approach in class VIII students of SMP Negeri 2 Ulaweng are in the very good category with a percentage of 71%.

Psychomotor indicators learning outcomes

In the results of this data description, it will discuss the average, standard deviation, median, highest and lowest scores of learning outcomes for forehand and backhand strokes in table tennis games using a scientific approach to class VIII students of SMP Negeri 2 Ulaweng.

Table 5. Descriptive data based on learning outcomes of psychomotor indicators

Variable	N	Rate-rate	Median	SD	Minimum	Maximum
PSYCHOMOTOR	31	86.23	87.00	4.145	85	95

Based on table 5 above, it shows that in general the learning outcomes of forehand and backhand strokes in table tennis games using a scientific approach to class VIII students

of SMP Negeri 2 Ulaweng. That the mean value is 86.23 with a median of 87.00, a standard deviation of 4.145, a minimum of 85 and a maximum of 95.

Table 6. Distribution of data on the frequency of learning outcomes

No	Value Range	Category	Frequency	Presentase (%)
1	86 - 100	Very Good (A)	21	68%
2	71 – 85	Good (B)	10	32%
3	56 – 70	Enough (C)	0	0%
4	≤ 55	Less (D)	0	0%
	Amount		**31**	**100 %**

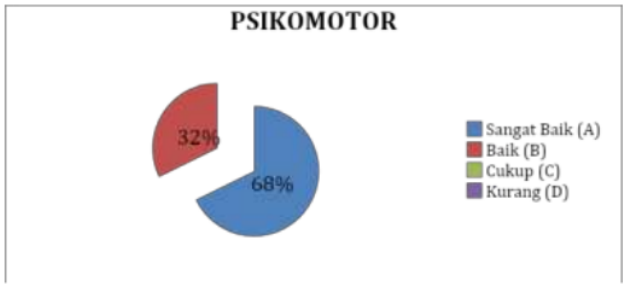

Figure 3. a pie chart of psychomotor indicators learning outcomes.

Based on the table above, it can be seen that there are criteria for psychomotor indicator learning outcomes. 0 students or 0% for the less category, 0 students or 0% for the sufficient category, then for the good category there are 10 students or 32% of students, the very good category is 21 students or 68% of students. So it can be concluded that the learning outcomes of forehand and backhand strokes in table tennis using a scientific approach in class VIII students of SMP Negeri 2 Ulaweng are in the very good category with a percentage of 68%.

Learning outcomes of forehand and backhand strokes in table tennis using a scientific approach to class VIII students of SMP Negeri 2 Ulaweng

In the results of this data description, it will discuss the average, standard deviation, median, highest and lowest scores of learning outcomes for forehand and backhand strokes in table tennis games using a scientific approach to class VIII students of SMP Negeri 2 Ulaweng.

Table 7. Descriptive data based on learning outcomes of forehand and backhand strokes in table tennis games using a scientific approach to class VIII students of SMP Negeri 2 Ulaweng

Variable	N	Rate-rate	Median	SD	Minimum	Maximum
LEARNING OUTCOMES	31	87.89	88.33	4.97	76.67	96.67

Based on table 7 above, it shows that in general the learning outcomes of forehand and backhand strokes in table tennis games using a scientific approach to class VIII students of SMP Negeri 2 Ulaweng. That the mean value is 87.89 with a median of 88.33, the standard deviation is 4.97, the minimum is 76.67 and the maximum is 96.67.

Table 8. Distribution of data on the frequency of learning outcomes.

No	Value Range	Category	Frequency	Presentase (%)
1	86 - 100	Very Good (A)	21	68%
2	71 – 85	Good (B)	10	32%
3	56 – 70	Enough (C)	0	0%
4	≤ 55	Less (D)	0	0%
	Amount		**31**	**100 %**

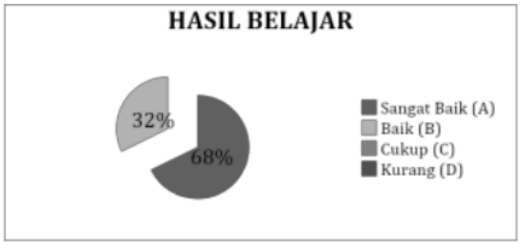

Figure 4. circle diagram of learning outcomes

Based on the table above, it can be seen that the criteria for the results are there. 0 students or 0% for the less category, 0 students or 0% for the sufficient category, then for the good category there are 10 students or 32% of students, the very good category is 21 students or 68% of students. So it can be concluded that the learning outcomes of forehand and backhand strokes in table tennis using a scientific approach in class VIII students of SMP Negeri 2 Ulaweng are in the very good category with a percentage of 68%.

Very good category 21 or 68% of students, because students already understand and know the basic techniques of forehand and backhand strokes which have good implementation according to the truth where when hitting the ball the position of the palm of the hand holding the racket and the bat is facing forward. From the quote above it can be concluded that*forehand drive* is a shot that is made from below with an upward tilted bet position and is done on the right and at the time of hitting the ball the position of the palm holding the bat is facing forward. There are 10 or 23% of students in the good category, this category is considered correct but still needs to be improved, especially when hitting the ball. The category simply does not exist or 0%, 0 students or 0% for the less student category and 0 students or 0% means that all students can do according to good and

correct theory and practice. The three domains of physical education goals include: (1) cognitive, (2) psychomotor and (3) affective areas. All three have an important role, but in this study the authors focus on affective evaluation which according to the authors still needs to get more attention, because not many indicators and descriptors of affective aspects have been found and used as assessment criteria.

In the world of education, every step taken must always have a goal, including all activities in Physical Education subjects. In the Decree of the Minister of Education and Culture Number 0413/U/1987 it is stated that physical education is part of the overall education. Physical education aims to develop individuals organically, neuromuscularly, intellectually and emotionally. The cognitive domain is the realm that includes mental (brain) activity. All efforts related to brain activity are included in the cognitive domain. The affective domain is a realm related to attitudes and values. The affective domain includes behavioral traits such as feelings, interests, attitudes, emotions, and values. Some experts say that a person's attitude can be predicted to change if someone already has a high level of cognitive power. The affective field in psychology will give its own role to be able to internalize a value obtained through the cognitive and affective organizational abilities themselves. So the existence of affective in the world of teaching psychology is very urgent to be used as a better teaching pattern, of course. The psychomotor domain is a domain related to skills or the ability to act after a person receives a certain learning experience. These psychomotor learning outcomes are actually a continuation of cognitive learning outcomes (understanding something) and affective learning outcomes (which only appear in the form of behavioral tendencies). The psychomotor domain is related to physical activity in general and in particular.

CONCLUSION

Based on the results of the study it can be concluded that the learning outcomes of forehand and backhand strokes in table tennis games using a scientific approach in class VIII students of SMP Negeri 2 Ulaweng are in the very good category.

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