The Contribution of Teaching Skill and Learning Skill To The Competence Achievement of Computer Assembly in Public Vocational High School of Malang City

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Abstract: Good competence mastering for the package of Computer and Network Engineering skill can't be separated from maturity of competence achievement in the skill program basic as well. Thus, with good and appropriate basic competence achievement of Computer and Network Engineering skill, competence mastering of Computer and Network Engineering skill will also be great. Computer assembly subject is one subject which included into basic of Computer and Network Engineering skill. Besides that, computer assembly subject supports computer technician work which much needed in the industrial or business world. Less basic competence mastering of Computer and Network Engineering skill is assumed due to many aspects, both internal and external aspect. Internal aspect includes factor which affects from the inside of student such as learning skill. External aspect is factor which affects from student's outside such as teacher teaching skill. This research aims to know how large the contribution of teaching skill and learning skill to the vocational competence achievement for students in the Vocational High School (SMK-Sekolah Menengah Kejuruan) at Computer and Network Engineering skill Malang City. Type and data analysis in this research included into quantitative research. Sample in this research was 199 students in the 10th Grade. Data collection technique for teaching skill and learning skill variable used questionnaire, while competence achievement of computer assembly variable used test and documentation. Data analysis that used in this research was frequency distribution with SPSS program for Windows version 16. Data analysis included description and multiple regression. Research result showed that: (1) contribution of teaching skill to the competence achievement of computer assembly was 5%; (2) contribution of learning skill to the competence achievement of computer assembly was 8%; and (3) contribution of teaching skill and student learning skill simultaneously to the competence achievement for computer assembly was 20.2%. Suggestion that recommended in this research as follow: (1) it needs improvement or development for teachers in order to be able to give question and distribute the question which will encourage student to have critical thinking; (2) it needs guidance for students who have difficulty in arranging their learning schedule and cooperate with parents in order to support their children's effort to be discipline in learning as with the learning schedule.

Keywords: *Teaching skill, learning skill, competence achievement of computer assembly*

1. Introduction

Vocational education is a school which has goal to assist the government in educating human resource that directed to have competence as with the suitable field or scope and expected to decrease unemployment rate, assist in developing nation economy and prosper the people including the executor and individu itself (Sonhadji, 2013). The needs of this welfare becomes main goal from all ASEAN countries in which with its agreement accumulated program of ASEAN economic community, where in this program there will be massive transaction flow both goods and service that will be in and out freely among countries. Vocational High School (SMK-Sekolah Menengah Kejuruan) graduates must be adapted and compete in this ASEAN economic community era. The actual problem showed that Vocational High School graduates recently still lack in getting a job. According to Central Bureau of Statistics BPS (2015, p.5) Vocational High School graduates mostly unemployed, where in 2014 the amount was 813,776 people or 11.24% from total unemployment in Indonesia for 7.24 million people. In 2015, total unemployment increased for 300 thousand people to be 7.45 million people with the largest unemployment dominated by Vocational High School graduates for 9.05%.

According to lecturer in University of North Sumatra, Siddik, through online media of Kompasiana (2013), many unemployment can't be separated from less adsorption in the world of work and low competence of

applicant. The world of work which its development as not rapid as the number of job seeker emerges gap which getting larger day by day. The low competence of applicant also makes many graduates from education institution unable to be accepted and fulfill qualification that needed for the world of business and work. Based on interview with teacher on January, at one of Vocational High School with A-accreditation in Malang City stated that Computer and Network Engineering graduates mostly work in unsuitable skill filed. Astuti (2013) mentioned that Vocational High School graduates don't work in suitable work field caused by the owned competence is unsuitable with industrial world needs. Computer is technology which helping human's work to be more effective and efficient. Vocational High School graduates from Department of Computer and Network Engineering prepared to be professional manpower in middle level which is almost in all sectors need competence manpower for computer and network field as with Table 1.

Table 1: Working Scope of Vocational High School Graduate in the Department of Computer and Network Engineering

No	Industrial/Business World	Working Scope
1.	Computer store and reparation and maintenance place	Computer technician
2	Office/institution; computer rental/cyber cafe	Computer technician Network technician
3	*Internet service provider* (ISP)	Network technician Network administrator level 1 Network administrator level 2 and 3
4	Hotel and banking	Computer technician Network technician Network administrator level 1 Network administrator level 2 and 3

(Source: Prasetyo, 2014)

The reason for research population selection in Public Vocational High School (SMKN-Sekolah Menengah Kejuruan Negeri) 2, 3, 4, and 5 Malang City as follow: Public Vocational High School 2 is Public Vocational High School in Malang City which has been trusted to be Profession Certification Institution (LSP-Lembaga Sertifikasi Profesi), Public Vocational High School 4 is Public Vocational High School in Malang City which superior due to its function as ICT (Information and Communication Technology) Center of Vocational High School in Malang City, then Public Vocational High School 3 and 5 has represented Vocational High School with A-Accreditation which spreads in Malang City area. Hardika (2012, p.1) found that recently, educator teaching skill tends to be passive by presenting PowerPoint which decreases the relationship closeness and intimacy between learner and educator. It shows a gap of educator teaching skill which can result Vocational High School graduates that responsive with the world of work and today's educator teaching skill. Teaching skill must be owned by educator in order to reach learning goal and outcome and also to make effective learning process (Helmiati, 2013). Learning process in technology field, which less in meta-cognition ability development shows problem in the learning elements. Hardika (2012,p.1) found that recently, educator teaching skill tends to be passive by presenting PowerPoint which decreases the relationship closeness and intimacy between learner and educator. It shows a gap of educator teaching skill which can result Vocational High School graduates that responsive with the world of work and today's educator teaching skill. Teaching skill must be owned by educator in order to reach learning goal and outcome and also to make effective learning process (Helmiati, 2013).

Besides teacher teaching skill, there is also student learning skill factor which is lacking, thus it results in less optimal learning process. Research result identified problem in learning process as follow: (1) learning strategy that implemented by educator was unable to give clear understanding to the learner; (2) learners were less skilled in learning and only learned what been given by teacher without learning enrichment; (3) learners only did tasks that given by educator without supported by appropriate sources and tended to copy and plagiarize their friend's work (Hardika, 2012, p.2). Kerka (2007) identified that learning skill is learning strategy which can assist learners to organize, process, and use information effectively. Moreover, Kerka also

explained that learners not only needed what they have been learned but also how to learn it. Kerka (2007) identified that learning skill components consist of four points as follow: (1) preparation to learn or study; (2) obtaining, processing, and saving information; (3) applying what been learned; and (4) monitoring and evaluating strategy that used in the learning process. Folastri's research (2013, p.170) showed that student learning skill with high achievement is in good category. It is in line with Slamet's statement (2010, p.76) that efficient learning can be reached if it uses correct learning strategy to reach the result as maximum as possible.

Good competence mastering for the package of Computer and Network Engineering skill can't be separated from maturity of competence achievement in the skill program basic as well. Thus, with good and appropriate basic competence achievement of Computer and Network Engineering skill, competence mastering of Computer and Network Engineering skill will also be great. Computer assembly subject is one subject which included into basic of Computer and Network Engineering skill. Besides that, computer assembly subject supports computer technician work which much needed in the industrial or business world. Less basic competence mastering of Computer and Network Engineering skill is assumed due to many aspects, both internal and external aspect. Internal aspect includes factor which affects from the inside of student such as learning skill. External aspect is factor which affects from student's outside such as teacher teaching skill. Remembering the importance of this competence mastering of computer assembly, then the researcher conducted a research about the contribution of teacher teaching skill, learning skill to the competence achievement of computer assembly for Vocational High School students at Computer and Network Engineering skill in Malang City.

2. Literature Review

Teaching skill: teaching skill must be owned by educator or teacher to reach learning goal and outcome and also to make effective learning process (Helmiati, 2013, p.18). Djamarah (2010, p.99) explained that teaching skill absolutely must be owned by teacher. According to Usman (2010:12), teaching skill is pattern of behavior set that presented by teacher in learning activity. According to Sutopo (2015) teaching skill and strategy divided into three components: (1) planning; (2) learning implementation which consists of material delivery, technology utilization, group and individu distribution, learning reinforcement or enrichment, learning effectiveness, and multi-strategy utilization; and (3) assessment, which is strategy to assess the learning.

Learning skill: Kerka (2007) defined that learning skill is learning strategy which can assist learners to organize, process, and use information effectively. Moreover, Kerka also explained that learners not only needed what they have been learned but also how to learn it. Kerka (2007) defined that learning skill components consist of four points as follow: (1) preparation to learn or study; (2) obtaining, processing, and saving information; (3) applying what been learned; and (4) monitoring and evaluating strategy that used in the learning process. Silberman (2014, p.194) explained that cooperate learning can be improved by independent learning activity. The advantage from students that learn with their own way as follow: (1) developing self-focusing and thinking ability; and (2) giving student an opportunity to have personal responsibility for what they are learning. Silberman (2014, p.195-208) mentioned strategy in independent learning activity as follow: (1) through visual imagination, students can create their own idea; (2) writing activity, students can think about their own experience; (3) mind mapping, students can identify clearly and creatively about what they've been learned or what they are planning; (4) learning by doing, students have opportunity to experience topic implementation and material content that they learned or discussed in the class for the real life situation; (5) learning journal, students can be prompted to realize what they experience and express it in writing. Syafni (2013) concluded that learning skill is important to be owned by students in order to master and understand learning material in the school, thus it can result satisfying achievement.

Competence Achievement of Computer Assembly: Bektiarso (2015, p.31) explained that competence definition is ability or skill that owned by student in the form of knowledge, understanding, skill, and attitude that can be applied actually in daily living. Competence that must be achieved by Vocational High School students called as vocational competence. Moreover, Bektiarso (2015, p.33) defined that vocational competence is one component from individual competence and including knowledge, understanding, skill,

task, attitude, and role. Sudjimat (2014) explained that competence must describe holistically about attitude dominant, skill, and knowledge. Further, he defined competence as one formulation that states integrated demonstration of skill group, which is cognitive skill and technical skill, also the observed and measured attitude to do certain task in certain level.

3. Methodology

This research design used survey research method in analytical survey category with quantitative approach.

Population and Sample: Population in this research was students in the 10th Grade at Computer and Network Engineering skill academic year 2015/2016 in Public Vocational High School (SMK Negeri) of Malang City which have same criteria, have department of computer and network skill with A-accreditation.

Research instrument: Instrument that used in this research was questionnaire, documentation, and test. Questionnaire was used to express teaching skill (24 items), learning skill (30 items), while to see competence achievement of computer assembly it used test instrument (25 questions) and documentation.

Data Collection Technique: Data was collected through questionnaire, test, and documentation to all samples which had been determined in Public Vocational High School 2, 3, 4, and 5 of Malang City, which were 10th Grade Department of Computer and Network Engineering. Questionnaire was used to collect data of teaching skill and learning skill. Test was used to collect data of competence achievement of computer assembly and supported by score documentation that obtained from productive teacher of computer assembly subject.

Analysis Data: Data analysis technique that used in this research was description and multiple regression.

4. Results and Discussion

Table 2: Validity and Reliability

Variable	Validity	Reliability
Teaching skill	0.000 to 0.032	0.746
Learning skill	0,000 to 0.042	0.753
Competence Achievement of Computer Assembly	0.000 to 0.031	0.727

Based on table above, it shows that instrument of teaching skill, learning skill, and competence achievement of computer assembly variable had been valid and reliable.

Table 3 : Frequency Distribution of Teaching Skill Variable

No	Category	Interval	Frequency	Frequency (%)
1	Very high	76 - 96	54	26.60%
2	High	57 - 75	126	64.04%
3	Medium	38 - 56	17	8.37 %
4	Low	19 - 37	2	0.99 %
5	Very Low	0 - 18	0	0
Sum			199	100%

Based on table above, it shows that teaching skill for teachers in Public Vocational High School Department of Computer and Network Engineering Malang City included into high category.

Table 4: Frequency Distribution of Learning Skill Variable

No	Category	Interval	Frequency	Frequency(%)
1	Very high	100 – 120	20	10.05%
2	High	75 – 99	133	66.83%
3	Medium	50 – 74	44	22.11%
4	Low	25 – 49	2	1.01%
5	Very low	0 - 24	0	0
Sum			199	100 %

Based on table above, it shows that learning skill for students in Public Vocational High School Department of Computer and Network Engineering Malang City included into high category.

Table 5: Frequency Distribution of Competence Achievement of Computer Assembly Variable

No	Category	Interval	Frequency	Frequency(%)
1	Very high	81 - 100	99	49.75%
2	High	71 - 80	62	31.15%
3	Medium	61 - 70	36	18.09%
4	Low	51 - 60	2	1.01%
5	Very Low	0 - 50	0	0%
Sum			199	100%

Based on table above, it shows that competence achievement of computer assembly for students in Public Vocational High School Department of Computer and Network Engineering Malang City included into very high category. Data in this research seen based on mean, median, standard deviation, minimum, maximum, and sum score. Complete score distribution displayed in the Table 6.

Table 6: Data Distribution

	Teaching Skill	Learning Skill	Competence Achievement of Computer Assembly
N Valid	199	199	199
Mean	69.6131	83.5477	79.5528
Median	70	83	80
Std. Deviation	10.73492	12.78519	7.39615
Minimum	34.00	38	56
Maximum	96.00	120	95
Sum	13853	16626	15831

Based on the table above, it can be noted that the average variable of teaching skills 69.61, variables of learning skills 83.55 and the variable achievement of competence computer Assembly 79.55.

Table 7: Summary of The Results of The Test of Normality

No.	Variable	P_{Sig}	Conclusion	Interpretation
1.	Teaching Skill	0,682	P sig > 0,05	Normal
2.	Learning Skill	0,722	P sig > 0,05	Normal
3.	Competence Achievement of Computer Assembly	0,065	P sig > 0,05	Normal

Based on the table above was obtained by that variable teaching skills, learning skills and competency achievement Assembly computer has (0.05 < Psig) so that it can be concluded that the data variables teaching skills, learning skills and competencies, achievement of computer Assembly are normal.

Table 8 : Summary of The Results of The Test of Linearity

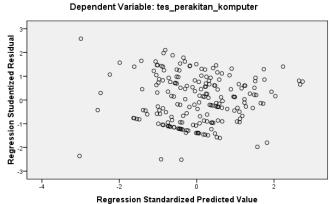| No.	Variable	P_{Sig}	Conclusion	Interpretation
1.	$X_1 - Z$	0,000	P <0,05	Linear
2.	$X_2 - Z$	0,000	P < 0,05	Linear

Based on the table above are obtained (Psig < 0.05) so it can be inferred that the variables in the linear research.

Table 9: Summary of The Results of The Test of Multicollinearity

No	Variable	Collinearity Statistic	
		Tolerance	VIF
1.	Teaching skill	.632	1.581
2.	Learning skill	.479	2.088

Based on the table above was obtained on the tolerance values > 0.1 and VIF <10 so inconclusive that multicollinearity does not occur.

Picture 1: Diagram of The Scatterplot Heteroskedastisitas Test Results

Based on picture above, scatterplot of visible dots randomly spread, do not form a specific pattern, and spread both above or below the 0 on the Y axis. This means not going heteroskedastisitas. Figure 1 is a picture diagram of the scatterplot heteroskedastisitas test results.

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	55.320	3.479		15.900	.000
	Teaching Skill	.148	.054	.215	2.727	.007
	Learning Skill	.166	.046	.288	3.647	.000

a. Dependent Variable: competence achievement of computer assembly

The Test of Hypothesis: Hypothesis tests are done to find out how big the influence of free variables which resulted in changes to the bound variables, either partially or simultaneously. Done using the SPSS program help with simple linear regression tests and multiple linear regression test
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The First Hypothesis: The first hypothesis is there are significant contributions between teaching skills of teachers towards the competence achievement of computer assembly for students in Vocational High School Department of Computer and Network Engineering Malang City. This hypothesis aims to find out how big a

contribution teachers teaching skills towards competence achievement of computer assembly for students. Simple linear regression test results for the first hypothesis can be seen in Table 7.

Table 7: The First Hypothesis Test Results Summary

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	55.320	3.479		15.900	.000
	Teaching Skill	.148	.054	.215	2.727	.007

a. Dependent Variable: competence achievement of computer assembly

Table 7 shows the results of a simple linear regression analysis with regression coefficients for variable teaching skills of teachers (X1) towards the attainment of competences the student's computer Assembly (Z) are of positive value 0.215. The regression coefficient of the price stated that the achievement of the competence of the Assembly of computer students will increase, if the teaching skills of teachers improved. The higher the teaching skills of teachers, then the higher achievement of competence the Assembly of computer students. The resulting significance probability value is 0.007 and less than 0.05 (p <0.05) means that the first hypothesis is accepted. The conclusion is there is a significant contribution between the teaching skills of teachers towards the competence achievement of computer assembly for students in Vocational High School Department of Computer and Network Engineering Malang City. The magnitude of the contribution of the teaching skills of teachers towards the competence achievement of computer assemblywas determination of the coefficient (r2) multiplied by 100%, i.e 0.046 x 100% = 4.6%. The conclusion is that the teaching skills of teachers of 4.6% contributing towards the competence achievement of computer assembly for students in Vocational High School Department of Computer and Network Engineering Malang Cityand while 95.38% is affected by other variables that cannot be revealed in research.

The Second Hypothesis: The second hypothesis is there is a significant contribution learning skills towards competence achievement of computer assembly for students in Vocational High School Department of Computer and Network Engineering Malang City**.**This hypothesis aims to find out how big a contribution learning skills towards competence achievement of computer assembly for students. Simple linear regression test results for the first hypothesis can be seen in Table 8.

Table 8: The SummaryTest Results of Second Hypothesis

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	55.320	3.479		15.900	.000
	Learning Skill	.166	.046	.288	3.647	.000

a. Dependent Variable: competence achievement of computer assembly

Table 8 shows the results of a simple linear regression analysis with regression coefficients for variable intelligence learning skills (X2) towards the competence achievement of computer assembly (Z) are of positive value 0.288. The regression coefficient of the price stated that the achievement of the competence of the Assembly of computers will increase, if the intelligence of the students learning skills improved. The higher the learning skills of the students, then the higher achievement of competence the Assembly of computer students. The resulting significance probability value is 0.000 and less than 0.05 (p <0.05) means that the second hypothesis is accepted. The conclusion is there is a significant contribution towards the achievement of the learning skills among the competence achievement of computer assembly for students in Vocational High School Department of Computer and Network Engineering Malang City. The magnitude of the

contributions towards the achievement of the learning competence skills assembling computer students are from the coefficient of determination (r^2) multiplied by 100%, i.e.0.083 x 100% = 8.3%. The conclusion is that learning skills contribute of 8.3% towards the competence achievement of computer assembly for students in Vocational High School Department of Computer and Network Engineering Malang City, and whereas 91.7% influenced by other variables that cannot be revealed in research.

The Third Hypothesis: The third hypothesis is there are significant contributions between teacher's teaching skills and learning skills towards the competence achievement of computer assembly for students in Vocational High School Department of Computer and Network Engineering Malang City. This hypothesis aims to know how big is the influence of the teaching skills of teachers and learning skills of the students towards competence achievement of computer assembly for students in Vocational High School Department of Computer and Network Engineering Multiple linear regression test results can be seen in Table 9.

Table 9: The Third Hypothesis Test Results Summary

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.449[a]	.202	.194	6.64048

a. Predictors: (Constant), Learning Skill, Teaching Skill
b. Dependent Variable: competence achievement of computer assembly

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2188.398	2	1094.199	24.814	.000[a]
	Residual	8642.798	196	44.096		
	Total	10831.196	198			

a. Predictors: (Constant), Learning Skill, Teaching Skill

b. Dependent Variable: competence achievement of computer assembly

Table 9 above shows multiple linear regression test results between variables X1 and X2 against Z simultaneously. The magnitude of the coefficients of the regression simultaneously is 0.202. Its meaning is that the teaching skills of teachers and learning skills students have a strong influence towards competence achievement of computer assembly for students in Vocational High School Department of Computer and Network Engineering Malang City. The larger the value of X1 and X2, then the greater the value of Y. also Value the resulting significance probability is 0.000 less than 0.05 and so it can be deduced that the third hypothesis is accepted. The conclusion is there is a significant contribution between the teaching skills of teachers and learning skills of students towards competence achievement of computer assembly for students in Vocational High School Department of Computer and Network Engineering Malang City. The magnitude of the contribution of the teaching skills of teachers and learning skills of the students towards the attainment of competences the student computer Assembly was determination of the coefficient ($r2$) multiplied by 100%, i.e.0.202 x 100% = 20.2%. The conclusion is that the simultaneous teaching skills of teachers and learning skills of the students gave a contribution of 20.2% towards competence achievement of computer assembly for students in Vocational High School Department of Computer and Network Engineering Malang City, and whereas 79.8% influenced by other variables that cannot be revealed in research.

Significant contribution of teacher teaching skill to the competence achievement of computer assembly for students in Vocational High School Department of Computer and Network Engineering Malang City: The result of correlation analysis between teacher teaching skill to the competence achievement of computer assembly for students in Public Vocational High School Department of Computer and Network Engineering Malang City was strong correlation. It showed that there was partial significant contribution of teaching skill to the competence achievement of computer assembly for students in Public Vocational High School Department of Computer and Network Engineering Malang City. Research result of

Adediwura and Tayo (2007:167) showed that there was significant relationship between teaching skill and student learning achievement. Teaching skill that significantly correlated with academic achievement was related to the sincere expression, constructive criticism, and question. Research result of Etuk, Afangideh, and Uya (2013:203) showed that teacher characteristic which could improve student learning achievement as follow: (1) having knowledge about subject material; (2) able to communicate well; (3) able to implement effective teaching strategy; and (4) able to manage the class.

Significant contribution of learning skill to the competence achievement of computer assembly in Vocational High School Department of Computer and Network Engineering Malang City: The result of correlation analysis between student learning skill to the competence achievement of computer assembly in Public Vocational High School Department of Computer and Network Engineering Malang City was strong correlation. It showed that there was partial significant contribution of learning skill to the competence achievement of computer assembly for students in Public Vocational High School Department of Computer and Network Engineering Malang City. Research result of Riyadi (2012) showed that meta-cognition learning strategy could improve learner's competence. And then research result of Syafni (2013) concluded that learning skill was important for students in order to master and understand subject material in the school, thus they could reach satisfying achievement. Next, according to the research result of Hasnor, Ahmad, and Nordin (2013:178) showed that there was relationship between learning approach and academic achievement. This research result showed that: (1) contribution of teaching skill to the competence achievement of computer assembly was 5 %; (2) contribution of learning skill to the competence achievement of computer assembly was 8 %; and (3) contribution of teaching skill and student learning skill simultaneously to the competence achievement for computer assembly was 20.2%.

5. Conclusion and Suggestions

- There was significant contribution between teaching skill to the competence achievement of computer assembly for students in Public Vocational High School Department of Computer and Network Engineering Malang City
- There was significant contribution between learning skill to the competence achievement of computer assembly for students in Public Vocational High School Department of Computer and Network Engineering Malang City

Suggestion: Based on conclusion in this research which expresses the result of learning process for computer assembly subject in Public Vocational High School Malang City, it is suggested as follow:

- it needs improvement or development for teachers in order to be able to give question and distribute the question which will encourage student to have critical thinking in the form of lesson study.
- it needs guidance for students who have difficulty in arranging their learning schedule and cooperate with parents in order to support their children's effort to be discipline in learning as with the learning schedule.

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