Analysis of Influencing Factors toward Capability Improvement of Information and Communication Technology(ICT) Integration of Teachers

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Abstract: *This study aims to analyze the factors of capacity improvement of ICT integration skills of state vocational high school teachers in Medan. This research is a quantitative descriptive study using survey method with path analysis, the determination of sample is done by proportional stratified random sampling technique with a total sample of 243 teachers from a total population of 659 teachers of 12 SVHSinMedan.The results of the analysis in this study found that there were several factors that had an effect on increasing the ability of ICT integration for vocational teachers.*

The partially and jointly the direct and indirect effects of the exogenous variables are: (1) there is a direct influence of independent learning motivation toward training; (2) there is a direct influence of innovative attitude toward training; (3) there is a direct influence of independent learning motivation and innovative attitude jointly towards training; (4) there is a direct effect of independent learning motivation toward capacity improvement of ICT integration; (5) there is a direct influence of innovative attitudes toward capacity improvement of ICT integration; (6) there is a direct influence of training toward capacity improvement of ICT integration; (7) there is an indirect effect of independent learning motivation toward capacity improvement of ICT integration through training; (8) there is an indirect influence of innovative attitudes toward capacity improvement of ICT integration through training; (9) there isa direct influence of independent learning motivation, innovative attitude and training jointly toward capacity improvement of ICT integration.

The results of this study indicate that independent learning motivation, innovative attitude and training partially directly influence the capacity improvement of ICT integration. Jointly, these three variables determine 78.70% the capacity improvement of ICT integration. Based on the findings of this study it can be concluded that (1) there is a direct influence of independent learning motivation and innovative attitude jointly and partially toward training. (2) there is a direct influence of independent learning motivation, innovative attitude and training togetherly and partially toward capacity improvement of ICT integration of SVHS in Medan.The implication of the results of the research is to improve the capacity of ICT integration skills of SVHS teachers in Medan have to be done through the development of teacher's independent learning motivation, innovative attitude and training.

Keywords: *ICT integration, independent learning motivation, innovative attitude, training*

I. Introduction

The integration of ICT will create teachers who are able to process and distribute information through telecommunications networks that will open up opportunities in increasing professional competence in various scientific fields. The idea of using machine learning, making complex process simulations, the animation process described is very helpful for vocational teachers to make new innovations in learning. Likewise, to serve learning that is constrained by time, distance and place can be facilitated by ICT.

There are various problems that cause the development of ICT integration in vocational school teachers, among others, lack of adequate infrastructure in schools, low motivation of teachers to learn ICT independently, lack of innovative attitudes that teachers have to produce interactive learning materials, teacher perceptions of adequacy knowledge that has been owned, the lack of desire to use the internet to add insight and reference in supporting learning.

The development of ICT has caused rapid changes in human behavior. The paradigm that only student to be learneris wrong. The development of ICT has made everyone, including students, parents, teachers, experts, become learner if they do not want to be left behind in an obsolete field of science. So that the frequency and desire of learning increases, each person must have certain motives. The overall motives are generally said as motivation. The purpose of learning motivation is the overall driving force that gives rise to learning activities that ensure continuity of learning and provide direction for learning activities so that goals can be achieved.

Therefore, given the importance of knowledge about motivation, the discussion of learning motivation needs to be studied.

The interest and feeling to produce new innovations in the learning process at Medan State Vocational School is one of the problems that causes the ICT integrase ability not to increase as expected, even though teachers should always have an innovative attitude to adopt ICT development regardless of how to understand it either on their own initiative or through the training. The absence of an innovative attitude results that teachers will not understand ways to overcome the problems caused by the lack of ICT infrastructure in supporting the improvement of their competencies.

The low of motivation to learn independently and the lack of innovative attitudes to find solutions to problems related to ICT was indicated that majority of the teachers of the State Vocational School in Medan not using the internet as part of increasing their competencies (Pardede[1]). The Identifying internal factors that influence the improvement of ICT integration ability of teachers that means to relate the efforts of teachers to utilize ICT in multi-interaction with students, peer teachers, parents and community that rise from the desires and self-impulse. In addition of internal factors that external factor was identified influencing the ability of the teacher's ICT integration was training. The trainings will be prepared by the government be main mean that are always waited by teachers to improve their capacity improvement of ICT integration skills. However, in terms of quantity and quality about training of the using of ICT especially for SMK teachers is still lacking due to the gap between the number of teachers and the number of training offered and the training material is always limited by time in each training institution.

Actually, there are many internal and external factors that can be identified to influence the capacity of ICT integration of teachers, but in this study the internal factors studied are independent learning motivation and innovative attitude, while the external factors are training.

Research Purposes

This study aims to get an overview of the factors influencing the enhancement of ICT integration capacity of State Vocational High Schools of teachers.

II. Review of Literatures
2.1. Integration of Information and Communication Technology (ICT)

The ICT integration in this study is all the efforts and actions of teachers to use ICTs in carrying out their teacher tasks. The level of integration was demonstrated through the ability of knowledge of ICT that was owned, the skills in implementing in each of their activities, and the attitude of the teacher that can influence the desires, enthusiasm and interest in using ICT. According to theOrganisation for Economic Co-operation and Development[2]defined that the ICT as a combination of manufacturing and services industries that capture, transmit and display data and information electronically". This has also been confirmed byUnesco Institute for Statistics[3] which states that theICT was defined as a diverse set of technological tools and resources used to transmit, store, create, share or exchange information. These technological tools and resources include computers, the Internet (websites, blogs and emails), live broadcasting technologies (radio, television and webcasting), recorded broadcasting technologies (podcasting, audio and video players, and storage devices) and telephony (fixed or mobile, satellite, visio/video-conferencing).Related to the ICT integration of teachers thatEngida[4]specifically stated that ICT is a real opportunity for teachers to rethink fundamental of pedagogical issues in addition to approach of learning needs of students in class. ICT is not only about changing traditional learning but ICT is related the need for teaching staff to be technology literate and to become innovative teachers.

Long before this research that actually several models have been built to analyze and to understand the factors influencing the ICT integration, one of which was the Technology Acceptance Model (TAM) developed by Davis[5]which was a theory that explains the interest in behaving using technology. The main factor to determine the success of ICT in organizations is human resources (brainware). TAM defined two factors that influence user acceptance of technologyare (1) the perception factor of the benefits of technology and (2) the perception factor of the ease of using technology. Furthermore in 2008, Pernia[6]suggested 3 (three) main dimensions affecting the integration of ICT dimensions are (1) knowledge, (2) skills, (3) attitude.

(1) Knowledge includes: (a) Familiarity in the usingof mobile phones, computers, internet, and other ICT devices, (b) The ability to identify ICTs, Appreciative and potential use of technological functions in daily life (personal fulfillment, social inclusion, and work), (c) Understand the basic features of using ICT (for example mobile phones: short messages ; computers: word processing, spreadsheets, databases, information storage; Internet: web browsing, e-mail, and instant messaging), (d) The ability to distinguish between cyberspace and the real world. Awareness of the need for phonethics (ethics in cellphones), netiquette (ethics in networks).

(2) Skills includes: (a) The ability to use ICT features and applications (for example, on mobile phones: voice calls, SMS, cameras, video and tape recorders, voice recorders, radios, music players, multi-media services, word processors, spreadsheets, presentations, infrared, bluetooth, and internet connections, for computers: word processing, spreadsheets, databases, information storage, for the internet: web browsing, e-mail, and instant messaging, (b) The ability to access and search sites (logs on the internet, using a search engine, searching using keywords), (c) The ability to use Internet-based services (creating accounts, writing e-mails, attaching and downloading files, participating in discussion forums and social networks, creating blogs, etc.), (d) The ability to collect and process (create databases, organize, store, filter, etc.) electronic data for use, (e) The ability to convert data into graphic presentations and other visual formats, (f) To use the ICT innovation support critical thinking, creativity, and innovation for education, work, (g) The ability to distinguish credibility (distinguish relevant and irrelevant pornographic, subjective and objective, real and virtual).

(3) Attitude includes: (a) The ability to use ICTs to work individually or a teams; wise and responsible for the use of technology, (b) Critical and reflective attitude when assessing information; Interested in using ICT to broaden the horizon by taking part in communities and networks, (c) Understanding the consequences of using technology (understanding that the use of ICT affects the formation of values and responsibilities, communication practices and other behaviors), (d) The ability to assess the impact of technology on human values.

A more comprehensively and basicly review of ICT was presented by the theory of P21 (The Partnership for 21st Century skills) that was developed in the 21st century in helping teachers integrate skills in teaching core subjects (Unesco,[7]), this theory explained that comprehensive mastery of subjects covering core subjects, learning and innovation skills, information skills, media and technology all of which are to achieve life and career skills.

Therefore, the variables taken in this study are internal variables are independent learning motivation and innovative attitudes and external variables is the training.

2.2. Independent Learning Motivation
Independent learning Motivation in this study is the overall self-impulse (internal) and encouragement from outside (external) to make changes in behavior that is carried out indepedently with measurement based on intrinsic including personal advancement and cognitive interest as well as extrinsic factors measured through social relationships, social welfare, external expectations and escapestimulation (kamp, [8]).

2.3. Innovative Attitude
Innovative attitude is all of the person behavior related the tendency to act towards innovation which is shown through pleasure, displeasure, hate or emotional, so also the teacher's behavior will be shown by the arguments based on knowledge, beliefs and thoughts can be accepting or rejecting. Assimilation between feelings and thoughts will be shown by actions towards positive or negative (fishbein&ajzen[9])

2.4. The Training
Training is any short-term effort to technical education and expertise that aimed to improve the skills that are utilized for the benefit of individuals, others and organizations in generally. According to Kirkpatrick in Marie[10] that the success of training can be measured through the dimensions of reaction (the act of carrying out the results of training on a job), Learning (the changing of the ability of knowledge, skills and attitudes from before), behavior (the changing of behavior that is very important for himself and the organization), Result (the changing that was shown by the success of its performance and the effects received by others and the organization in general).

III. Theoretical Framework of Research
ICT integration is the process of interaction between humans and computers involving the elements of: (1) users, (2) hardware, (3) software (4) networks (5) materials (6) methods (7) support facilities and (8) time. This explains that ICT integration requires knowledge, expertise, attitudes which include desire and innovation. In the process that the teacher is as a Brainware uses ICT in his teacher's activities certainly must have knowledge and skills about ICT. However, in reality that the facilitation to obtain abilities and competencies related ICT is not easy, such as the availability of ICT training and or the willingness of teachers to sacrifice some of their income and time to attend education or training in certain places. Therefore the factor of independent learning motivation take advantage of all the potentials of learning, both off-line (libraries, modules, books) and on-line using the internet network can be a solution to improve the capacity of ICT integration of teachers. On the implementation of independent learning motivation that the teachers must have

an innovative attitude which is an embodiment of inner strength coming from within himself and the power of outside encouragement related to his task will have a major influence on him.

Innovative attitudes of teachers can be demonstrated through responsibility for the development of science and technology to create innovation and competitive advantage in the world of education. The teacher becomes an innovative and competitive person in running his teacher, not waiting and reacting to changes that start from school and or others. By combining the factors of independent learning motivation and innovative attitudes teachers will be able to integrate ICT in meeting their professional needs.

In the framework of researchers' thinking that the development of technology which is constantly developing rapidly includes both hardware and software engineering, of course, the training plays an important role and is an effective way to train teachers to be able to integrate ICT. With a trainingteacher will be able to carry out real practice how the ICT integration process, as well as training can form a strong attitude of teachers in applying ICT integration in daily activities. From the description above, it is suspected that the training directly affected ICT integration. Likewise, that the independent learning motivation and innovative attitude are thought to have an influence on training success.

Now, the development of globalization has changed the character of students into individuals who are critical and informative. Schools are no longer the only place to learn and interact in one's learning (Nainggolan&Pardede,[11]). The emergence of homeschooling terminology, self-direct learning, on-line learning, television media, radio-learning, and several other forms of free learning offered has made students develop independently.

IV. Methodology

This research is a combination of descriptive research and causal relationships using quantitative approach that is expost facto. This research seeks to describe and to interpret objects as they are without giving treatment to the research subjects. Descriptive approach is to explain the facts and nature of a particular population and try to describe the phenomenon in detail. Then proceed with explanatory research to prove the causal relationship between exogenous variables that are independent learning motivation and innovative attitude variables and endogenous variables are training and ICT integration, thus the research method used is a survey method with path analysis techniques.

The populations of study were all of Vocational High School (SMK) teachers in Medan, which were 12 vocational high schools with a total population of 659. The total of sample from affordable populationswas 243 people. The determination of sample in was done by proportional stratified random sampling technique because the population has elements that are not homogeneous and proportionally distribute

The data collection tool used a questionnaire instrument that explained the factors of independent learning motivation, innovative attitudes, training and their effects toward ICT integration. The trial of the instrument was carried out after rationalization by consulting experts and peers. The instrument test was conducted on 38 respondents. Analysis of the validity of the research variables was performed by product moment correlation with the Corrected Item-Total Correlation analysis technique. Validity test criteria compare the value of r_{count} with r_{table} at a significance level of 5%, if $r_{count}>r_{table}$ 5%, then it can be concluded that the statement is valid. The value of r_{table}5% for the sample of 38 instrument trials was 0.32.

Reliability was analyzed by the Cronbach Alpha method by using SPSS for windows obtained the calculating of the reliability of ICT integration variables with valid items 54, obtained $r_{11} = 0.97$, independent learning motivation variables with valid items 50, obtained $r_{11} = 0.97$, innovative attitude variables with valid items 48, obtained $r_{11} = 0.94$, training with valid items 52, obtained $r_{11} = 0.97$.

Furthermore, the prerequisite test process starts from the description of research data, homogeneity test with the Levene test technique to determine whether two or more samples come from one population or not, normality test is intended to find out whether the sample data comes from populations that are normally distributed or not. To test the normality requirements of each research data is used the One-Sample Kolmogorov-Smirnov test, linearity test is performed to measure the degree of closeness of the relationship and predict the magnitude of the relationship, and predict the magnitude of the dependent variable if the value of the independent variable is known.

To test the linearity requirements of research data was conducted with F-test. The testing criteria are $F \geq F_{(1-\alpha)(k-2, n-k)}$, where dk numerator = (k-2) and d denominator = (n-k), k = number of groups, n = number of samples and to find out the multicollinearity problem was used by the computer program SPSS for windows, if the determinant coefficient of correlation between the causal variables is more than zero, the correlation matrix between the causal variables is a positive matrix, indicating in the sample data there is a multicollinearity problem and data can be deduced from the sample is suitable for use in subsequent analyzes using path analysis.

V. Hypothesis Test

The collected data were analyzed using descriptive statistics and inferential statistics. The data obtained are described according to each variable, then to find out the magnitude of the relationship of each exogenous variable to endogenous variables and which exogenous variables have the largest (dominant) relationship to endogenous variables used a simple coefficient of Y over X_1; Y over X_2 and Y over X_3. While the relationship of variables X_1, X_2, and X_3 jointly, with Y used multiple linear regression models (multiple regression analysis).

Furthermore, the statistical tests are still needed to determine the magnitude of the coefficient of determination (R) to measure how far the ability of exogenous variables in explaining the variation of endogenous variables, using the formula of the multiple correlation coefficient between variables X_1, X_2, X_3 with Y.

To find out whether the causal relationship between exogenous and endogenous variables in this study was used the path analysis. Path analysis as well as to help conceptualize the problem or test complex hypotheses in this study. The model that used was a structural equation model. The reason for using the path analysis is because ordinary correlation analysis cannot fully explain how exogenous variables (X_1, X_2) affected toward training (X_3) or ICT integration (Y).The notation of statistical hypothesis of research as follows:

1. $H_0 : \rho_3 x_1 = 0$
   $H_a : \rho_3 x_1 > 0$
2. $H_0 : \rho_3 x_2 = 0$
   $H_a : \rho_3 x_2 > 0$
3. $H_0 : \rho_3 x_{1} = \rho_3 x_2 = 0$
   $H_a : \rho_3 x_{1} = \rho_3 x_2 > 0$
4. $H_0 : \rho_1 x_1 = 0$
   $H_a : \rho_1 x_1 > 0$
5. $H_0 : \rho_1 x_2 = 0$
   $H_a : \rho_1 x_2 > 0$
6. $H_0 : \rho_1 x_3 = 0$
   $H_a : \rho_1 x_3 > 0$
7. $H_0 : \rho_1 x_1 - x_3 = 0$
   $H_a : \rho_1 x_1 - x_3 > 0$
8. $H_0 : \rho_1 x_2 - x_3 = 0$
   $H_a : \rho_1 x_2 - x_3 > 0$
9. $H_0 : \rho_1 x_{1} = \rho_2 x_{2} = \rho_2 x_3 = 0$
   $H_a : \rho_1 x_{1} = \rho_2 x_{2} = \rho_2 x_3 > 0$

VI. Result

Table 1: The Result Summary of Statistical Analysis Basic of Research

		X_1	X_2	X_3	Y
N	Valid	243	243	243	243
	Missing	0	0	0	0
Mean		185,80	186,33	187,37	188,25
Median		187,00	187,00	187,00	189,00
Mode		198	188	190	190
Std. Deviation		20,479	17,536	20,660	15,619
Variance		419,382	307,512	426,820	243,939
Skewness		,112	-,003	-,138	,004
Std. Error of Skewness		,156	,156	,156	,156
Kurtosis		-,054	,550	-,077	,074
Std. Error of Kurtosis		,311	,311	,311	,311
Minimum		139	130	130	141
Maximum		242	238	240	230
Sum		45150	45279	45530	45744

The normality test used Kolmogorov-Smirnov with criteria if sig. Kolmogorov-Smirnov test $\geq$ sig. $\alpha = 0.05$ then the data is normally distributed and vice versa the Sig. Kolmogorov-Smirnov test <0.05 then the data are not normally distributed.

Table 2: Test of Normality (One-Sample Kolmogorov-Smirnov Test)

		X_1	X_2	X_3	Y
N		243	243	243	243
Normal Parameters[a,b]	Mean	185,80	186,33	187,37	188,25
	Std. Deviation	20,479	17,536	20,660	15,619
Most Extreme Differences	Absolute	,048	,054	,043	,044
	Positive	,047	,054	,034	,037
	Negative	-,048	-,054	-,043	-,044
Test Statistic		,048	,054	,043	,044
Asymp. Sig. (2-tailed)		,200[c,d]	,078[c]	,200[c,d]	,200[c,d]

a. Test distribution is Normal.

b. Calculated from data.

Homogeneity test used Levene test statistics with helping of SPSS for Windows program with a significance level of 0.05. Homogeneity testing of variance was based on one of mean(based on mean), median (based on median), median with degree of freedom (based on median and with adjusted df), and average cut (based on trimmed mean).

Table 3: Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
X1	Based on Mean	1,248	11	231	,256
X2	Based on Mean	1,300	11	231	,225
X3	Based on Mean	,921	11	231	,520
Y	Based on Mean	1,716	11	231	,071

Linearity Test was done by comparing the mean correlation between the independent variables with the dependent variable for each regression model.

Table4: Anova Summary of the Data Linearity Test Table is as follows:

No.	JenisAntarVariabel		Sum of Squares	df	Mean Square	F	*Sig.*
1	$X_3 * X_1$	Linearity	47750,173	1	47750,173	238,953	0,000
2	$X_3 * X_2$	Linearity	35152,079	1	35152,079	141,769	0,000
3	$Y * X_1$	Linearity	45310,468	1	45310,468	791,863	0,000
4	$Y * X_2$	Linearity	29925,428	1	29925,428	250,263	0,000
5	$Y * X_3$	Linearity	25625,800	1	25625,800	194,072	0,000

Table 5: The Summary of Significance Test of Regression Equation

No.	Relationship Path	F_{hitung}	F_{table}		Remaks
			α=0,05	α=0,01	
1	Training (X_3) on Independent Learning Motivation (X_1)	207,197	3,880	6,741	Significant
2	Training (X_3) on Innovative Attitudes (X_2)	124,330	3,880	6,741	Significant
3	Training (X_3) on X_1, X_2	111,864	3,880	6,741	Significant
4	ICT Integration (Y) on Independent Learning Motivation (X_1)	795,748	3,880	6,741	Significant
5	ICT Integration (Y) on Innovative Attitudes (X_2)	247,770	3,880	6,741	Significant
6	ICT Integration (Y) on Training (X_3)	184,864	3,880	6,741	Significant
7	ICT Integration (Y) onX_1, X_2, dan X_3	295,225	3,880	6,741	Significant

Multicollinearity test, carried out by examining the Pearson correlation coefficient, tolerance values and VIF on the four regression models as above. Multicollinearity test results obtained Pearson correlation coefficient values between the lowest independent variables of 0.530 and the highest of 0.682 and all of tolerance and VIF for each exogenous variable to endogenous variables in each regression model has a tolerance value greater than 0.10 and no VIF value greater than 10.00

Tabel 6: The summary of Pearson Correlation Coefficients with Tolerance Values and VIF

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	49,564	5,243		9,454	,000		
	X_1	,535	,037	,701	14,644	,000	,388	2,579
	X_2	,145	,039	,162	3,754	,000	,476	2,102
	X_3	,066	,031	,087	2,108	,036	,518	1,932

a. Dependent Variable: Y

Autocorrelation testing was identified using the statistical method of Durbin-Watson (DW). The Summary Model of the SPSS for windows output showed that the DW number = 2.067 then (4 - DW 2.067) = 1.933> DU 1.72312 which means there are no autocorrelation.

Hypothesis Testing, the testing of suitability of the model used a correlation matrix between variables as a basis for testing which was processed on Lisrel for windows application with the results of the analysis that chi-square

at dk = 0 is 0.00, the price of P = 1.00 (> 0.05) and the price of Root Mean Square Error of Aproximation (RMSEA) = 0.00. The results of the model testing can be concluded that the hypothesized model is fit with the data and has the ability to make generalizations about ICT integration, thus, the proposed hypothesis testing can be continued.

Table 7: The Correlation Coefficient Interpretation(Riduan,[12])

Coefficient Interval	Relationship Level
0,80 – 1,000	Very Strong
0,60 – 0,799	Strong
0,40 – 0,599	Moderate
0,20 – 0,399	Weak
0,00 – 0,199	Very Weak

Analysis Substructure-1, testing of exogenous variables X_1 and X_2 jointly toward endogenous variables X_3 obtained the value of F_{count} = 111.864 with sig. = 0,000 < 0.05. Based on the results of the analysis it can be concluded that the exogeous variable of independent learning motivation (X_1), innovative attitude (X_2) jointly have a significant contribution toward training (X_3). The magnitude of variables effect of X_1 and X_2 jointly toward X_3 can be known from the value of R^2 = 0.482.This explains that value of variable X_3 is influenced by variables X_1 and X_2 jointly at 48.2%. The remaining 51.8% is influenced by other variables outside this study. The magnitude of the path coefficient for other variables outside of research that affect the variable value of $X_3(\rho x3) = \sqrt{1 - R^2} = \sqrt{1 - 0.482}$= 0.7197. The relationship between exogenous variables X_1, X_2, and X_3 jointly with endogenous variables Y is strong that was shown by R value (correlation coefficient) of 0.694 and the one-direction was indicated by R value positive.

Analysis Substructure-2, testing of exogenous variables X_1, X_2, and X_3 jointly with endogenous variables Y obtained F_{count}= 295,225 with sig. = 0,000 <0.05. Based on the results of this analysis it can be concluded that the exogenous variables of independent learning motivation (X_1), innovative attitude (X_2) and training (X_3) jointly have a significant contribution toward ICT integration (Y). The magnitude of variables effect of X_1, X_2, and X_3 jointly toward Y can be known from the value of R^2 = 0.787. This explains that value of Y is influenced by variables X^1, X^2, and X^3jointly at 78.7%. The remaining 21.3% is influenced by other variables outside this study.

The magnitude of the path coefficient for other variables outside of research that affect the variable value $Y(\rho y) = \sqrt{1 - R^2} = \sqrt{1 - 0.787}$= 0.4615. The relationship between exogenous variables X_1, X_2, and X_3 together with endogenous variables Y is very strong as indicated by R value (correlation coefficient) of 0.887 and the one-direction indicated by a R value positive.

The sub-structure-1 and sub-structure-2 models are described as shown in the following figure:
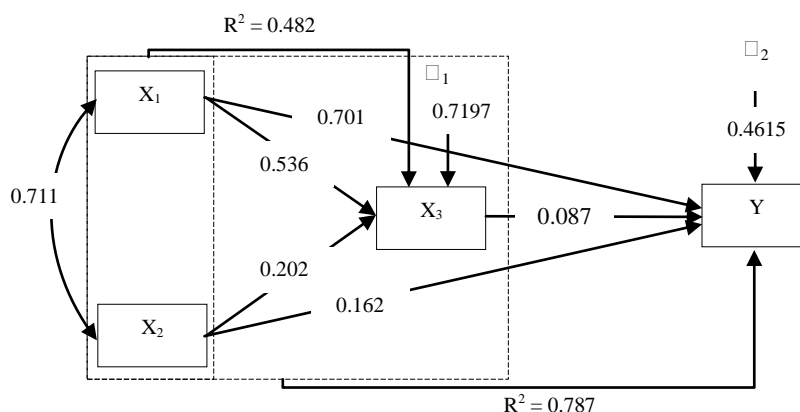

Figure 1: Path Diagram of Research

The hypothesis test of indirect effect in this study, the sobet test was carried out with the following results:

Table 8: The Summary of Indirect effect of Sobel Test

Variable	Path Value	Std Error	t_{count}	Remarks
X_1 to X_3	0.686	0.048	2.7236	Significant
X1, X3to Y	0.089	0.032		
X_2 to X_3	0.634	0.040	6.6512	Significant
X_2, X_3 to Y	0.279	0.038		

VII. Findings

The First Hypothesis,
The analysis result obtained the value of beta path = 0.536, t_{count} = 8.119 with sig. = 0.000 <0.05. At the level of trust α = 0.05 obtained t_{table} = 1.970, then t_{count}>t_{table}, thus H_0 is rejected and H_a is accepted. There is a direct influence of Independent Learning Motivation toward training.

The Second Hypothesis,
The analysis result obtained the value of beta path = 0.202, t_{count} = 3.058 with sig. = 0.000 <0.05. At the level of trust α = 0.05 obtained t_{table} = 1.970, then t_{count}>t_{table}, thus H_0 is rejected and H_a is accepted. There is a direct influence of innovative attitude toward training.

The third Hypothesis,
The analysis result obtained F value of 111.864 with sig = 0,000 <0.05, thus, thus H_0 is rejected and H_a is accepted. There is a direct influence of Independent Learning Motivation, innovative attitude jointly toward training.

The fourth Hypothesis,
The analysis result obtained the value of beta path = 0.701, t_{count} = 14.644 with sig. = 0.000 <0.05. At the level of trust α = 0.05 obtained t_{table} = 1.970, then t_{count}>t_{table}, thus H_0 is rejected and H_a is accepted. There is a direct influence of Independent Learning Motivation towardcapacity improvement of ICT Integration.

The fifth Hypothesis,
The analysis result obtained the value of beta path = 0.162, t_{count} = 3.754 with sig. = 0.000 <0.05. At the level of trust α = 0.05 obtained t_{table} = 1.970, then t_{count}>t_{table}, thus H_0 is rejected and H_a is accepted. There is a direct influence of Innovative attitude towardcapacity improvement of ICT Integration.

The sixth Hypothesis,
The analysis result obtained the value of beta path = 0.087, t_{count} = 2.108 with sig. = 0.000 <0.05. At the level of trust α = 0.05 obtained t_{table} = 1.970, then t_{count}>t_{table}, thus H_0 is rejected and H_a is accepted. There is a direct influence of Trainingtowardcapacity improvement of ICT Integration.

The seventh Hypothesis,
The analysis result obtained the value of beta path = 0.089, t_{count} = 2.724 with sig. = 0.000 <0.05. At the level of trust α = 0.05 obtained t_{table} = 1.970, then t_{count}>t_{table}, thus H_0 is rejected and H_a is accepted. There is an indirect influence of Independent Learning Motivation toward capacity improvement of ICT Integrationtrough training.

The eighth Hypothesis,
The analysis result obtained the value of beta path = 0.279, t_{count} = 6.651 with sig. = 0.000 <0.05. At the level of trust α = 0.05 obtained t_{table} = 1.970, then t_{count}>t_{table}, thus H_0 is rejected and H_a is accepted. There is an indirect influence of innovative attitude toward capacity improvement of ICT Integration trough training.

The nineth Hypothesis,
The analysis result obtained F value of 295.225 with sig = 0,000 <0.05, thus, thus H_0 is rejected and H_a is accepted. There is a direct influence of Independent Learning Motivation innovative attitude and training jointly toward capacity improvement of ICT Integration.

VIII. Discussions

The Descriptive analysis results showed that tendency of ICT integration of vocational teachers is in moderate category, that means ICT integration is one of the characteristics of vocational teachers who have 3 main dimensions are knowledge, skill and attitude (Pernia 2008: 18-19)

The tendency of independent learning motivation of vocational teachersis in moderate category, that mean independent learning motivation is one of the characteristics of vocational teachers.Houde[13]assumed that when adults learn they are responsive to some external motives such as better jobs, promotions, higher salaries, and others. However, the most effective encouragement is self-impulse such as getting increased job satisfaction, self-esteem, quality of life. In order the teacher's capability will be always develop according to the demands of the latest needs so that they must have an independent learning motivation.

The Descriptive analysis results showed that the tendency of innovative attitude of vocational teachers is in moderate category. This means that innovative attitude is one of the characteristics of vocational teachers. As Winardi[14]explains attitude is a condition that can be learned and organized according to experience and that causes a special influence on a person's reaction toward people, objects and situations with which they relate. In order to become a creative teacher who can develop learning strategies, a teacher must be able to build innovative attitudes towards new innovations in learning, because the innovation is begun from creative ideas in other words the innovation will not arise without creativity(De Jong & Kemp [15]).

The Descriptive analysis results showed that the tendency of vocational teachers training is in moderate category. This means that training is one of the characteristics of vocational teachers. As Armstrong & Stephen[16]argued that training is a planned concept that is integrated, meticulous and designed to produce the

understanding needed to improve job performance. In order teachers come to certain qualifications according to the latest needs, a teacher must always keep abreast of developments and attend training.

In this study, capacity improvement of ICT integration of teachers is the main target which is attempted to be revealed through nine hypothesis that influence the improvement of ICT integration skills of state vaocational high school teachers in Medan City. Testing of nine hypothesis carried out to obtain information about the magnitude of the influential factors of each exogenous variable on endogenous variables through analysis divided into 2 (two) substructures that are:

Substructure-1 explains the direct influence of endogenous variables X_3 on exogenous variables of independent learning motivation (X_1) and innovative attitude (X_2) with the substructure equation of $Y = 0.536X_1 + 0.202X_2 + 0.7197_{\varepsilon 1}$. This shows that each increase in independent learning motivation of 1, the level of training will rise of 0.536 and each increase of innovative attitude of 1, the level of training will increase of 0.202.

Substructure-2 explains the direct and indirect influence of endogenous variables ICT integration (Y) on exogenous variables independent learning motivation (X_1) innovative attitude (X_2) and training (X_3) with the equation $Y = 0.701X_1 + 0.162X_2 + 0.087X_1 + 0.462_{\varepsilon 2}$. This means that for each increase in independent learning motivation of 1, the level of ICT integration will rise of 0.701. Each increase of innovative attitude of 1, the level of ICT integration will increase of 0.162. Each increase of training of 1, the level of ICT integration will improve of 0.087.

IX. Conclutions

Based on the formulation of the problem, the results of the research and discussion that have been described can be concluded that:

1. The strength of direct influence of independent learning motivation toward teachers training was shown by correlation coefficient and determinant coefficient that independent learning motivation has a moderate influence in determining the success of training.
2. The strength of direct influence of innovative attitude toward teachers training was shown by correlation coefficient and determinant coefficient that innovative attitude has a weak influence in determining the success of training.
3. The strength of the direct influence of independent learning motivation and innovative attitude jointly towards training was shown by the determinant value that has a moderate influence in determining the success of training.
4. The strength of direct influence of independent learning motivation toward capacity improvement of ICT integration of teachers was shown by correlation coefficient and determinant coefficient that independent learning motivation has a strong influence in determining the success of capacity improvement of ICT integration of teachers.
5. The strength of direct influence of innovative attitude toward capacity improvement of ICT integration of teachers was shown by correlation coefficient and determinant coefficient that innovative attitude has a weak influence in determining the success of capacity improvement of ICT integration of teachers.
6. The strength of direct influence of training toward capacity improvement of ICT integration of teachers was shown by correlation coefficient and determinant coefficient that training has a very weak influence in determining the success of capacity improvement of ICT integration of teachers.
7. On this study it was found that the effect coefficient of training toward capacity improvement of ICT integration of teachers has a weakest coefficient value compared to independent learning motivation and innovative attitudes.
8. The strength of indirect effect of independent learning motivation toward the improvement of capacity improvement of ICT integration of teachers through training was shown by path value and standar error that independent learning motivation has a weak influence in determining the success of capacity improvement of ICT integration of teachers indirect through training.
9. The strength of indirect effect of innovative attitudes toward capacity improvement of ICT integration of teachers through training was shown by path value and standar error that innovative attitudes has a weak influence in determining the success of capacity improvement of ICT integration ability indirect through training.
10. The strength of the direct influence of independent learning motivation, innovative attitude and training jointly towards capacity improvement of ICT integration of teachers was shown by the determinant value that has a moderate influence in determining the success of capacity improvement of ICT integration of teachers.

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