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The Influence of Implementation of Trainer Crimping Learning Media on Computer Learning Outcomes and Basic Networks at SMK Muhammadiyah 1 Taman

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Abstract

Cable crimping and network design are the most basic subjects that must be mastered by Vocational High School (SMK) students. However, there are still many obstacles in these subjects because they still use conventional methods that use lectures, discussions and group work so that students become less motivated in learning. The purpose of this study was to find out how far students' understanding of the basic subject of cable crimping. This research provides understanding, understanding, how to arrange and techniques for cable crimping. The research method used for network simulation is the experimental and design method and is carried out in one group, pre-test and post-test design.

Keywords _____ : Trainer, Crimping, Learning Media

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B BACKGROUND

School Intermediate Vocational (SMK) is wrong one shape institution education which aim for increase intelligence, knowledge, morals glorious, as well as Skills which needed for life independent and follow program education more carry on corresponding with training profession (Hapnita et al., 2017). School Intermediate Vocational equip student with training Skills and entrepreneurship, as well as training Skills life. SMK more emphasize on practice student, so that student need independence and experience live as orientation enter world work and industry (Wastono, 2016). SMK dominate in Thing apprenticeship, experience and information factual, so that need media for support qualification graduate of superior.

Not only Theory which interpreted based on the book and teacher (Nurhidayah et al., 2016). Wrong one institution education which could create source power man with ability, competence and Skills for produce graduate of which could increase ability achievement moment enter market work is awareness about SMK (Sulfemi & Qadir, 2017). In understanding I, SMK must succeed in process produce graduate of which superior. Success in produce graduate of which good could happen in many Thing, as process learning, atmosphere study, environment

study, method learning and Theory learning. Theory learning is wrong one means education for educators for give Theory learning, increase student creativity, increase attention student in process learning.

For this reason, SMKs must be successful in training superior graduates. Success in producing good graduates can be achieved in various ways, such as: the learning process, learning atmosphere, learning environment, learning methods, learning materials. SMK Muhammadiyah 1 Taman is one of the leading schools in Sidoarjo, at SMK Muhammadiyah 1 Taman it has a Computer and Network Engineering (TKJ) major. One of the subjects of TKJ is Basic Computers and Networks, where in this subject there is a practice that all TKJ students must be able to do. The basic practice for TKJ class X students is to make a Local Area Network (LAN) cable or it can also be called cable crimping. The cable used in LAN is a UTP cable (*Unshielded Twisted Pair*) cable is a special cable for data transmission, UTP consists of 4 pairs (blue, orange, green, and and chocolate) chosen according to rule certain and used for send/receive data. As a TKJ major, you cannot escape being involved in the world of computer networks, where the use of UTP cables is very important in daily

practice activities, but

there are still many students who are still confused about the arrangement of these cables.

With exists network area local (LAN) which connected Among room administration, office and room machine will very useful and very useful in access data, support process study teach and speed up study. process management which support technology network for example as media, teacher give profession house to student, provider information school to Public, and function other. By because that, in organize service education, school demanded for give service in a manner fast and for reach goal .

RESEARCH METHOD

Study this use method study quantitative with type study Pre Experiment Design. Sugiyono (2015) state that method study experiment is method study which used for know influence a number of behavior in condition which under control. Method study this use design test-before-test of a group.

Table 2. Criteria Answer Validation si

Number	Answer Criteria
5	Very good
4	Well
3	Pretty good
2	Not good
1	Not good

Source: Arikunto (2013)

After calculating the validation score, the calculation results are presented according to the following table :

Table: 3. Percentage Score Validation Criteria

Percentage	Information
85% - 100%	Very decent, usable without revision
69% - 84%	Decent, fine to use with minor revisions
53% - 68%	Decent enough, may be used with revisions big
37% - 52%	Inadequate, should not be used
20% - 36%	Not worth it, should not be used

Data collection technique

As for technique collection data which will researcher Use During study this is as following:

Observation conducted by researcher class X student multimedia SMK Muhammadiyah 1 Park by going directly, seeing

Stage beginning conducted with use (pretest), then treated (X), after given treatment conducted measurement with use test end (posttest).

Instrument Trials

In study this, tool which used for gather data During process learning. So, before use device for gather data, device especially formerly tested on student which already take Theory *crimping trainer* for eye basic computer and networking lessons . Testing instrumental used for measure ability instrument in measure variable study. instruments this use test items based on test item validity, reliability, item difficulty level and discriminating power about.

Instrument Validity

Sugiyono (2010) state that validity is size for state validity is something instrument. Something instrument could said valid if could used for measure what which want be measured. Purpose from validity question item is for know what is the level of eligibility test, so that items the could used as items test in study. Instructions evaluation is as following:

the condition of the school and the situation in the classroom directly. Method test which will used researcher for one eye lesson is with use test results study form test written choice double and practice with Theory *crimping trainer* . During implementation, teacher submit question

to student and give Duty practice corresponding procedure. Purpose use test in study this is for obtain data quantitative in shape statistics and descriptive with score percentage answer correct which obtained student.

Giving test form results study which achieved on every Step. Where *pretest* given before Theory given in beginning lesson, whereas *posttest* given after Theory given in end lesson. For purpose know difference model learning which studied, so score data quantitative which obtained by t test of two means (T-Paired) and Eta Square d used for determine and count hypothesis.

Documentation for class X Multimedia students at SMK Muhammadiyah 1 Taman by taking photos and later used for evidence from the research the researchers conducted.

Study this is type study quantitative. On study quantitative this obtained data form number and chart results study. Data this originate from results test which used as tool for measure success something learning. Technique analysis data this is step which very urgent in study because from results the researcher could answer the problem statement. From data which served researcher, on process next researcher do analysis data in a manner manuals .

Hypothesis test

Before do testing hypothesis, researcher especially formerly do test normality, because condition for testing hypothesis is data

distributed normal. Test normal this used for know is results validity data which first and which final conducted by researcher which distributed normal. Test normality in study this use t test two means as following:

$$t = \frac{\bar{D} - \mu_D}{s_D / \sqrt{n}} \quad (1)$$

t-test this used for test hypothesis which filed in study this as following:

H0 : No there is influence learning *problem based learning* which supported *crimping trainer* to performance academic student class X I TKJ on eye lesson computers and basic networks in SMK Muhammadiyah 1 Park.

H1 : There is influence learning *problem based learning* which supported *trainer crimping* against achievement study student class X I TKJ on eye lesson computers and basic networks in SMK Muhammadiyah 1 Park.

Data Presentation and Analysis

Based on formula problem which conducted researcher, is known that influence learning based *problem based learning crimping trainer* to results study student basic computer and network subjects class XI SMK Muhammadiyah 1 Park. So data which obtained in study this could depicted as following:

Instrument Validity

Results calculation all instrument study has given by para expert and score this has determined based on consideration and calculation expert. This is shown by the two validators in the table below.

Table 5. Validator Results

Material Expert Validator			
No	Device Instruments	Percentage	Information
1	grain about corresponding indicator	88%	Very decent, usable without revision
2	The expected boundaries of the questions are clear	88.6 %	Very worth it, got used without revision
3	Fill the material according to learning objectives	75%	Worth it, can be used with minor revisions
4	Fill in the material according to the level, type, school and class level	90%	Very worth it, got used without revision
5	Formulation of communicative sentences	75%	Worth it, can be used with minor revisions
6	Sentences use good and correct language according to the variety of languages	80%	Very worth it, got used without revision
7	Use common language and verbs	93%	Very worth it, got used without revision

validity

In study this, measurement validity question item with method *Correlation Product moments Pearsons* conducted with use *crimping trainer*. After device validated by expert, so will next with process testing device. In study this tool experiment piloted on student class X I SMK Muhammadiyah 1 Park which learn the basics how to *crimp* with Theory in

crimping trainer. The validity test is calculated for each item. The validity level of each question can be done by using rcount comparison with *crimping trainer material*.

Inspection validity counted for every about. validity every question could conducted with compare rcount with rtable which could seen with criteria taking decision as following:

- a. If $r_{count} \geq r_{table}$, so that element valid.
- b. If $r_{count} \leq r_{table}$ so element the no valid.

Table 6. Validity Test Results

Statistics	Total
Number of Questions	15
The number of students	34
Valid Question Number	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 14, 15
Invalid Question Number	11, 13
Number of Valid Questions	13

Great Influence Test

Testing study this is Eta Square d for know influence *problem based learning* based *crimping trainer* to support learning to achievement academic student, for know efficiency use formula as following:

$$\text{Eta Squared} = \frac{t^2}{t^2 + (N-1)} \quad (2)$$

Information :
t : t count
N : number of subjects

Table 4. Category of *Eta Squared Test*.

How big is the criterion for the level	Category
$0.01 \leq t < 0.06$	There is little effect
$0.06 \leq t < 0.14$	There is moderate influence
$t \geq 0.14$	There is great influence

From the results of the eta squared test, it obtained a result of 0.71 from the amount of data entered and tested using the eta squared formula according to Table 4. It shows that the implementation of *traiber crimping -based learning* has a major effect on learning media. The amount of influence can be categorized through the table below:

based learning which supported *trainer crimping* against achievement study student class X I TKJ on eye lesson computers and basic networks in SMK Muhammadiyah 1 Park. ($H_0: \mu_1 = \mu_2$) α used 5%

Test Two Means(T-Paired)

H0 : No there is influence learning *problem based learning* which supported *crimping trainer* to performance academic student class X I TKJ on eye lesson computers and basic networks in SMK Muhammadiyah 1 Park. ($H_0: \mu_1 = \mu_2$)

H1 : There is influence learning *problem*

Because the data that has been used is data before and after using the *crimping trainer*, then test the hypothesis using the t-test of two averages (*T-Paired*) with a significance 5%. Alternative hypothesis >> two-way (*two-sided*). Based on the results of the analysis, the t-count value | -9,076 | is obtained = 9.076 and t-table value (2.034). Because the t-count (9.076) is in the H0 rejection area, there is a difference between the values before and after the *crimping*

trainer is given. So it can be concluded that the Crimping Trainer Learning Media has an effect on the learning outcomes of Muhammadiyah 1 Taman SMK students.

CONCLUSION

Based on results study product about trainer crimping learning media , could pulled conclusion, as following : (1) Yes Influence Positive and Significant learning of crimping tarainer To Achievement Academic Student Technique Network Computer Class IX on computer and basic subjects network SMK Muhammadiyah 1 Park. Has proven that from results test t obtained t-count as big 9,076 and for t-table 2.03452, H0 rejected and H1 be accepted. Could concluded that there is influence crimping trainer to learning outcomes student class IX Technique Network Computers in basic computer and network subjects SMK Muhammadiyah 1 Park. (2) Development learning Media trainers this crimp has tested eligibility because has get confirmation from two expert is expert media and expert material . As for the percentage appropriateness media rated by expert media with percentage of 90% in the " very " category worthy" for used and assessment from material experts got percentage of 93 % in category "Very Worthy", and response student to test student get score average 88.2 with category "Very Worthy" for used in the process learning practice in the class .

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