Improving the Ability of Physics Teachers Using Edmodo e-Learning Application Through Clinical Supervision Model in SMA Negeri 2 Binjai.

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Abstractc: The purpose of this study is to know how to improve the ability of physics teachers using e-Learning application edmodo through model of clinical supervision in SMA Negeri 2 Binjai. The subjects of this study are all physics teachers SMA Negeri 2 Binjai consisting of 4 teachers. The research instrument used to determine the ability of teachers using e-learning application edmodo is test in multiple choice with 40 grains. Meanwhile, to observe the activity of clinical supervision used observation sheet. This study used a school action research with two cycles. The result of this research is teacher's ability assessment using e-learning application edmodo after done clinical supervision on cycle I belonged to enough category with value 67,5, and in cycle II pertained in good category with value 87,5. Assessment of clinical supervision activity in cycle I is very good with value 95, and in cycle II also belongs in very good category with value 100. Based on result of data analysis concluded that applying of clinical supervision can improve physics teacher ability using application of edmodo e-learning in SMA Negeri 2 Binjai. The implications of this study are specifically addressed to supervisors, namely the implementation of clinical supervision in an effort to help teachers use e-learning application edmodo
Keywords: Teacher Competence, Clinical Supervision, e-Learning Edmodo

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I. Introduction

Education is an important factor in the progress of a nation. This is in contact with Law No. 20 of 2003 on the National Education System which states that national education function to develop the ability and form the character and civilization of a dignified nation in order to educate the nation. Therefore education is expected to produce human resources (HR) quality so as to develop all the potential that is owned by one nation. Education is in charge of developing awareness and responsibility of every citizen to become a human resource ready to compete in the life of society and global life. Quality education can be realized through the correction of interrelated systems of factors affecting education: school supervisors, principals, and teachers. One factor that requires special attention is the teacher as the spearhead of educational success. This is in line with the statement Anis Baswedan as minister of Culture and Basic and Intermediate Education that on the shoulders of teachers there is the future face of Indonesia (Kompas.com, November 24, 2014).

Increasing the role of teachers in learning is very important, for that need to be done pedagogic competence so that teachers are expected to create an effective learning environment through classroom management. An effective learning environment is a learning condition that involves the interaction between the teacher and the student. This learning environment is closely related to teacher discipline, especially in terms of teacher attendance to interact with students in the classroom. In fact, teachers can not always attend 100% face to face in the classroom. The demands of social needs and the role of teachers in the community, health issues as well as other activities related to career development often hinder teachers from attending classes. This is certainly a negative effect on the condition of learning in school and also the implementation of the Lesson Plans (RPP) can not be implemented maximally, while learning must be done thoroughly according to the curriculum.

The era of globalization and the current era of communication is characterized by the large number of people who use computer-based Information Technology to meet human needs. This is seen from the survey results Data Statistics Indonesia Internet Users Year 2016 conducted by the Association of Internet Service Providers Indonesia (APJII) states that the number of internet users in Indonesia in 2016 is 132.7 million users or about 51.5% of the total population of Indonesia of 256 ,2 million. The development and advancement of

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computer technology in the field of software is very supportive of the implementation of e-learning with various virtual applications.

E-learning can be used in a variety of applications, and one of them is edmodo. Apkikasi e-learning edmodo is a virtual classroom application as a social network that can be accessed from computers and mobile phones and can be downloaded for free on Android and iOS-based mobile phones (phones). The advantages of Edmodo, among others, provide easy and secure facilities in developing the classroom in accordance with the wishes, to provide opportunities for learning according to the characteristics of different students personally, and provide a means of communication for teachers, students and parents personally. This is in accordance with the results of research conducted by Batsila (2014: 54) which states that the use of edmodo is very motivating students, it is very supportive of teachers work, teachers like edmodo application and recommend it to other colleagues majority students have positive perception against edmodo because students think that learning to use edmodo can improve the effectiveness of learning communication (Khaleel: 2014)

The use of e-learning especially edmodo so far has not been maximal even most teachers are not familiar with edmodo applications. This can be seen from the results of research conducted by Ainiyah in SMK Negeri 1 Surabaya (2015: 9) which states "Edmodo more utilized by the teacher is limited to just give the task so that the student's interaction is less than maximum". The same thing was also conveyed based on observations made by Armen (2016: 13) in SMP Negeri 13 Medan that in fact most teachers have not known the application of Edmodo as e-Learning and most teachers still use conventional methods when teaching in class.

Increasing the competence of teachers utilizing ICT for the purposes of learning including the use of edmodo applications can not be separated from the role of school supervisors as partner teachers as stated in Permenpan No. 21 of 2010 on Functional Position of School Supervisor and Credit Numbers, set the main task of supervisors is to carry out the task of academic and managerial supervision on (2) implementation of guidance, 3) monitoring the implementation of 8 (eight) National Education Standards, 4) assessment, 5) teacher professional coaching and training, 6) evaluation of the results of the supervisory program implementation, and 7) implementation of supervisory duties in specific areas. Thus the school supervisor as "teacher teacher" has the main duty and function of judging and fostering

Phenomena in the field found during observation at SMA Negeri 2 Binjai shows that (1) this school belongs to one of public schools that have been model school in Binjai city with adequate facilities and infrastructure including good internet network access in the form of wifi, (2) Almost all teachers consisting of 85 people are active internet users, as evidenced by all teachers incorporated in the facebook group for teachers of SMA Negeri 2 Binjai, (3) this condition is offset by students who are actively using the internet and have a mobile based android. Different from the above, it turns out that for physics subject teachers consisting of 6 teachers, it is very rare to do e-learning learning in the form of virtual classroom including the use of e-learning edmodo during the teaching period. The above mentioned phenomena require special attention from school supervisors as supervisors to help teachers utilize internet technology in the learning process especially e-learning and virtual class in the form of training with the purpose of learning process can still be done even though the teacher can not attend in class physically. The opinions of some experts say there are various models of training and coaching to improve the competence or ability of teachers, including: (1) Diniyah Putri (2014: 76) in his research stated that academic supervision of workshop techniques can improve the ability of teachers in active learning. Sahertian (2010: 21) states that supervision can improve the skills of teachers where one of the functions of supervision is to provide knowledge and skills to each staff member, in which case the intended members are including teachers. (3) Ibrohim (2010: 4) states that lesson study can improve teacher competence through collaborative and sustainable learning learning. (4) Sagala (2012: 195) states that clinical supervision is a guidance process aimed at assisting the professional development of teachers in teaching appearances. Clinical Supervision is a process of mentoring process in education aimed at assisting teacher professional development in teaching introduction through observation and analysis of data objectively and meticulously as the basis for changing teacher teaching behavior. The pressure in the applied approach is specific through face-to-face with the teacher (Sahertian, 2010: 36) which has a different characteristic than other academic supervision models with cycles covering initial meetings, observations, and final meetings.

Based on the above ideas can be predicted that the ability of teachers to use e-learning applications edmodo can be improved through the application of clinical model supervision. To examine these predictions, it is necessary to conduct action research under the title Improving the Ability of Physics Teachers to Use Edmodo e-Learning Application Through Clinical Supervision Model in SMA Negeri 2 Binjai.

II. Method

This research is planned to be implemented in SMA Negeri 2 Binjai which is located at Jl. Padang No.8 Kelurahan Rambung, South Binjai District. This study of action is planned for 2 (two) months beginning in mid-April until the beginning of June 2016. The action is implemented against teachers at SMAN 2 Binjai. The subject of this research is physics teacher consisting of 4 teachers.

This research is action research, action aimed to improve physics teacher ability using e-learning edmodo application through model of clinical supervision. The clinical supervision model consists of observation activities by supervisors (supervisors), observer teachers, and facilitators and followed by reflection activities

Data collection techniques in the implementation of this school action research are (1) test instrument in multiple choice with the aim to know the ability of the teacher to use e-learning edmodo application which will be done before giving the action and then in the final cycle of research. (2) Observation with the aim to observe the process of conducting clinical supervision in improving the ability of teachers using application-learning edmodo. The use of structured observation is intended to observe the clinical supervision activities undertaken by supervisors to improve teachers' ability using e-learning edmodo applications.

The criteria are used as measures of success against the actions taken in each research cycle. In determining the success criteria of teachers in using e-learning applications edmodo can use purposive pass limits, which refers to the determination of benchmark reference assessment. Means that the determination of teacher success indicator criteria is determined by the researcher himself. This action research is said to be successful if the average value of teachers' ability in using e-learning application edmodo reaches value ≥ 80. Successful achievement of participants in this study is 100% of subjects can use e-learning edmodo application to the maximum

The data obtained from this research is the research data of teacher ability in SMAN 2 Binjai in using e-learning edmodo application. Data analysis using percentage technique. To see the percentage increase was compared before and after the clinical supervision model was performed. As for the supporting data used documentation photos or recording handycam. Analysis of teacher's ability in using e-learning edmodo application and determining value acquisition in every cycle according to Endrayanto and Harumurti (2014: 292) can use the following formula:

$$Score = \frac{Total\ Rating\ Score}{Maximum\ Score} \times 100$$

With the following criteria:

90 - 100	A	very good (VG)	
80 - 89	B	good (G)	
65 – 79	C	enough (E)	
55 – 64	D	less (L)	
< 55	E	very less (VL)	

In analyzing the data, researchers compare and discuss facilitator notes with supervisor notes. Data analysis that will be done include 3 (three) stages based on Miles and Huberman's opinion in Sugiyono (2011: 246) that is data reduction, display data, conclusion drawing / verification (conclusion and verification). The first stage, the data collected from the observation sheet instrument / observation. The second stage, the data presented in descriptive qualitative, presentation of data in the form of tables and graphs. The third stage is inductive withdrawal, which is interpreting the data that has been grouped. From the results of data analysis above, will be drawn the conclusion as a whole by stating the hypothesis of the action that has been established

III. Result

Pre Cycle

This study uses a school action research. This research was conducted starting on May 23, 2017. Description of research results described in stages consisting of two cycles. The results of this study include the results of the assessment on the cycle I and cycle II to determine the ability of physics teachers using edmodo application through the supervision of clinical models. The supervision of this clinical model is carried out by researchers, school supervisors and vice principals as co-researchers (facilitators). Researchers act as principal actors and observers in this action research. Researchers collaborate with school supervisors and vice principals

who act to observe all research activities in improving teachers' ability to use edmodo applications through the supervision of clinical models.

Based on the results of the assessment using the test instrument, the initial physics teacher's ability score data using e-learning edmodo application can be seen in appendix 5. The initial physics teacher's ability using e-learninf edmodo application can be seen in table 4.1 below:

	Teacher's number				Amount	Average
	1	**2**	**3**	**4**		
Amount	7	11	15	2		
Score	17,5	27,5	37,5	5	87,5	21,88
Note	VL	VL	VL	VL		VL

From the data in Table 4.1 it can be seen that the average value obtained by physics teachers in using e-learning edmodo application before the supervision of the development model is 21.88. From the table it was also found that all physics teachers who were subjects studied scored under 65 under the category of very less

Reflection on pre-cycle data has been obtained that is the value of the ability of teachers in using e-learning applications edmodo not achieve success because all teachers no one reaches the value of ≥ 80, while the success criteria in this study is at least 100% (4 people) participants are able to use e-learning application edmodo with a value reaching ≥ 80. Therefore, researchers feel the need to perform actions undertaken in supervision of clinical supervision cycle I.

Cycle I

The execution time of cycle I is carried out for 14 days. In cycle I, the researcher performs the steps of conducting the clinical model supervision activity. With the aim to improve the physics teacher's ability using edmodo application. The series of activities in cycle I are described in the cycle set out in the following explanation.

a.   Planning

The stage of action planning took place on Monday, 29 May 2017, which aims to study the difficulties faced by physics teachers based on the teacher's initial ability. In this planning phase, the following things are generated: 1) PTS implementation plan is the focus of research is the guidance of physics teacher in using edmodo application with supervision of clinical model and observer will observe the process of clinical model supervision action, 2) research instrument, 3) activity schedule , 4) examples of RPP materials used.

b.   Implementation of Action

The supervision action used is the supervision of clinical model. Clinical model supervision as one type of supervision using individual techniques is a conversation between teacher and researcher / supervisor conducted in the teacher's room or in the vice principal's office by following the steps to assist the teacher. There are 3 phases conducted by researchers in supervising the clinical model that is the initial meeting, observation and feedback.

At the beginning of the meeting stage, several steps are taken: (a) Researchers and supervisors give a brief presentation of the ability of edmodo use to be improved by the trainer (research subject). The researcher also explained the things observed in the implementation of clinical supervision. (b) The researcher along with the supervisor and the training teacher reviews the lesson planning plan prepared by the teacher and then corrected together. (c) Discuss and agree on a classroom observation schedule. (d) Researchers and supervisors prepare the instruments used in the observation exercise.

At the class observation stage is done in accordance with the schedule that has been agreed upon. Observation is done by observing the teacher doing the activity using edmodo where class formed in the form of experiment class, the data taken in the form of documentation and record by using the prepared observation sheet.

The reverse meeting stage where the teacher, the researcher along with the supervisor discussed the execution during the observation activities took place. There are some notes obtained in the reverse meeting of all the teachers who were the subject of the study. After doing the above activities, each teacher is given a test to find out how far the ability of teachers to use edmodo using test instruments that have been provided.

c.   Observation

The observation process in this study was carried out during the course of action by an observer (researcher or vice principal). Observers observe all activities that occur during the process of action and record them.

d. Reflection

In the reflection stage held on Friday, June 15, 2016, researchers perform data processing and describe the development of physics teacher's ability in using edmodo applications. The value of the physics teacher's ability using edmodo is presented in Table 4.2 below:

	Teacher's number				Amount	Average
	1	**2**	**3**	**4**		
Amount	27	28	32	21		
Score	67,5	70	80	52,5	270	67,5
Note	E	E	G	L		E

Based on table 4.2 above can be seen that from the recapitulation value of physics teacher's ability using edmodo application there are 1 (one) teacher (25%) who have less value, 2 (two) teachers (50%) have enough value, 1 (one) teachers (25%) who have good grades, not found teachers (0%) who have very good value. Thus it can be concluded that the value of the physics teacher's ability to use edmodo application after the supervision of the clinical model in cycle I belonged to enough category with a value of 67.5

Reflection on pre-cycle data has been obtained that is the value of the ability of teachers in using e-learning application edmodo not achieve success because only 1 person teachers who achieve the value of ≥ 80, while the success criteria in this study is at least 100% (4 people) participants are able to use e-learning application edmodo with a value reaching ≥ 80. Therefore, researchers feel the need to perform actions undertaken in supervision of clinical supervision cycle II

Cycle II

The execution time of the first cycle is carried out for 14 days, starting on Monday 17 July 2017. In cycle II, the researcher performs the steps of conducting the clinical model supervision activity as it has been done in cycle I. By focusing the most appropriate solution for each problem faced by the teacher in using e-learning edmodo application that can be viewed at observation. In the stage of reflection on cycle II which was held on Thursday August 2, 2017, the researcher performs data processing and describes the development of physics teacher ability in using edmodo application. The physicist's ability to use edmodo is presented in Table 4.3. the following:

	Teacher's number				Amount	Average
	1	**2**	**3**	**4**		
Amount	34	35	36	33		
Score	85	87,5	95	82,5	350	87,5
Note	G	G	VG	G		G

Based on table 4.3 above it can be seen that from the results of recapitulation of physics teacher's ability using edmodo application, not found teacher (0%) with less score, not found teacher (0%) with enough value, 3 (three) 75%) who have good grades, and 1 (one) teacher (25%) who has very good value. Thus it can be concluded that the value of the physics teacher's ability to use edmodo application after the supervision of the clinical model in cycle II is categorized as good with the value of 87.5. To measure the success of Physics teachers using edmodo application obtained 4 teachers who get the value of ≥ 80

Reflection on the data cycle II that has been obtained that the value of the ability of teachers in using e-learning applications edmodo has achieved success because all teachers mencapa value ≥ 80, while the success criteria in this study is 100% (4 people) participants are able to use e-learning applications edmodo with a value of ≥ 80. Therefore, researchers feel no need to make an improvement effort on the actions undertaken in supervision of clinical supervision of the next cycle.

Based on the results of the assessment conducted by researchers ranging from Prasiklus, cycle I and followed by cycle II on the ability of physics teachers using e-learning application edmodo then the competence of teachers in preparing the RPP can be described as table 4.5. the following:

Teacher's Code	Cycle	Score	Category
	Pre	17,5	Less
Gr1	I	67,5	Enaugh
	II	85	Good
	Pre	27,5	Less
Gr2	I	70	Enaugh
	II	87,5	Good
	Pre	37,5	Less
Gr3	I	80	Enaugh
	II	95	Very Good

Gr4	Pre	5	Less
	I	52,5	Less
	II	82,5	Good

Table overview 4.5. Can be displayed as shown in Figure 4.1.
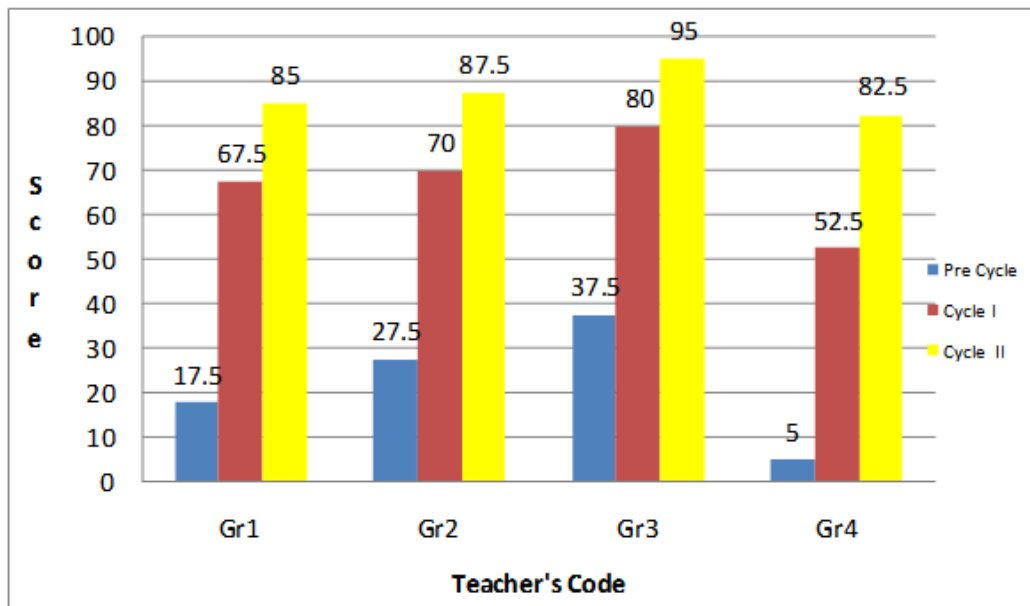
Based on the results of action between cycles can be seen the increase in the ability of teachers in using e-learning application edmodo in accordance with the predefined success indicator action.

IV. Discussion

Based on the results of research findings can be submitted that to improve the ability of teachers using edmodo clinical supervision can be applied. In this regard, the supervisor may make efforts: (1) understand the stages in the clinical supervision. (2) Conduct stages of observation correctly to determine the problems of each teacher to determine the appropriate steps and treatment ditahap return meetings. (3) implementing a clinical supervision in supervision because clinical supervision focuses on improving teacher skills. For the Head of Binjai City Education Office should provide training to supervisors to broaden their insights on the application of clinical supervision and conduct strict supervision and continuous. For further research is expected to conduct more in-depth research on clinical supervision and examine deeper issues, especially studying the problem of learning and improvement of school quality.

V. Conclusions

The conclusions that can be drawn from this research are as follows: 1) Application of clinical supervision can improve physics teacher ability using edmodo in SMA Negeri 2 Binjai. 2) After performing the action through clinical supervision in cycle I, it can be seen that from 4 physics teachers there is 1 (one) teacher (25%) who have less value, 2 (two) teachers (50%) who have enough value , 1 (one) teacher (25%) who has good grades and not found teachers (0%) who have very good value. 3) In the clinical supervision action of cycle II, it is known from 5 physics teachers, 3 (three) teachers (75%) have good grades and 1 (one) teacher (25%) have excellent value. In other words all teachers (100%) have been able to use edmodo.

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