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Evaluation Of Engine Cadet's Educational Economy Investation Value Between Cadet From Senior High School And Vocational School Input In Pip Semarang

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Abstract: *The purpose of this study was to determine the evaluation of learning outcomes Engineering Drawing and Design between cadets of Input SMA and SMK Input Method Small Group Programs Technical in PIP Semarang. The results of this study it can be concluded that there are differences in the evaluation of learning outcomes between drawing and designing machines SMA Cadets input and input from SMK with a small group of subjects Technical method in PIP Semarang. The average value for the experimental group 1 (input from SMA) is 74.2, while the average value for the experimental group 2 (input from SMK) is 76.7. This means learning outcomes experimental group 2 was better than the experimental group 1. But overall learning outcomes Youth in drawing and designing the engine is increased.*

Keyword: *EducationalEconomy, Investation, Evaluation,*

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I. Preliminary

One of the main task of educational institution (in this case is university/ PoliteknikIlmuPelayaran (PIP) Semarang) prepares student of university that mean is cadet so we can develop optimally. A cadet is said to have reached the development optimally if the cadet can reach the study and the study result that suitable with the talent, ability and desire that is possessed .Related with the education world to create a human that has a quality and high achievement so the cadet has to have achievement and a good study result. Achievement or study result is a maximum parameter that has been reached by cadet after conduct the study during the time that has been decided together.

In an educational institution, study result is an important indicator to measure the success of learning activity process. High or low the cadet's study result is influenced by another factors beside that study result itself.(arikunto, 1999). One of the important factor that can influence the cadet's study result is a learning method that is used by the lecture(in this case lecturer).

In the learning activity in the class, the lecture as the educater, teacher, and education manager can use many kinds of resource, and tools' subject also use many kind of teaching method. If all the learning content from the source that is written in the curriculum delivered by lecturer to the cadet. In the short period of time, it is sure that it is very hard for cadet to master it in a limited time also. That difficulties caused by the effort to fulfill the main idea.Assumsion concept, theory and material that is taught, it is also for remembering the lecture material that is given. So to ease and suits the way the lecture deliver to the cadet, so the lecturer is hoped that can use many kind of teaching method or learning method (Romizowski, 1981)

Learning method is an organized way and thinked well to reach the learning objective or procedure that is systemized to ease the learning activity to reach the hoped objective. Learning method can give the ease to the cadet to get and absorb the lecture material that can be used to give short statement and stimulation that is special about the content of the subject that have been learnt, and the example of reference that is easy to remember for every concept, procedure, or principal that is learned (snellbecker, G.E, 1984)

In this study research will be conducted to the cadet in PIP Semarang, especially cadet from vocational school and high school. Based on the observation of the researcher that in the learning activity in the class, especially in drawing and designing engine subject. The cadet still has a difficulty on that subject. That is because the lecturer or the teacher that teach is still using a talk method or frequently called conventional method that goes one way and monoton. This talking method can make the cadet feels bored and not interested with the learning activity that is going on. They feel that by this oral method, drawing and designing engine subject is a boring, tiring, and unfun subject. Beside that, they also feel that the difficulty to start drawing and designing engine so they will be passive and less creative in giving his ideas, and it will affect on their less optimal study result. The average score of cadet from senior high school is only around 70 and the average score of cadet from vocational senior highschool is around 75

Using a suitable method can solve andminimize the difficulties which is faced by cadet in understanding or looking closely the material that is given in every learning process. Looking the importance of method usage in every learning process like it said above, so in this research tries to learn about the method of small groups in the learning process, especially about drawing and designing engine subject .this small group method is a learning method that is used by lecturer to guide the cadet in studying by grouping with the amount between 3 to 5 people or maximum 8 people for every group. (Tubbs, 1992). By using this small group method is hoped that can help the cadet that have not understood the learning material, whether construction, kind of, function , and picture or design of engine parts. With this method is hoped that it can give an ease in understanding the material that is delivered.

especially about courses ofDrawing and Designing Machine. This small group methodis a teaching methodused bylecturerto guide Cadets to learn in groupconsisting about 3to 5 peopleor 8 people is the maximum numberfor every group (Tubbs, 1992). By using this method,it can hel Cadets that are stillunableto understand learning materials, either construction, type, function, or drawinganddesigningparts of engine. With this method, we hope that it alsocanprovide conveniencein understanding of materialsprovided.

From above,the Writer is interested indoing advancedresearchabout "Evaluation Of Engine Cadet's Educational Economy Investation Value Between Cadet From Senior High School And Vocational School Input In Pip Semarang ".

Based on the explanation exposed before,so the problem formulation is"Evaluation Of Engine Cadet's Educational Economy Investation Value Between Cadet From Senior High School And Vocational School Input In Pip Semarang".

The goal of this research to find Result of Educational Economy Investation Value From Senior High School Input And Vocational School Input in PIPSemarang.

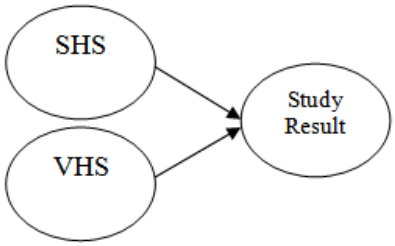
Goal or achievement is a state that gained when someone doing certain job or task. Learning outcome is mastering of knowledge or skill that developed by certain subject which usually showed by mark given from lecturer (Tulus, 2004). From the description can be understood that learning result is someone capability in certain subject in order reaching maturity which can be measured direcly through test. Said test could be word and number.

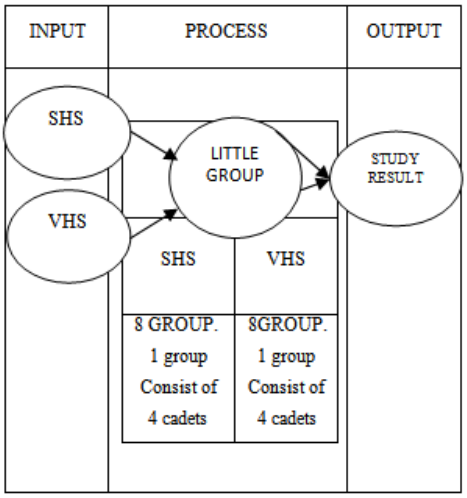
Drawing and designing of the engine is one of subjects that should be taken by cadets of technic department of PIP Semarang. Drawing and designing engine itself consist of 3 SKS, which 1 SKS is theory and 2 SKS are practical.The goal of curriculum to make cadets able to understand drawing and designing engine component theory. Aside from that the goal of general learning from related subject is cadets able to describe each part of engine, while the focus goal , cadets are expected to be able describe about ships construction, type, function, material, and drawing that consist of various engine type (PIP Semarang, 2013).

Cadet besides being individual human also being social human. As individual human, Cadet is able to learn independently.HoweverbecauseCadets arealsostillin process ofgrowthand development and in concrete level of thinking, theyneed helporguidence fromlecturersin the learning process. Thus the lecturer in giving the learning guidance tries that the media or the display tool to be able so it will be easier to be understand by the cadet whether in teaching personally or small group.

As a social creature, cadet will develop well in the study if they are in a group. An effective and efficient studying in group is studying group that has small amount of people. A small group can predict all of the member involved actively in study, under the lecturer's guide. Thus the lecturer also easily to instruct or giving service well to those groups. In case of that the lecturer is forced to havea method or way to teach small group, beside teaching personally, little group method is the way the lecturer guide the cadet in a group way with the amount of people between 3 to 5 people or maximum 8 people for every group (Tubbs, 1992)

Mind mapping of this research,





Learning method can be used to give a short statement and stimulation that is special about the contain of the learnt subject , and the example of reference that is easy to remember for every concept, procedure, or princip that is learnt. (Snellbecker, G.E., 1984).

Based on the statement above, so in this research is recommended by using a proper method and it is suitable with the material that is given. Looking the importance of the method usage for every learning process as shown above, so in this research tries to check about the small groups method in the learning process, especially about drawing and designing engine subject.. this little group method is a learning method that is used by lecturer to guide the cadet in studying by grouping with the amount between 3 to 5 people or maximum 8 people for every group. (Tubbs, 1992). By using this small group method is hoped that can help the cadet that have not understood the learning material, whether construction, kind of, function , and picture or design of engine parts. With this method is hoped that it can give an ease in understanding the material that is delivered.

After that, the hypothesis that is suggested is: there is difference in study result and evaluation of cadet's investation score of technical department beside of the result of drawing and designing engine between cadet from senior high school and vocational school by grouping methode by the small group in pip semarang .

II. Research Method

Within this research using pretest-posttest control group design to deternine treatment effect significance which tested. Pretest-posttest control group design in experiment research design utilize two groups, those areexperiment group I (cadets from senior highschool)andexperiment group II (cadet from vocational highshool) that started by pretest and followed by posttest (Sugiono, 1998). This research design can be shown as follow:

$$\begin{array}{ccc} O1 & X & O2 \\ \hline O3 & & O4 \end{array}$$

Details
O1 : experiment group Ipretest
O2 : experiment group I posttest
X : Treatment
O3 : experiment groupII pretest
O4 : experiment groupII posttest

Research design which been used shown bellow:

Group	Pre-test	Treatment	Post-test
I	K – 1	Small Group Model	K –2
II	K – 1		K - 2

I : Experiment group I K-1 : Pre Test

II : Experiment group K-2 : Post Test

II

Population stated in this experiment actualy whole cadets of PIP Semarang wether it come from senior highschool and vocational highschool by 128 cadets in total. As for sample collecting it has been agreed that 25%from population, which 128 x 25% = 32 responden (in this case 32 respondensfrom senior highschooland 32 respondensfrom vocational highschool).

Sample collecting technique used as the research purposive sampling or the sample intended to be objective. Thus the reason Researcher conduct the method due to fact information needed for fulfilling such criteria settled by researcher wether from group I or group II are already gained.

Variables consist offree variable, which is small group methoddantied variabel, which is learning result. Research instrumen used within daily bases inform of testand non-test. Collecting method usedfor getting data are test abdobservation. Analysis data techniquesthat usedfor this research are normality test, homogeneity test, and t test.

III. Research Result And Discussion

The result Can be seen from learning result of experiment group I and experiment group II, also differences between them. Base on the difference, effect of using small group method in order drawing and designing engine for technical department will be shown. Will be described clearly as follow:

1. Experiment Group I Learning Result

Base on test after drawing and designing engine subject session, then will be gained result matched the table.

In table bellow, as shown average experiment class I in drawing and designing using small group method gained 74,2 points or fair category. From all cadets 3 individuals make it into 9,4% whom gained 85 points or good category, 4 individuals make it into 12,5% gained 80 points or pretty good category,14 individual as they make into 43,8% and gained 25 points rewarded as fair category, 7 individual reach 70 points or less good category,and finally4 individuals only get score 65 points or include 12,5% person who entered bad category.

Tabel 1. Post test ExperimentGroup I

No	Category	Score	Frequence	Mark	Persentase (%)	Average
1.	Good	85	3	255	9,4	$\frac{2375}{32}$ = **74,2**
2.	Prettygood	80	4	320	12,5	
3.	Fair	75	14	1050	43,8	
4.	Pretty bad	70	7	490	21,9	
5.	Bad	65	4	260	12,5	
			32	**2375**		

Source: Processed Data, 2018

2. Experiment Group II Learning Result

Base on test after drawing and designing engine subject session gained outcome as follow:

Table 2. ExperimentGroup II Post Test

No	Kategori	Score	Frequency	Mark	Persentage (%)	Average
1.	Good	85	6	510	18,8	$\frac{2255}{3}$
2.	PrettyGood	80	10	800	31,3	

3.	Fair	75	9	675	28,1	= **76,7**
4.	Pretty Bad	70	3	210	9,4	
5.	Bad	65	4	260	12,5	
			32	**2455**		

Source: Processed Data, 2018

From table above can be ween that average score of second group in drawing and designing engine with small group method are 76,7 or preety bad. From allcadets, the one who got 85 points are 6 individual, 80 pointsor pretty good 10 individual, 75 points or just deep fried snack are 9 of them, 70 pointsor pretty bad with 3 individuals, then finally 65 points ataukategoritidakbaikada 4 orang atau 12,5%.

After conducted the test, post-test get analyzed to prove any difference after learning drawing and designing engine with small group methodamong cadetsfrom senior highscooland vocational highshoolat PIP Semarang. To prove the hypothesis firstly data tested throughthree analysis they are normality test, homogeneity test, and next average matching test or t-tes.

Meanwhile from normality calculationat experiment group I gained fixed price differenceswith the biggest one as 0,1562. With n = 32 danreality rankα = 5% from where you got critical for normality get L tabel = 0,1566. Because L calculate< L rable is 0,1562< 0,1566 then the sample come from normally distributes population.

Normality testing on experiment group IIin this research gained differences fixed prices maximum 0, 1419. With n=32 and reality levelα = 5% from critical score listfor gained normality test L tabel = 0,1591. Because L calculation< L tableyaitu 0,1419< 0,1591 means sample received from normally distributed population.

Homogeneity test or variant equation gainedbigger variant (S12) = 25,741 smaller variant (S22) = 17,741 then gained F calculation = 1,451 withα = 5% anddksettled n1 – 1 = 32 – 1 = 31; dkpart n2 – 1 = 32 – 1 = 31. From the calculation arranged table F = 1,822 so that F calculate< F table, thats 1,451<1,822. With this, variant from both group called homogen.

Through average equality test gained t calculation as big as 4,3129, while for table points its use α = 5%, db = 2(n-1) = 2(32-1) = 62 gained table = 1,999. Because t calculation>t tablethere gonna be significant between groups. From hypothesis gained conclusion that Ho rejectedand Ha accepted. This means hypothesis stated learning result got difference yet accepted.

Base on learning result that drawing and designing engine subject seesion among cadets from senior highschool input and vocational higschool input using snall group method shows differences. Thus differences due to different treatment to each groups. Another factors may affect it, but those factor not calculated.

	Kel. 1		Persen tagee (%)	Kel. 2		Perse ntase (%)
Average	76,7			74,2		
Score	85	6	18,8	85	3	9,4
	80	10	31,3	80	4	12,5
	75	9	28,1	75	14	43,8
	70	3	9,4	70	7	21,9
	65	4	12,5	65	4	12,5

Average experiment group I score is 74,2, whileAverage experiment group II score is 76,7. With thisaverage difference is 2,5. Average experiment group I islowerthan Average experiment group II. Test result shows that learningdrawing and designing engine subjectamongsenior highschool and vocational highschool with small group methodis existence of learning result difference. Yet generally learning result of PIP Semarang cadetsin drawing and designing engine are raising.

IV. Closing

Base on research result can be concluded as follow:

a) Group experiment I resultis 74,5 (fair).
b) Group learning result 1 76,7 (good).
c) Differences is score 76,7 – 74,2 = 2,5

Base on the research, advice which able to say are:

a) Lecturer should be able to put in use small group method in drawing and designing engine.
b) Lecturer expected to be more creative at utilize his/her cadets in study through small group learning, so cadets be able to understand more about the matter.
c) For next researcher, expected to utilize small group learning method as a theme of future research.

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