The experiment of physical education teaching style on different categories of student confidence to improve the swimming learning value (*Experimental method using design of treatment by factorial 3x2*) at Higher School Of Teacher Training And Pedagogy Kusumanegara Jakarta

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Abstract

Purpose: This study aimed to solve the problem of 80% students swimming learning value are failed, the researcher tries to experiment and prove the most suitable physical education teaching style to improve students swimming learning value for physical education student college at Higher School Of Teacher Training And Pedagogy Kusumanegara Jakarta. There are 3 types of physical education teaching style (Training teaching style, Command teaching style, and Self-check teaching style), confidence as a moderator variable are divided into two parts (high confidence and low confidence)

Methods: The quantitative experimental method was using design of treatment by factorial 3x2, participant were 60 male students divided into 6 groups, each consisting of 10 students. Before analyzing the hypothesis, there are 2 requirements tests: normality test *by Liliefors* and homogenity test *by Levene's Test*. Second stage,

hypotheses analyzed using variance analysis techniques (ANOVA) One-way Anava and Two-way Anava by significance α =0,05.

Results: The results of this study indicate that the: (1) Teaching style has an influence on increasing swimming learning value for students college (2) There are "Differences" between teaching styles (Training teaching style, Command teaching style, Self-Check teaching style). (3) There is an "Interaction" between teaching style and confidence toward increasing the swimming learning value, (4) The Training teaching style is the most appropriate teaching style to improve the swimming learning value (5) For students in the category High Confidence more suitable to be taught with Training teaching style **but** For students in the category Low Confidence more suitable to be taught with Self-Check teaching style.

Conclusion: To increasing the value of swimming learning value can be improved by Teaching styles for physical education students college.

Key words: physical education, teaching style, influence, confidence, swimming learning value.

Introduction,

Higher School Of Teacher Training And Pedagogy Kusumanegara located in the capital city of Indonesia, it has physical education program, This college graduate will become a Physical Education Teacher. In the study program has a swimming subject and for each students must be granted by A, B or C values.

By the data of learning value swimming subject in 2017/2018 2nd, students who do not pass are 80 percent. This can be seen from the following chart:

Chart.1 Learning Value Swimming Subject, Physical Education Students at Higher School Of Teacher Training And Pedagogy Kusumanegara in 2017/2018 2nd

Swimming Learning Value
Physical Education Program
Higher School Of Teacher Training And Pedagogy Kusumanegara Jakarta
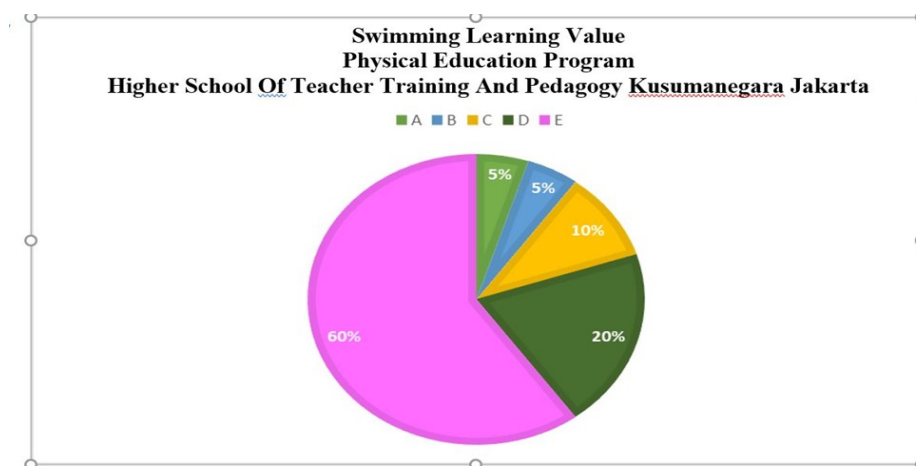
Source: Physical
Education Program Secretary.
Description of value:
A: 5 %, graduated
B: 5 %, graduated
C: 10 %, graduated
D: 40 % failed
E 40 % failed
TOTAL: 80% failed

According that problem, there must be an effort to increase swimming learning value of students. A research of Koloskova,T.M Bilous. (2018) In *Journal of Education, Health and Sport,* learning methods could be give good contribution in the classes, the classes will become more active and creative. Research by Ternopil Vladimir Hnatiuk (2019) in *Journal of Education, Health and Sport* that the learning process are inseparable from the way or style of teaching lecturers in the class. By the same journal Monika Papla, Grzegorz Wojdała, Joanna Rasek (2019) found that physical education consists in interactions between teachers and students. It is important that each of those present in the classroom feel satisfied with their own results. In *Journal of Education, Health and Sport* Nataliia Hrytsai, Iryna Trokhymchuk (2019) consider that the methodical training of future teachers is more aimed at conducting lessons. By article from the Greek version of Cothran, Kulinna and Ward's (2000), teaching style proved to be a reliable tool for providing an attractive and effective physical education learning atmosphere. In the research conducted by Aktop, A.,Karahan, N (2012) revealed that the college lecturer in Turkey was teaching at Primary and Secondary School is always using Command teaching style, it proved that the strategy commonly used by physical education teachers is teacher as a center learning.

By the theory of Muska Mosston and Sara Ashworth (1994,3) conclude that learning strategies such as war strategy, which is one way to get around the learning system, so the purpose of the learning process can increasing the value or results and learning process can be achieved effectively and efficiently. Second theory by B.E Rahantoknam (1997,8) as a physical education leturer must has 3 competencies to improve student learning value and skills, either one is the ability to choose the right teaching style. Other opinion by Yusup Adisasmita (1997,82) the way to increasing value of motion/ motor learning will be successful by using teaching styles. Because teaching styles are specific guidelines for the structure of learning and learning stages.

Therefore, based on articles research and theories, it can be predictable that to improve the swimming learning value, it is necessary to have the right Teaching style that must be applied by the lecturers so that the knowledge transfer process can improve swimming skills, and the other hands will give an impact of motor skills.

The researcher hypothesizes that there are 3 types of teaching style theories are suitable to use, namely: (1) Training teaching style (2) Command teaching style dan (3) Self-check teaching style. So in this study to solve these problems, researcher tried to prove and experiment whether the three teaching styles are suitable and appropriate to increase the student swimming learning value. This experiment was conducted on 60 students as samples. This sample is divided into 2 parts, namely 30 students who have high confidence and 30 students who have low confidence..

Purpose.

This study aimed to solve the problem of 80% students swimming learning value are failed, the researcher tries to experiment and prove the most suitable physical education teaching style to improve students swimming learning value for physical education student college at Higher School Of Teacher Training And Pedagogy Kusumanegara Jakarta. Based on purpose, there are 6 hypothesis question will become solution to solve the problem.

1. First hypothesis:

   Is there an "Influence" between teaching styles toward improving swimming learning value?

2. Second hypothesis:

   Are there "differences" between treatment groups of teaching style (Training teaching style, Command teaching style and Self-check teaching style) ?

3. Third hypothesis:

   Is there an "Interaction" between teaching style and confidence to improving swimming learning value?

4. Fourth hypothesis:

   What is appropriate teaching styles to improving swimming learning value?

5. Fifth hypothesis:

   What is appropriate teaching styles to improving swimming learning value for high confidence students?

6. Sixth hypothesis:

   What is appropriate teaching styles to improving swimming learning value for low confidence students?

Method.

This is quantitative research,

   Consists of:

- Dependent variable: Swimming learning value

- Independent variable: Teaching style (Training teaching style, Command teaching style and Self-check teaching style)

- Moderator variable: Confidence (High confidence, Low confidence)

		Teaching style (A)		
		Training teaching style (A₁)	Command teaching style (A₂)	Self-check teaching style (A₃)
Confidence (B)	High confidence (B₁)	A_1B_1	A_2B_1	A_3B_1
	Low confidence (B₂)	A_1B_2	A_2B_2	A_3B_2
Total		A_1	A_2	A_3

Table: Design of Treatment by Factorial 3x2

The research design of treatment by factorial 3x2, independent variables is Teaching styles (A) independent variables classified into 3 types: Training teaching style (A1), Command teaching style (A2) and Self-check teaching style (A3). Moderator variable is Confidence (B) Moderator variables classified into 2 types (B) High confidence (B1) and Low confidence (B2).

Annotation:
A   :   Teaching Style
A_1 :   Training teaching style
A_2 :   Command teaching style
A_3 :   Self-check teaching style
B   :   Confidence
B_1 :   Students in the high confidence category
B_2 :   Students in the low confidence category
A_1B_1 :   The high confidence category of student groups was treated with Training teaching styles
A_2B_1 :   The high confidence category of student groups was treated with Command teaching styles
A_3B_1 :   The high confidence category of student groups was treated with Self-check teaching styles
A_1B_2 :   The low confidence category of student groups was treated with Training teaching styles
A_2B_2 :   The low confidence category of student groups was treated with Command teaching styles
A_3B_2 :   The low confidence category of student groups was treated with Self-check teaching styles

Description of comparison/ difference in data from the results of this study aims to provide an overview of differences teaching styles are divided into 3 treatment groups namely Training teaching style, Command teaching style and Self-Check teaching style.

To find out the description of the data, the researcher uses the distribution of data distribution, the size of the location of frequency distribution, normality data, homogeneity data and hypothesis. The data presented after processing from raw data using descriptive statistical methods, namely the maximum value, minimum value, range, average, standard deviation and variance.

SAMPLE DETERMINATION TECHNIQUES

1. Population

The population is: students enrolled in swimming subject of physical education program at Higher School Of Teacher Training And Pedagogy Kusumanegara Jakarta 2017/2018 by total is 120 students, Consists of:

111 Male and 9 Female.

Table: Students enrolled in swimming subject of physical education program at Higher School Of Teacher Training And Pedagogy Kusumanegara Jakarta 2017/2018

NO	Classroom	Male	Female	Amount
1	Classroom A	37	3	40
2	Classroom B	38	2	40
3	Classroom C	36	4	40
	Total	111	9	120

(Source: Physical Education Program Secretary)

2. Sample

Accordingly of research design of treatment by factorial 3x2, thus the sampling technique uses *purposive sampling* namely sampling techniques based on certain considerations and objectives (Maksum, 2012), this experimental research has the same character (homogen) in other to keep the level of validity of the study in maintained. Then, focus of the sample in this study is Male students in total 111.

The next step, giving interviews based on questionnaires to all male samples to get the confidence level of students. The results of the questionnaire answers from each student are sorted from the highest score to the lowest score. Afterwards, to divide the group of students into high confidence and low confidence so that the score is selected using the formula (Frank Verducci, 1980) 27% for high score and 27% for low score.

- 27% x 111 = 29,7 = 30 Students in the high confidence category.
- 27% x 111 = 29,7 = 30 Students in the low confidence category.

Total sample will get treatment is: 60 Male.

Analysis Data

First stage, ther are 2 requirements test:

1) Normality test *by Liliefors* to check the samples are normal.
2) homogenity test *by Levene's Test* to check the sample has the same character (homogen) by significance $\alpha = 0,05$.

Using the Application SPSS 17.

Second stage, hypotheses analyzed using variance analysis techniques (ANOVA) One-way Anava and Two-way Anava by significance $\alpha = 0,05$, aims to:

1) Test of the main influences (*Main effect*)
2) Test of the influence in detail (*Simple effect*) for each cell
3) Test of the "Interaction" between Teaching style and Confidence.

Results,

After Teaching styles treatment, then get results. Below is a summary table of swimming learning value:

Confidence (B)	SAMPLE	Teaching Style (A)			SUM	AVERAGE
		A1	A2	A3		
	1	25	22	16		
	2	24	18	12		
	3	25	22	13		
High Confidence (B1)	4	24	19	18		
	5	25	20	15		
	6	23	20	16		
	7	25	16	15		
	8	24	12	10		
	9	25	21	14		
	10	25	19	12		
SUM		245.00	189.00	141.00	575.00	
AVERAGE		24.50	18.90	14.10		19.17
	1	19	20	20		
	2	18	18	23		
	3	18	17	22		
Low Confidence (B2)	4	18	17	22		
	5	19	15	19		
	6	19	17	19		
	7	18	20	20		
	8	19	19	24		
	9	19	22	24		
	10	18	18	24		
SUM		185.00	183.00	217.00	585.00	
AVERAGE		18.50	18.30	21.70		19.50
Overall SUM		430.00	372.00	358.00	1160.00	
Overall AVERAGE		21.50	18.60	17.90		19.33

Annotation**:**

A : Teaching Style
A_1 : Training teaching style
A_2 : Command teaching style
A_3 : Self-check teaching style
B : Confidence
B_1 : Students in the high confidence category
B_2 : Students in the low confidence category
A_1B_1 : The high confidence category of student groups was treated with Training teaching styles
A_2B_1 : The high confidence category of student groups was treated with Command teaching styles
A_3B_1 : The high confidence category of student groups was treated with Self-check teaching styles
A_1B_2 : The low confidence category of student groups was treated with Training teaching styles
A_2B_2 : The low confidence category of student groups was treated with Command teaching styles
A_3B_2 : The low confidence category of student groups was treated with Self-check teaching styles

Answer hypothesis:

To prove the influence of Teaching styles(A) toward improving swimming learning value(Y), it can be seen in the following summary table:

Tests of Between-Subjects Effects

Dependent Variable:Y

Source	Type I Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	782,201[a]	2	391,101	7,061	,002
Intercept	25247,811	1	25247,811	455,842	,000
A	782,201	2	391,101	7,061	,002
Error	3157,068	57	55,387		
Total	29187,080	60			
Corrected Total	3939,270	59			

a. R Squared = ,199 (Adjusted R Squared = ,170)

Table: "Influence" between teaching styles toward improving swimming learning value.

Based on the table above it can be explained that one way anava:

H_0 : = =

H_1 : Except H_0

Value F_{count} or F(A) = 7,061 and p-value = 0,002 < 0,05 teaching styles toward improving swimming learning value. From the results of the table above it turns out that teaching style factors can explain R_{Square} = 0,199 x 100 = 19,9%, there is a variance in the improving swimming learning value in the amount of 19,9%.

1. Answer of First hypothesis:

Based on the explanation above, there is an "Influence" between teaching styles toward improving swimming learning value.

Below is a table of differences" between treatment groups of teaching style (Training teaching style, Command teaching style and Self-check teaching style)

Contrast Tests

		Contrast	Value of Contrast	Std. Error	t	df	Sig. (2-tailed)
Y	Assume equal variances	A1XA2	-7,14	2,353	-3,034	57	,004
		A1XA3	-8,09	2,353	-3,438	57	,001
		A2XA3	-,95	2,353	-,404	57	,688
	Does not assume equal variances	A1XA2	-7,14	2,734	-2,612	20,513	,016
		A1XA3	-8,09	2,832	-2,856	23,352	,009
		A2XA3	-,95	1,059	-,897	30,681	,377

In detail the answer to the first hypothesis will be explained in the following interpretations:

1.1 Differences Between of Training Teaching Style Groups (A1) Toward Command Teaching Style Groups (A2).

In contrast the table above can be analyzed $t_0 (A_1 \times A_2) = -3,034$, p-value $= 0,004/2 = 0,002 < 0,05$, signify H_0 rejected. Therefore, swimming learning value of the group treated by Training teaching style is higher than the group treated by Command teaching style.

1.2 Differences Between of Training Teaching Style Groups (A₁) Toward Self-Check Teaching Style Groups (A₃).

In contrast the table above can be analyzed $t_0 (A_1 \times A_3) = -3,438$, p-value $= 0,001/2 = 0,0005 < 0,05$, H_0 rejected. Therefore, swimming learning value of the group treated by Training teaching style is higher than the group treated by Self-check teaching style.

1.3 Differences Between of Command Teaching Style Groups (A₂) Toward Self-Check Teaching Style Groups (A₃).

In contrast the table above can be analyzed $t_0 (A_2 \times A_3) = -0,404$, p-value $= 0,688/2 = 0,344 > 0,05$, H_0 accepted. Therefore, swimming learning value of the group treated by Command teaching style is same with the group treated by Self-check teaching style.

2. Answer of Second hypothesis:

There are "differences" between treatment groups of teaching style (Training teaching style, Command teaching style and Self-check teaching style)
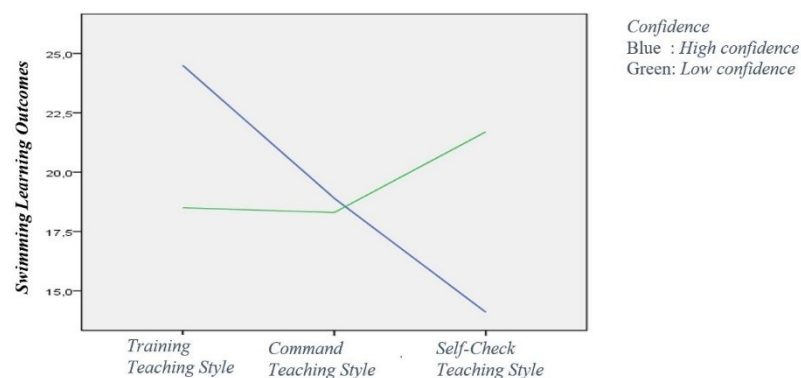

Chart: Interaction between Teaching style (A) and confidence (B) toward swimming learning value.

From the table above it can be seen the interaction between Teaching style (A) and confidence (B) toward swimming learning value.

Tests of Between-Subjects Effects

Dependent Variable: Swimming learning value

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	616,333ª	5	123,267	30,960	,000
Intercept	22426,667	1	22426,667	5632,744	,000
A	145,733	2	72,867	18,301	,000
B	1,667	1	1,667	,419	,520
A * B	468,933	2	234,467	58,889	,000
Error	215,000	54	3,981		
Total	23258,000	60			
Corrected Total	831,333	59			

a. R Squared = ,741 (Adjusted R Squared = ,717)

Table: Interaction test between Teaching style (A) and Confidence (B)

Fo (AB) = 58,889 with p-value = 0,000 < 0,05 or H_0 rejected. Therefore, there is a very significant interaction between Teaching style (A) and confidence (B) toward swimming learning value. based on analysis of influence r $R_{Squared}$ = 0,741 x 100 = 74,10%.

3. Answer of Third hypothesis:
There is an "Interaction" between Teaching style and Confidence to improving swimming learning value.
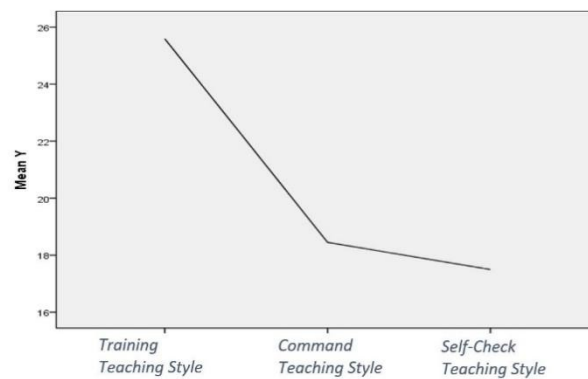
Below is a descriptive statistical analysis:

Descriptive Statistics

Dependent Variable:Y

A(Teaching Style)	Mean	Std. Deviation	N
Training	25,59	11,989	20
Command	18,45	2,395	20
Self-check	17,50	4,085	20
Total	20,51	8,171	60

Table: Variant differences between teaching styles.

In the mean column, the average teaching style is = 25,59, Command teaching style = 18,45, Self-check teaching style = 17,50 and teaching style average is = 11,989. Therefore, by descriptive analysis Training Teaching Style is the most appropriate teaching style to improve swimming learning value. Then by visually, swimming learning value average value for each teaching style presented in the following graph:

Graph: swimming learning value average value for each teaching style.

4. Answer of Fourth hypothesis:
Training Teaching Style is the most appropriate teaching style to improve swimming learning value.

Descriptive statistical analysis of variant differences by the confidence level in teaching style group treatment, presented in the following table:

Descriptive Statistics

Dependent Variable: swimming learning value

	Confidence	Mean	Std. Deviation	N
Training	High	24,50	,707	10
	Low	18,50	,527	10
	Total	21,50	3,137	20
Command	High	18,90	3,035	10
	Low	18,30	2,003	10
	Total	18,60	2,521	20
Self-check	High	14,10	2,378	10
	Low	21,70	2,058	10
	Total	17,90	4,459	20
Total	High	19,17	4,843	30
	Low	19,50	2,271	30
	Total	19,33	3,754	60

5. *Answer of Fifth hypothesis:*
Based on the table 24,50 > 18,90, For high confidence students category: Training teaching style is most appropriate to improving swimming learning value.

6. *Answer of Sixth hypothesis:*
Based on the table 21,70 > 14,10, For low confidence students category: Self-check teaching style is most appropriate to improving swimming learning value

Discussion

Conclusions is based on the findings of experimental treatment by factorial research 3x2, There are 3 types of physical education teaching style (Training teaching style, Command teaching style, and Self-check teaching style), confidence as a moderator variable are divided into two parts (high confidence and low confidence) and

dependent variable is the swimming learning value. Drawing conclusions in this study in accordance with the answers of the hypothesis.

The results of the study showed, There is an "Influence" between teaching styles and confidence toward improving swimming learning value This research strengthens knowledge and theory that the more expert a lecturer uses the teaching style it will have a big impact on increasing the swimming learning value.

The findings in this study, Training teaching style is the most appropriate teaching style to improve swimming learning value, because Training teaching style is emphasis on repetition of motion assignments and increasing exercise. In a case of study from the journal *International Journal of Instruction*, *12*(1), 1–16. Burdina, G. M., Krapotkina, I. E., & Nasyrova, L. G. (2018) explained that on-the-spot teaching method is become an excellent medium in shaping intimate communication between teachers and students. In experimental research Fawcett & Garton (2005) from the journal *International Journal of Instruction* investigate the impact of collaborative social interactions on a child's ability to solve problems, It was found that children who did a lot of repetitions and exercises experienced could be increase scores significantly better than children who do less repetition and practice. This is also supported by the training theory according to Bompa (2004: 2) that training process will prepare someone for the highest performance. Therefore, researchers recommend The training teaching style as the most suitable method in the learning process to improve swimming learning value.

For high confidence students category, the data obtained showed that to improve swimming learning value will be more suitable to use the Training teaching style also, because it is able to provide feedback individually and do more repetitions of motion consistently. Moreover, especially for high confidence students category will have no more anxiety and fear, when they are in the water will find it easier to follow the motion assignments given by the lecturer with more repetition of freestyle swimming movements. Therefore, researchers recommend The training teaching style as the most suitable method in the learning process to improve swimming learning value for high confidence students category.

But for low confidence students category, the data obtained showed that to improve swimming learning value will be more suitable to use the Self-check teaching style. Because low confidence students category does not want to follow orders directly from the lecturer because the fear factor of drowning give a high impact of panic, so the learning process to be hampered. Therefore, when they are given the task and option to examine their abilities, such as checking the technique of swimming by their self, it make them self ready to swim at a deep swimming pool and they have the ability to swim long distances, so it will be increase in the quality of swimming learning value. Therefore, researchers recommend the Self-cehcek teaching style as the most suitable method in the learning process to improve swimming learning value for low confidence students category.

The compatibility between the teaching styles with the two categories of confidence students characteristics by empirically be proven significantly in statistical calculations.

Conclusions:

Based on the answer of 6 hypothesis:

1. *There is an "Influence" between teaching styles toward improving swimming learning value.*
2. *There are "differences" between treatment groups of teaching style (Training teaching style, Command teaching style and Self-check teaching style)*

3. *There is an "Interaction" between Teaching style and Confidence to improving swimming learning value.*

4. *Training Teaching Style is the most appropriate teaching style to improve swimming learning value*

5. *For high confidence students category: Training teaching style is most appropriate to improving swimming learning value.*

6. *For low confidence students category: Self-check teaching style is most appropriate to improving swimming learning value*

Finally, the swimming learning value can be improved by The Teaching styles.

Conflicts of interest : This article is for the requirements to take a graduation exam on a doctoral study program.

REFERENCES

Koloskova, O., Bilous, T., Bilyk, G., Kaliyeva, S., Riklefs, V., Abakassova, G., & Muratova, A. (2018). Efficacy of teaching medical students by problem-based learning method. *Journal of Education, Health and Sport, 8*(8), 1217-1226. doi:http://dx.doi.org/10.5281/zenodo.1453383

Hrytsai, N., Trokhymchuk, I., Grygus, I., & Zukow, W. (2019). Training of future biology teachers to organize excursions in school. *Journal of Education, Health and Sport, 9*(5), 187-198. doi:http://dx.doi.org/10.5281/zenodo.2769680

Papla, M., Wojdała, G., Rasek, J., Królikowska, P., Starzak, J., & Górna-Łukasik, K. (2019). Attitudes towards physical education lessons in students at different levels of education. *Journal of Education, Health and Sport, 9*(4), 301-316. doi:http://dx.doi.org/10.5281/zenodo.2637417

Kurowicka, E. (2018). Stress and teachers satisfaction with educational work. Journal of Education, Health and Sport, 8(12), 862-870. doi:http://dx.doi.org/10.5281/zenodo.2553091

Chatoupis, C., & Vagenas, G. (2018). *Effectiveness of the Practice Style and Reciprocal Style of Teaching*: A Meta-Analysis. *The Physical Educator*, *75*(2), 175–194. https://doi.org/10.18666/tpe-2018-v75-i2-7920

Hevko Ihor. Information technologies in education: opportunities and negative consequences. (2019). Journal of Education, Health and Sport. 9(1), 69-77. DOI http://dx.doi.org/10.5281/zenodo.2539555

Burdina, G. M., Krapotkina, I. E., & Nasyrova, L. G. (2018). *Distance Learning in Elementary School Classrooms: An Emerging Framework for Contemporary Practice*. International Journal of Instruction, *12*(1), 1–16. https://doi.org/10.29333/iji.2019.1211a

Suntusia, S., Dafik, D., & Hobri, H. (2018). The Effectiveness of Research Based Learning in Improving Students' Achievement in Solving Two-Dimensional Arithmetic Sequence Problems. *International Journal of Instruction*, *12*(1), 17–32. https://doi.org/10.29333/iji.2019.1212a

Aktop, A., & Karahan, N. (2012). *Physical education teacher's views of effective teaching methods in physical*

education. Procedia-Social and Behavioral Sciences, 46, 1910-1913.

Anne L. Rothstein L. Research Desain & Statistics for Physical Education. New Jersey; Prentice Hall, Inc. 1985

Bowen, D. J. & Neill, J. T. Effects of the PCYC Catalyst outdoor adventure intervention program on youths' life skills, mental health, and delinquent behaviour. 2005

Chen, W., Zhu, W., Mason, S., Hammond-Bennett, A., & Colombo-Dougovito, A. (2016). *Effectiveness of quality physical education in improving students' manipulative skill competency. Journal of sport and health science*, 5(2), 231-238.

Dedeng Kurnia. *Teknik Dasar dan Lanjutan Renang.* Jakarta: IOC Olympic Solidarity-NOC of Indonesia and National Swimming Federation Of   Indonesia

Ernest W. Maglischo. *Swimming Faster-A Comprehensiv Guide to the   Science   of   Swimmin.* California: May Field Publishing Company. 1993

Elizabeth B. Hurlock. Children Development Six Edition. United Kingdom: Mc.Graw Hill Inc. 2005

FINA Handbook 2009-2013. *Contitutions and Rules: Swimming, Open Water   Swimming,   Diving,   Water Polo, Synhcronised Swimming, Masters,Facilities, Medical and Doping Control .* Fina Office

Mosston, muska and Sara Ashworth *Motor Learning and Control, Concepts   and   ApplicationsI.*   New York:McGraw-hill international Edition. 2011

Mosston, Musska and Sara Asworth, *Teaching Physical Education.* New York: Mac Millan College Publising Inc. 1994

Nakashima, M., & Tsunoda, Y. (2015). *Improvement of crawl stroke for the swimming humanoid robot to establish an experimental platform for swimming research.* Procedia Engineering, 112, 517-521.

Seifert, L., Chollet, D., & Allard, P. (2005). *Arm coordination symmetry and breathing effect in front crawl.* Human Movement Science, 24(2), 234-256.

Sghaier, D., Elandoulsi, S., Mami, M., & Bouassida, A. (2015). *Physical Education Teacher's Training in Swimming under the Joint Didactic Action.* Creative Education, 6(22), 2433.

Spigelman, T., Sciascia, A., & Uhl, T. (2014). *Return to swimming protocol for competitive swimmers: a post-operative case study and fundamentals.* International journal of sports physical therapy.

Tangkudung, James. *Pembinaan Prestasi Olahraga Edidisi ke 1 dan 2.* Jakarta: Cerdas Jaya, 2012.

Vezos, N., Gourgoulis, V., Aggeloussis, N., Kasimatis, P., Christoforidis, C., & Mavromatis, G. (2007). Underwater stroke kinematics during breathing and breath-holding front crawl swimming. Journal of sports science & medicine, 6(1), 58.

Yanti, M., Samara, A., Kazantzidis, P., Hasiotou, A., & Alexiou, S. (2014). *Swimming as physical activity and recreation for women.* TIMS. Acta.

McLean, S. P., & Hinrichs, R. N. (2000). *Buoyancy, gender, and swimming performance. Journal of Applied Biomechanics*, 16(3), 248-263.

Zamparo, P., Carrara, S., & Cesari, P. (2017). Movement evaluation of front crawl swimming: Technical skill versus aesthetic quality. PloS one, 12(9), e0184171.

Appendix 2
Instruments Freestyle Swimming Learning Outcomes (Variable Bound)
   a. **conceptual definition**
      Results freestyle value is the abilities of a person after he received a learning experience (Sudjana, 2009: 22). Results freestyle rated value by 5 pieces indicators of body position, limb movement, arm movements, breathing techniques and coordination. To see their ability can be measured directly by testing and quantifiable results with numbers that can provide information about how far the absorptive capacity of the material by someone after participating in the learning process.
   b. **Operational definition**
      Freestyle is physical activities diair which has elements such as body movements, basic techniques motion mechanism, mentality and physical condition as a whole to be owned by a person to be able to float and move from one place to another by moving as freely as independent and as soon as rapidly as goal displacement within the quickest possible time this was reinforced by the theory Colwin Cecil (2002: 50) then strengthened in the book the basics of swimming by Abdul Sukur and BAZURI Fadillah (2008: 31) disclosed that freestyle is movement do diair position kedasar face and chest facing the water surface.

Table 3.4 Instruments Psychomotor Freestyle Swimming Value

NO	INDICATOR Position body (body position).	VALUE	CHECKS LIST (√)
1	Body position when the slider is maintained in attitude as flat as possible (streamline) the surface of the water, arms straight ahead, her face down in the water. Hands, head, body and legs, including the toe parallel to the water surface, so the body glides forward properly.	5	
2	If the ankle when viewed from the ankle as if memebentuk hurul "L" whereby the position of the "fleet" which causes the water resistance of the instep and body positioning errors later sinking deep below the surface when the streamlined position air.pada	4	
3	Head upturned chin upwards in the position leading to the bottom of the water and the crown of the head perpendicular to the sky, when the water passes through the head making a face as if slapped the water resulted in a large water detention in the face. Coupled with the shape of foot position is wrong 	3	
4	The third mistake is that both hands are in the water where the hand position is not straight forward but the elbow flexed coupled with a straight wrist position not to make water resistance back of the hand or otherwise water resistance on the wrist. Coupled with the shape of a foot wrong position and the upturned head upwards	2	
5	The position of the body curved upward so that the pelvis is the highest position leads to a surface other than the body. And this is a fatal error in the streamlined position freestyle swimming. Coupled with the shape of foot position is wrong, heads looked up and position the wrong hands.	1	
	TOTAL VALUE		

NO	INDICATOR **Limbs Movement (Kicking)**	VALUE	CHECKS LIST (√)
1	Legs move up and down leads straight (flutter kick), up and down the state feet below the water surface when riding down from above the water surface about 25-30 cm, in a resting phase (when the knee is bent, forming an angle of beating and whipping) have ranged corner between 30 ° -40 °, the state of the thigh when the motion down or when to hit and whipped 25-30 cm from the surface of the water, the state of the lower legs / feet of the surface when making a stroke and lash about 30-35 cm.	5	
2	Ankle forming a hoe as if toe piercing / flail, leg movements very stiff and not relaxed so that no forward thrust	4	
3	When the legs move up and down the heel are raised above leads to the thigh, which makes the legs perpendicular approaching 90 °. Coupled with the ankle forming a hoe	3	
4	Spanning between the legs right and left foot too far in excess of 40cm so that when the legs went up beyond the water's surface. Cambukkan foot to the rhythm irregular and is not constant. Coupled with the ankle forming a hoe and legs perpendicular approaching 90 °.	2	
5	The position of the movement of a foot wrong so it's as if the surface of the hamstring muscle that leads to the stomach making the movement of the feet were not whipping upwards downwards but shaped like a knee-up diair as if treading water back and forth Coupled with the ankle forming a hoe and legs upright straight approaching 90 °, a leg span of 40cm too far beyond that when the legs went up beyond the water and make a punch rhythm becomes irregular leg movement.	1	
	TOTAL VALUE		

NO	INDICATOR Arm movements (hand rotation)	VALUE	CHECKS LIST (√)
1	Phase incoming water level (entry phase), entered the water surface with the fingertips, with palms facing down (face down) enters the surface of the water with thumb first, angle formed between the palms with the surface of the water ranges from 30 ° - 40 °, keep the entry of arms into the water, as far as possible can be reached, Phase catch (catch phase), this phase is done after phase hand into the surface of the water ends. Phase interesting {pull phase), to understand the exciting phase is necessary to describe that the body has basically the center line or axis lines. Phase push (push phase), this phase is done after the draw or sweep into phase has ended. The end of the pushing phase is part of the thigh, with the benchmark thumb touching the side of the thigh. {Resting phase recovery phase), this phase is done after the draw phase or phases into the sweep has ended.	5	
2	In the phase of the hand enters the water in which the palms facing the sky.	4	
3	In the capture phase of the fingers everything expands so as the water passes between the toes and then pull the hand mistake when played under the water towards the front. Plus the palms facing the sky.	3	
4	In an interesting phase sweep of palms far out from the axis of the body, if it is played it will be shaped like a round of 360 ° rotation propeller blades of bamboo. Plus the palms facing the sky and fingers are all expanding.	2	
5	In the recovery phase is not lifted up above his elbows, so as if like water stabbed stabbing that led to power rolled forward towards the front. Plus the palms facing the sky, fingers swell and sweep everything palms turned away out of the body axis	1	
	TOTAL VALUE		

NO	INDICATOR **How to Breathe Freestyle (breathing)**	VALUE	CHECKS LIST (√)
1	At the time of taking a breather, turning the head to the right course, turning the head to the left, or turning the head to the right and to the left at a certain distance. Put water into the face of the extent of the front of the head, rotate the head with the spin axis of the neck vertebrae Remove the mouth just above the water surface download / inhale as much air as possible, so the replay head face down in the pool and then throw kedasar / exhales air in the water.	**5**	
2	Rotate the head is too far so that the position of the mouth, nose, eyes and face towards the sky, as if the body rotates and chest facing upwards.	**4**	
3	If taking a breather done by lifting face down / look forward, alternating with irregular rotating body and chest facing upwards.	**3**	
4	Irregular turning heads, sometimes to right but sometimes left with a rhythm that is not constant. Coupled with the position of a rotating body irregularly chest facing upwards resulting in breathing wrong position and messy.	**2**	
5	Error while taking a breather when the mouth and nose are outside the water do breathe, but when the mouth and nose in the water do sigh. (Reversed). Coupled with the position of a rotating body irregularly chest facing upwards resulting in breathing wrong position and messy.	**1**	
TOTAL VALUE			

NO	INDICATOR **Movement Coordination (Coordination)**	VALUE	CHECKS LIST (√)
1	Firm parallel to the water surface with a relaxed state Alternating leg movements up and down in the vertical plane with unbroken. The right arm is in front, the left hand did pull the elbows angled to pull his left hand the extent of the navel, then pushed outward side of the body and ends next to the thigh when the urge left hand is almost over, right hand prepares to open the shoulder width, when the left hand expiration at the limit of the thigh, right hand movement attracts water, which in turn form the corner under free and lifted left elbow, right hand simultaneously pull dibatas end the navel. Perform a sequence of movements on top by changing the rotation to each other, at the expiration of Tarika dibatas navel, turned their heads to take a breather. Intake of breath expire simultaneously with the expiration of encouragement hands on thighs.	**5**	
2	*phase* coordination of breath and the wrong foot, when the time to take a breather, foot pausing during the breath taking.	**4**	
3	*When the phase of the coordination of hands and feet* an error occurs if moving very fast but very slow movement of the hand, and vice versa. Coupled with foot paused during the breath taking.	**3**	
4	*The error occurs when the coordination of the hands, feet and plus coordination of breath* opposite the head turned to right while the right hand position remains straight ahead.	**2**	
5	Coordination occurs when (1) Breath and legs, (2) Hands and Feet (3) Hand, Foot and coordination of breath Plus opposites Keseluruahan of error was done so as to make Her rhythm is unstable coordination movement legs, hands, body position and taking the breath that ultimately makes the freestyle movement was messy and chaotic.	**1**	
	TOTAL VALUE		

Information :
Score 5: do not make mistakes
Score 4: If there is one fault
Score 3: In case of 2 errors
Score 2: In case of 3 errors
Score 1: In case 4 errors

a. calibration

    1). validity Expert

        Validity test is done in order to determine the extent to which the test can measure precisely the aspect that will be measured. Based on this, then test the validity of this test is to use expert justification test, where the instrument has been prepared consulted with experts (experts), the swimming coach, an expert in the field of swimming knowledge, and swimming lecturer. The instrument has been justified by the researchers create expert and declared valid to measure learning outcomes freestyle Kusumanegara STKIP sports education student.