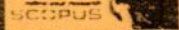


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# GLOBAL AND STOCHASTIC ANALYSIS

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2018

## CONTENTS

1. CALENDAR EFFECTS AND INVESTOR TRADING BEHAVIOR IN ..... 1-32  
THAI STOCK MARKET  
*Nareerat Taechapiroontong*
2. ENTREPRENEURSHIP IS THE ANSWER FOR EXPANDING ..... 33-44  
OPPORTUNITIES OF EMPLOYMENT & ITS GENERATION  
*Lalit Kumar Pant*
3. ACQUIRING STRATEGIC ASSETS THROUGH INTERNATIONAL ..... 45-63  
M&A: PROPOSAL OF A NEW INTEGRATION APPROACH  
*Joochan Ryoo*
4. EVALUATION OF MARKETING STRATEGY OF SANUR ..... 65-72  
VILLAGE FESTIVAL BASED ON VISITORS' BEHAVIOUR  
*I Gusti Ayu Oka Suryawardani and  
Agung Suryawan Wiranatha*
5. MODEL OF FOREIGN TOURISTS' LOYALTY IN CULTURAL ..... 73-92  
AND HERITAGE TOURISM IN BALI  
*Agung Suryawan Wiranatha, I Komeng Gde Bendesa and  
I Gusti Ayu Oka Suryawardani*
6. ANALYSIS OF BRAND SWITCHING BEHAVIOR IN MOTORBIKE ..... 93-101  
HAILING APP WITH MARKOV CHAIN MODEL  
*Viet Dung Trinh*
7. CHALLENGING THE ARBITRATION AUTONOMY; ..... 103-109  
INDONESIAN CASE LAW  
*Gunawan Widjaja and Agus Gurlaya Kartasasmita*
8. RESEARCH ON CONSUMER BEHAVIOR OF WINE IN VIETNAM ..... 111-122  
*Ha Nam Khanh Giao, Pham Ngoc Duong and Tran Ngoc Tu*
9. SATISFACTION OF TOURISTS TO HOI AN ANCIENT TOWN, ..... 123-135  
VIETNAM  
*Ha Nam Khanh Giao, Dinh Kiem, Le Thai Son and  
Truong Quoc Dung*
10. FACTORS AFFECTING THE BUYING DECISION OF ..... 137-150  
AMALIE LUBRICANT IN VIENAM  
*Ha Nam Khanh Giao, Canh Chi Hoang and  
Pham Quang Vinh*
11. TARGET AUDIENCE OVERLAPS WITH TARGET MARKET ..... 151-160  
*Rudy Harjanto and Prattana Srisuk*
12. TH EFFECT OF LEARNING PROCESS OF FINANCIAL ..... 161-176  
LITERACY AND FINANCIAL BEHAVIOR IN HIGHER EDUCATION  
*Dodik Julardi, Suparti, Henry Praherdhiono and  
Andriatai Aziizah Syafitri*

13. THE IMPLEMENTATION OF LIVING LABORATORY MODEL IN ..... 177-189  
ACCOUNTING EDUCATION THROUGH PARTNERSHIP WITH SMEs  
*Suparti, Sunaryanto, Bety Nur Achadiyah and  
DudungMa'rufNuris*
14. THE ELEMENTS OF PUBLIC POLICY TO DEVELOP YOUTH ..... 191-203  
EDUCATION; POLICY STUDY OF STEM EDUCATION  
*Krish Rugchatjaroen, Porntip Jiamsuchon. B. Pharm and  
Chanikamard Hongsrisuwan*
15. TESTING WARREN BUFFET'S STOCK DECISION-MAKING MODEL ... 205-215  
*(A Case Study on Business Index 27 Category Shares for  
The Period of 2007 - 2016)*  
*Herman Soegoto*
16. A STUDY OF ANALYZING THE WILLINGNESS TO ADOPT ..... 217-226  
GREEN INNOVATION IN LOGISTIC SERVICE PROVIDER  
*Nguyen Quang Vinh and Do Viet Thanh*
17. THE EFFECT OF ENTREPRENEURIAL ORIENTATION, ..... 227-246  
ENVIRONMENTAL ADAPTABILITY AND STRATEGIC  
ORIENTATION ON BUSINESS PERFORMANCE  
*Roy Wahyuningsih, Ery Tri Djatmika,  
Budi Eko Soetjipto and Sri Umi Mintarti*
18. APPLICATION OF BASIC STATISTICAL ANALYSIS FOR ..... 247-253  
GYMNASTICS TALENT SCOUTING  
*Endang Rini Sukamti, Siswantoyo and Okky Indera P*
19. STATISTICAL ANALYSIS OF THE EFFECTS OF LEARNING ..... 255-263  
MODELS OF CRAWL-STYLE for ADOLESCENTS  
*Subagyo and Siswantoyo*
20. CHARACTER EDUCATION CAMP: A MODEL ANALYSIS ..... 265-273  
RESULTS FOR THE IMPLEMENTATION OF CHARACTER  
EDUCATION INTO THE GLOBAL ERA  
*Taat Wulandari, Anik Widiastuti, Nasiwan and  
Siswantoyo*
21. MOTION ANALYSIS TECHNIQUES PENCAK SILAT MARTIAL ..... 275-284  
ART WITH ETHNO-MATHEMATICS APPROACH  
*Mansur, Siswantoyo, Ikhwanudin and Ali Bin Nadzalan*
22. PRODUCTIVITY ENTREPRENEURSHIP FOR ALUMNUS ..... 285-302  
APPRENTICESHIP KENSHUSEI  
*(Study Phenomenology KenshuseiIm Japan and Non Im Japan)*  
*Farida Suldina, Muchlis R. Luddin and Makruf Akbar*
23. THE EFFECT OF TRANSFORMATIONAL LEADERSHIP, ..... 303-315  
QUALITY OF WORK LIFE (QWL), AND INTEGRITY ON  
ORGANIZATIONAL CITIZENSHIP BEHAVIOR (OCB) AT  
THE DIRECTORATE GENERAL OF CUSTOMS AND EXCISE  
*Setyo Hadi Winoto, Makruf Akbar and Kadir*
24. ANALYSIS OF INDONESIAN RICE PRICE TRANSMISSION AND ..... 317-328  
IT'S IMPLICATIONS  
*Ahmad Muslim*

25. BUILDING STRATEGIC ALLIANCES THROUGH COOPERATIVE: ..... 329-341  
 OPPORTUNITIES AND CHALLENGES OF SMES FACING  
 ASEAN ECONOMIC COMMUNITY  
*Sudarmiatin and Agus Hermawan*
26. THE ANALYSIS OF *CUSTOMER INTIMACY*: VALUE AND ..... 343-354  
 CUSTOMER LOYALTY  
*A Case Study of BPR (Regional Development Bank) in DKI Jakarta*  
*Chree Dasri Buchari, Dwi Kartini, Sucherly and*  
*Meydia Hassan*
27. THE MEANING OF LIFE IS FOLLOWING THE NATURAL ..... 355-365  
 LAW OF THE UNIVERSE  
*Rudy Harjanto, Lasiyo and Septiana Dwiputri Maharani*
28. SOCIAL DEVELOPMENT THROUGH ENTREPRENEURSHIP ..... 367-381  
 WITH COMMUNITY PARTICIPATION INITIATED BY  
 THE INDONESIAN NON-PROFIT ORGANIZATION  
*Laras Wijayanti, Fentiny Nugroho and Reky Martha*
29. SEARCH AND SEIZURE OF ELECTRONIC OR CYBER ..... 383-398  
 EVIDENCE IN SOUTH AFRICAN CRIMINAL PROCEDURE:  
 A LAW ENFORCEMENT DILEMMA  
*Vinesh Basdeo*
30. TECHNIQUES OF SCHOOL-PUBLIC RELATIONS TO SUPPORT ..... 399-408  
 THE IMPLEMENTATION OF EDUCATION AT SCHOOLS IN  
 INDONESIA  
*Bambang Budi Wiyono, Teguh Triwiyanto,*  
*Desi Eri Kusumaningrum and Bambang Sumarsono*
31. ANALYSIS THE EFFECT OF CASH FLOW, INVESTMENT ..... 409-424  
 OPPORTUNITY AND PUBLIC OWNERSHIP ON THE CUMULATIVE  
 ABNORMAL RETURN  
*Sekhah Yahya, Bernardus Y. Nugroho,*  
*Retno Kusumastuti and Ferdinand D. Saragih*
32. ANALYSIS OF THE EFFECT OF TRADE CREDIT ON ..... 425-438  
 PROFITABILITY OF NON FINANCIAL ENTERPRISES  
 LISTED ON INDONESIA STOCK EXCHANGE IN 2007 - 2016  
*Istiara Henoviota, Bernardus Y. Nugroho,*  
*Retno Kusumastuti and Ferdinand D. Saragih*
33. ANALYSIS OF COINTEGRATION AND CAUSALITY ..... 439-453  
 RELATIONSHIP BETWEEN GOLD PRICES, WORLD  
 OIL PRICES, THE RUPIAH EXCHANGE RATE, AND  
 THE COMPOSITE SHARE PRICE INDEX (IHSG) FOR  
 THE 2007-2016 PERIOD  
*Muhammad Fahreza, Ferdinand Dehoutman Saragih*  
*and Bernardus Yuliarto Nugroho*
34. AN ANALYSIS OF THE RELATIONSHIPS BETWEEN ..... 455-469  
 MACROECONOMIC VARIABLES AND THE JAKARTA  
 COMPOSITE INDEX (JCI) ON THE INDONESIA STOCK  
 EXCHANGE (IDX) IN THE PERIOD 2007-2016  
*Raden Reza Khalifa Sidhik, Ferdinand Dehoutman Saragih and*  
*Bernardus Yuliarto Nugroho*

35. EVALUATION OF FAMILY PLANNING PROGRAM FOR ..... 471-498  
 IMPROVING THE QUALITY OF HUMAN RESOURCES IN  
 KENDARI CITY OF SOUTHEAST SULAWESI PROVINCIAL  
*Nur Endang Abbas, Hamidah and Hapzi Ali*
36. THE EFFECT OF SUPERVISION, OPENNESS TO EXPERIENCE ..... 499-514  
 ON WORK RESPONSIBILITIES AND WORKING COMMITMENTS  
 OF STAFF IN SOUTHEAST SULAWESI PROVINCIAL  
*Muh. Nasir Andi Baso, Hamidah and Hapzi Ali*
37. EVALUATION OF CIVIL SERVANTS COMPENSATION AT ..... 515-539  
 THE PROVINCIAL GOVERNMENT OF SOUTHEAST SULAWESI  
*Sarifuddin Safaa, Hapzi Ali, Dedi Purwana and Hamidah*
38. EFFICIENCY ANALYSIS OF INDIAN BANKS USING DATA ..... 541-552  
 ENVELOPMENT ANALYSIS (DEA) MODEL  
*K. Bhavana Raj*
39. MEASURING INEFFICIENCIES USING STOCHASTIC FRONTIER ..... 553-560  
 MODEL- EVIDENCE FROM THE INDIAN BANKING SECTOR  
*K. Bhavana Raj*
40. SERIAL PRODUCTION SYSTEMS WITH REWORK: ..... 561-572  
 A MARKOVIAN MODELLING FRAMEWORK AND APPLICATION  
*George C. Hadjinicola*
41. PRISONERS EMPOWERMENT THROUGH INDUSTRIALWORKING ..... 573-587  
 IN INDONESIA  
*Sri Puguh Budi Utami, Muchlis R. Luddin, M. Asmawi*
42. "THE POSSIBILITY OF APPLYING QUALITY COSTS AND ..... 589-610  
 COMPETITION STRATEGIES APPROACH TO ACHIEVE  
 COMPETITIVE ADVANTAGE OF PUBLIC SHAREHOLDING  
 INDUSTRIAL COMPANIES IN JORDAN"  
*Dr. Mohammad Saadat, Prof. Dr. Talal Jrairah,  
 Dr. Mahmoud Al-Sohaimat and Dr. Ali Masaidah*
43. THE COMPONENTS OF APPLYING JUST IN TIME SYSTEM ..... 611-626  
 (JIT) AND ITS CONTRIBUTION TO IMPROVE THE EARNING  
 PER SHARE (EPS) IN PUBLIC SHAREHOLDING  
 INDUSTRIAL COMPANIES IN JORDAN  
*Mohammad Saadat*
44. THE EFFECT OF VISIONARY LEADERSHIP, ORGANIZATIONAL ..... 627-638  
 BEHAVIOR, PERSUASIVE COMMUNICATION AND  
 ORGANIZATIONAL COMMITMENT ON THE  
 PROFESSIONALITY OF HONORARY EMPLOYEES  
*Asad Isma, Dedi Purwana and Muchlis R. luddin*



## STATISTICAL ANALYSIS OF THE EFFECTS OF LEARNING MODELS OF CRAWL-STYLE FOR ADOLESCENTS

SUBAGYO AND SISWANTOYO

**Abstract:** This research aims to know the differences influence the results of the methods of teaching pure and part progress part and influence the percentration of body fat high low against the results of learning swimming with crawl-style and can be used as a medium of teaching for teachers or trainers and students in learning self-reliance.

The research methods with experiments design, field experiments suitable research to test the theory as well as get answers to practical questions, flexibility, and power for diverse problems an important feature of the experiment field with 2 x 2 factorial design. sample research amounted to 16 people, the subject of research is the junior high school students in a special region of yogyakarta. Data analysis with quantitative descriptive approach percentage.

Experimental research: the influence of the overall results of the methods of teaching and presentation of body fat against the results of the learning style of swimming crawl junior high school students in a special region of yogyakarta. zoned 1) differences influence the results of the methods of teaching part pure and progression with  $p: 0.031$  meaning different. 2) difference results learn swimming crawl style groups that percentage of the high fat and low with  $p:0,662$  there were no significant differences. this indicates that the hypothesis is no difference between high and low-fat percentage against the results of learning swimming crawl accepted. 3) interaction between the methods of teaching part pure and part progression with high body fat percentage low and flit: 0.109 with ultra-compact  $p:0$  which means no significant interaction. flit: 0.109 with  $p:0.74$  no significant interactions. the zero hypothesis flit < f tab stating there is no interaction between teaching method and percentage of fat against results of swimming crawl style.

### Introduction

In line with the government's program is to advance the nation, then the government needs to undertake development efforts in all fields, especially in the field of development of human resources in realizing the human whole indonesia, among them are human development excels in sports.

Increased development efforts in the field of sport, through a national working meeting exercise in 1999 by issuing a 2000-2024 years sports policy contained in the vision of the sport, as for the empowerment sports vision sports, the realization of human quality, healthy indonesia, advanced, sportsmanship, and achievers.

Physical education in schools is one of the efforts to realize the whole indonesia human good in sports as well as others through school. As for the purpose of education given in various physical level of education is to help students to improve

the physical freshness degree movies, basic skills, and health through the introduction and cultivation of the attitude of positive mental attitude and maturing that is implemented in a variety of physical activities in order to: (a) achieve the physical growth, particularly the ideal height and weight, physical development and harmoniously who have adequate resistance, (b) improve attitude and behavior that such positive discipline, honesty, teamwork, respect for others, kompetitip-at-heart healthy eating and strict regulations that apply.

Physical education and health curriculum in schools, both secondary schools primary, secondary schools and the first level of secondary school public physical education material, divided into two groups, i.e., the subject matter and material choices. Subject matter includes athletics, gymnastics, and games. While the material of choice physical education, among others, swimming, pencak silat, badminton, tennis m spell, tennis, sepak takraw and traditional games.

Swimming pool material is part of an existing selection of material in the educational curriculum of physical, thus if the material added in extracurricular activities through the schools, then the implementation certainly should get the attention of in the learning process. When viewed even further the achievements of existing pools in indonesia is far from other countries, but when viewed in the championship between the gathering at the national level participants most was students in all schools. In the age group, most athletes are on the level of education of elementary and secondary schools. Based on this attention to repair swimming pool learning in elementary and secondary schools need to get attention, in hopes of giving great contributions in the field of sport.

Sports swimming is one of the many sports that are taught in all schools. On the implementation of sports swimming requires special facilities and infrastructure, unlike other sports which are relatively easier to be held. Sukarno (1979:30) suggests that to be able to swim well need to pay attention to some of the principles are (1) float (2) slide (3) continuous motion (4) water resistance. Dadeng act (1991:16) swimming pool with study suggests both needed three staples, namely (1) breathing air (2) and (3) slide the float.

The results of the learn to swim very determined by many factors. Factors that influence the learn to swim among them 1) factor of teacher-pupil factor 2) 3) 4) lesson material factors and infrastructure 5) factor method of teaching.

Kasiyo (1979:31) stated that teaching methods can be differentiated into two approaches namely between teachers and pupils with an approach based on the presentation of learning materials ... The method of teaching is one of the factors that influence the outcome of learning swimming because if the methods used by the teacher to change the condition of the pupils of the state do not know be know the right method can be used. Then the results of the learning to be achieved can be realized the ability of swimming crawl style technique is good and correct.

Manglischo (1982:53) suggests that the technique of swimming styles crawl; includes (1) the movement of the arm (2) the movement of the legs (3) position of the body and (4) breathing.



To teach the skills of particular sports swimming needs to held the use of the right method. Harsono (1988:141) says that the method of teaching skills can be provided in two ways, namely by way of part and whole.

The reality on the ground is still a lot of election methods of teaching that are applied by the teachers to teach the skills of particular sports pool by using the method of sections, that is to say, material movement pool divided into sections then combined into a single movement. Another thing that is often not considered in teaching is less considering the characteristics of individual students. Students have different characteristics to one another, be it the characteristics of physically or psychologically. Specific physical factors need to get attention for yourself, because of factors such as age, weight, height, and gender. These aspects affect the results of the study. Other physical aspects that can affect the results of the study pool factor is the profile of the body, especially the thickness of the body fat, because of the thickness of the body associated with percentage body fat. Holliday (1978:117) argues that in the outline of the human body is composed of 40% muscle, 10% 15-30 organs, adipose, 15% of the skeleton, and 25% in the form of liquid. While fox (1988:560) suggests that the average fat percentage for men between 15 to 17% while for women 25%. Thereby buoyancy has more women than men.

Based on the description outlined above can deduce problems about the teaching pool that much influenced by several factors. Among the factors the selection of teaching methods, especially methods of teaching the most appropriate pool, to consider the difference in the characteristics of the student body profile in particular children in the form of the composition of the body fat, because fat body affecting buoyancy and buoyancy effect in learning swimming. Formulation of the problem of the study are: (1) whether there is a difference between teaching methods influence the results section is pure and methods section progression against the results of the learning style of swimming crawl? (2) is there a difference between influence and high body fat percentage low against the results of the learning style of swimming crawl? (3) is there any interaction between teaching methods and results of the body fat percentage against the results of the learning style of swimming crawl?

### Research Methods

This type of research is research experiments. Zainudin (1988:56) experimental research is basically like to test the relationship between cause and effect. In this case, the definition of operational research in this experiment are:

#### 1. Teaching methods

The method of teaching is a way of approach to the delivery of the subject matter against the students that includes (a) the methods of part pure i.e. Delivery method with the road divided the material into sections and delivered from the sake of part (b) of the methods section progress i.e. Delivery method with the add new material and after conquered combined with previous controlled material.

#### 2. Body fat percentage is the result of the measurements using a skinfold caliper to get results body fat percentage the body fat measurement in the area of subscapular or triceps then converted with the table in accordance with age each.

3. The results of the learning style of swimming crawl are the distance that can be achieved by students with the correct technique based on an assessment by a judge in a certain distance. The focus of this research is the mastery of the technique of movement. In this study population that is taken is the first level of secondary school students (jss) country 5 yogyakarta sex son that follows the activities of extracurricular.

Sampling in this study using a purposive sampling. According to sujana (1992:168), purposive sampling is a sampling consideration, sampling is done based on certain considerations. Suharsimi (1982:124) taking of purposive sample is usually done as certain considerations either time, effort and costs so that it could not take a large sample and distant.

In this study, the sample used is students who could not swim. In addition, the students used to study samples consisting of fatty or students presents high fat and low-fat percentage. Of sample who have met the criteria set by the researchers, the sample is then placed into their respective groups in accordance with the design of the research that has been made.

#### Data collection instruments

Instruments for collecting data in the research of the experiment are:

1. Measurement of body fat percentage

To a large measure fat percentage according to pate (1993:314) magnitude of skinfold on an area can provide estimates accurately. Mangliischo (1982:351) body fat percentage measurement can be done by skinfold caliper

2. Measuring results learning pool

To determine the ability to swim for children of school age by using corner swimming test, collins (1978:339). Thomas (1996:24) that the guidelines key success crawl style pools can be known with its swimming pool, measure the distance traveled.

Suharsimi arikunto (2002:144) states, the validity is a measure that shows the level of levitan and the validity of an instrument. Sutrisno hadi (1991:60) to test the validity of the instrument with the rating scale, it should be first tested the reliability by the rater. Test the validity of the instrument using the correlation part total. For testing the hypothesis of this research will be used two variants of analysts path. Kerlinger (1998:395) analysis of the factor of the variant is a statistic method to analyze independent consequences or result of two interactive against free variable bound.

The results of the research and the discussion

#### The presentation of the data

1. Data analysis

Data research results to be presented here is the data value of the results of the study conducted by a judge. Judge based on the assessment grid that has been created and has been tested mo techniques include vecobakan swimming crawl style in the form of (1) the position of the body (2) the technique of movement

distance (3) engineering arm movement (4) breathing movement techniques. Of the total sample is divided into four treatment groups:

- A) group I with symbol a1b1 student group with percentage fat was given treatment method of teaching with the pure.
- B) group ii was given a symbol of groupings a1b2 i.e. Groups of students who have a low-fat percentage given the given the treatment methods of teaching with the pure.
- C) group iii who is given the symbol a2b1 i.e. Groups of students have high-fat percentage given the treatment method of teaching by part progression.
- D) data collection instruments

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- C) group iii who is given the symbol a2b1 i.e. Groups of students have high fat percentage given the treatment method of teaching by part progresip.
- D) group iv who are given the symbol of groupings a2b2 i.e. Groups of students have a low fat percentage given the treatment methods of teaching with the progressive

**Table 1**  
Data research results learn swimming crawl style

Prosentasi body fat	Methods of teaching		Result
	Bagian murni	Bagian progresip	
High	N=8	N=8	N=16
	X=3,310	X=4,007	X=7,317
	Sb=1,256	Sb= 0,804	
Low	N=8	N=8	N=16
	X=2,834	X=3,771	X=6,605
	Sb=0,973	Sb=1,039	
Result	N=16	N=16	
	X=6,144	X=7,7778	

**Table 2**  
Frequency distribution of values the results of learning by teaching method is part of the pure

No	Interval	Fabsolut	Frelatif
1	0,01-1,00	0	
2	1,01-2,00	3	18,75%
3	2,01-3,00	5	31,25%
4	3,01-4,00	4	25%
5	4,01-5,00	4	25%
		16	100

**Table 3**  
Frequency distribution table value of the results of the study with teaching methods part progresip

No	Interval	Fabsolut	Frelatif
1	0.01-1,00		
2	1.01-2,00	1	6,25%
3	2.01-3,00	4	25%
4	3.01-4,00	3	12,5%
5	4.01-5,00	9	56,25%
		16	100

**Table 4**  
Results of swimming pool learning styles, Crawl for a high body fat percentage

No	Interval	Fabsolut	Prosentif
1	0,01-1,00	0	0
2	1,01-2,00	2	12,5%
3	2,01-3,00	2	12,5%
4	3,01-4,00	4	25%
5	4,01-5,00	8	50%
		16	100

**Table 5**  
Results of learning swimming style crawl to a low body fat percentage

No	Interval	Fabsolut	Prosentif
1	0,01-1,00		
2	1,01-2,00	1	6,25%
3	2,01-3,00	6	37,5%
4	3,01-4,00	3	18,75%
5	4,01-5,00	6	37,5%
		16	100

**Table 6**  
Summary of test results between normality and fat percentage method

Group	N	Lo	Li	Conclusion
A1	16	0,16	0,25	Normal
A2	16	0,12	0,25	Normal
B1	16	0,22	0,25	Normal
B2	16	0,18	0,25	Normal

**Table 7**  
Summary of test results of its homogeneity

Varian	B <sub>prcc</sub>	Db	X <sub>20</sub>	X <sub>21</sub>	Conclusion
A	1,16	1	0,612	3,84	Homogen
B	2,09	1	0,01	3,84	Homogen

**Table 8**  
Statistical analysis of two variant lines

Source	Jk	Dk	Rk	F'	P
Antar a	5,346	1	5,346	5,031	0,031
Antar b	1,015	1	1,015	0,955	0,662
Antar ab	0,115	1	0,115	0,109	0,743
Galat	29,756	28	1,063	-	-
Total	36,233	31	-	-	-

Source: statistical analysis of the results of calculation variants contained in attachments

Description:

Between a F-test between methods of teaching

Between the F-test F between fat percentage

Inter test ab F methods and interaction between fat percentage

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### Discussion

Different methods of teaching which is committed against a group of students showed significantly different results. It is based on an analysis of the statistics "variant 2 lines show the  $f = 5.03$  count that cost less than the  $f$  table: 4.20 with  $\alpha = 0.05$  whose price is smaller than  $f_{table} = 4.20$  with  $\alpha = 0.05$ . When seen from the statistics, the difference in the method of teaching by progressive part method showed better results, compared with the methods of teaching with the method section. This is apparent from the results of the value of the acquired learning students with an average of 3.889. The results of the average value of 3.889 showed better results than with methods of teaching pure part with the average results of 3.072.

Results of testing the hypothesis that says there is a difference between the methods of part pure and progressive part of the method, of the results of the learning to swim-style crawl proved significantly. By looking at the average value of the results of the study as well as an analysis of variant 2 line to test  $f$ , then the teaching with the methods of the progressive part to teach swimming crawl style better than when taught with the pure.

The difference in results of teaching swimming crawl style with a huge difference percentage body fat showed the results did not differ significantly because when viewed from the results of the analysis variant 2  $f$  line between groups lost body fat percentage shows the price of 0.995 prices is much smaller at a price  $f$  table 4.20 on taraf  $\alpha = 0.05$ . But when viewed from the magnitude of the average value of each group showed different results. The average high fat percentage is 3.659 and average low fat is 3.302.

Test results of the interaction between teaching method and percentage of body fat are not the result of a significant interaction, interaction of  $f$ -test showed. Calculate this result 0.109 is much smaller when compared with the price of table 4.20  $f$ .

Methods of teaching with a pure part of the group i and group ii or higher and lower fat group showed an average result  $x = 3,310$  and  $x = 2,834$ . So the high-fat group i results average higher than group ii low-fat percentage

The methods section progress imposed on group iii and kelompok iv atau kelompok lemak lebih tinggi dan rendah menunjukkan hasil nilai rata-rata  $x = 4.007$  dan  $x = 3.771$ . Jadi kelompok iii the percentage of low-fat with the same method that is part of the progression method result from better group iii.

Groups that have high-fat percentage when viewed on an average value of the results of the study with the method of pure and part progression part method. The results are given with the treatment method of the section progress the result is better compared to the pure part method. A comparison of the value is purely for the part and 3.310 4.007 to part progression.

The percentage of the low-fat group was given a different teaching method of treatment of the value of the results of his studies of average value showed different results. Progresip section method the result is better when compared to the pure part method. Comparative value method to 2.834 part pure and 3.771 for a progressive part method.

### Conclusion

1. Methods of teaching  
Based on the data analysis being done, to test the hypothesis that has been made, then in this study, it can be concluded that the hypothesis that says "method of teaching by different parts of the progression method with the method section is purely against the results of learning swimming crawl style. The hypothesis is proven to differ significantly
2. Fat percentage  
The results of the data analysis about the calculation showed that the differences anava body fat percentage highs and lows do not indicate different results against the results of the study pool significantly. Although the views of the average value of the results obtained, the average students who have high-fat percentage results showed better
3. Calculation of the statistical analysis of the interaction of variants do show that there is no significant interaction between teaching method and body fat percentage against the results of the learning style of swimming crawl

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