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The Effect Of Learning Model Using Exe-Learning Media And Learning Motivation To Chemistry Learning Outcomes On Students SMAN 1 Batang Kuis

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Abstract: *This study aims to describe the combination of treatment of learning model and student's learning motivation. The purpose is to know the influence of learning motivation, learning model, and interaction between learning motivation and learning model with eXe-Learning media to student's chemistry learning result. This research was conducted at SMA N 1 Batang Kuis class XI IPA. Samples were taken with two stages: class samples taken 2 classes randomly, then the sample of students was taken by purposive 20 students relative homogeneous status. This research uses factorial 2 x 2 factorial design and testing with Analysis of Variance or variance to test whether there is influence of interaction between learning motivation and learning model to student learning result. Based on hypothesis test at significant level α = 0,05, it is found that Fhit (A) and Fhit (B)> Ftabel mean there is influence of learning motivation and learning model to student's chemistry learning result in SMA and Fhit (AB)> Ftable or 7,7 > 4.11, meaning there is an interaction between learning motivation and learning model of chemistry learning outcomes in high school.*

Keywords*: PBL, M3PK, learning motivation, eXe-Learning, learning outcomes.*

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I. Introduction

The role of education is very important in shaping skilled, creative, and innovative human resources. Education also works to develop the emotional intelligence of the individual and the skill to live, to adjust in the midst of the development of the era with a good and full of responsibility. In order to realize the noble goals of national education, education is required directed and quality. Quality education can not be separated from teaching and learning activities conducted in school. School as a formal education is where learners develop themselves with a variety of personal abilities individually and socially so as to compete in this era of globalization.

Teachers as facilitators should be able to encourage students to learn, by understanding curriculum and processes, learning facilities, using some instructional strategies, developing learners' abilities according to technological developments. The facts show that teachers need to gain more knowledge and skills to teach, meet the needs of students to develop their skills and must embody the basic character, in line with the world curriculum development direction [1].

Professional teachers are not just preparing course material, but also required to be creative in using and developing a medium of learning. Learning media will facilitate the interaction between teachers and students, so that teaching and learning activities will be more effective and efficient [2]. A media when understood in broad outline is human, material or events that build conditions that make students able to acquire knowledge, skills and attitudes [3]. In this sense teachers, textbooks, and school environments are media. Good media will also enable students in feedback, feedback, and also encourage students to apply learning in their daily lives.

Budiningsih [4] states that the cause of student failure in learning is because students lack material knowledge and have no motivation to learn either extrinsic or intrinsic. The lack of understanding of the subject matter of chemistry is due to: (1) students often learn by memorization without mastering the concept of the material, (2) the subject matter has a floating concept so that students are unable to find the key to understand the material learned, (3) (4) learning model used too monoton / conventional (Lynch and Waters [5]; Nakhleh, [6]).

To overcome these problems need to be improved learning as a strategy to improve student learning outcomes. Teachers' duties not only bridge the transfer of knowledge to students, but also become a good motivator for students so that teachers are often referred to as manager of learning [7]. Schools and teachers play an important role in creating a good, precise, varied, creative and innovative learning environment. One of them can be by utilizing the media and appropriate learning model. This study investigates about the model combined with appropriate learning media in terms of student's learning motivation to improve learning outcomes.

II. Literature

eXe-Learning Media

Media as a technique used in order to further streamline communication between teachers and students in the process of education and teaching in school [8]. EXe-Learning Media is a media that allows teachers and academics to design, develop, and publish web-based learning content without the need for HTML, XML or web application creation skills. EXe-Learning program can be obtained by downloading application from websit with address:*http://www.exelearning.org/*

Problem Based Learning Model

Problem Based Learning is a learning model that involves learners to solve a problem through the stages of scientific method so that learners can learn the knowledge related to the problem and sekalikgus have the skills to solve the problem [9]. Problem Based Learning (PBL) is a learning that uses real-time (ill-structured) and open-minded problems as a context for learners to develop problem-solving skills and critical thinking as well as building new knowledge.

The Teaching Model Induces Changes in Concepts

The development of the teaching model to induce conceptual change is the theory of learning of contructivism, which in principle illustrates that learners build their knowledge through interaction with their environment [10]. The word "induce" in the M3PK model is literally meant by applying this model, so students who have not understood a concept will understand the concept [11]. While the concept changes in this context are preconceptions that students have before the teaching-learning process (from naïve and unscientific concepts to scientific concepts). The emphasis in this model is that a child is able to solve the problem he faces, understand and accept the concept scientifically, have a clear understanding of the concept he has learned and be able to build a scientific explanation of the phenomenon he is facing [12].

Learning Motivation

In the psychology of motivation is defined as a force contained in human beings that can affect his behavior to perform activities. Meanwhile, according to Mc. Donald is quoted by [13] motivation is a change of energy in a person characterized by the emergence of feeling and preceded by a response to the existence of a goal. So in this study the learning motivation is defined as an impulse that exists and arises in students to learn or improve their knowledge and understanding of chemistry.

Learning Outcomes

Learning outcomes are inseparable from the learning process, because learning outcomes is the end of the learning process. The results achieved through a business with exercises or a number of evaluations held by the teacher. To prove that the student knows understand the material presented during the learning process. Learning outcomes are the results obtained during the learning process, both theory and practice [14].

III. Research Methodology

This research was conducted in SMA N 1 Batang Quiz. The study population is all students of SMA N 1 Batang Quiz Class XI SMA 2017/2018 school year as many as 6 classes. The sample in this study was chosen random sampling, in this case the sample taken only on the students of SMA as much as 2 classes, that is experiment class 1 and experiment class II. Combination of treatment in experimental class I is a model of M3PK learning with eXe-Learning media and Combination treatment in Class II experiment is PBL learning model with eXe-Learning media. This research is quasi experiment (quasi experiment) giving treatment in the form of learning by grouping sample research into two groups with each variable that is M3PK and PBL.

Table 1. Design of 2 x 2 factorial design

Learning Motivation (X)	Learning Model	
	M3PK (B_1)	PBL (B_2)
High (A_1)	A_1B_1	A_1B_2
Low (A_2)	A_2B_1	A_2B_2

Information :

A_1B_1 : normalized gain score of students who were taught by M3PK using eXe-Learning media with high student learning motivation

A_1B_2 : normalized gain score of students who were taught by M3PK using eXe-Learning media with low student learning motivation.

A_2B_1 : normalized gain score of students who are taught by PBL using eXe-Learning media with high student learning motivation.

A_2B_2 : normalized gain score of students taught by PBL using eXe-Learning media with low student learning motivation.

In obtaining the data of learning outcomes, in both groups of samples, pretest is done to find out the students 'initial ability and give questionnaires to know the students' learning motivation both intrinsic and extrinsic and then performed different treatment between the two groups. Experiment 1 class uses M3PK model with eXe-Learning media and experiment class 2 by using PBL model by using eXe-Learning media. At the end of the meeting after completion of the learning process, 20 postes were conducted to obtain the learning result data so that it can be known to increase the student learning outcomes.

IV. Results And Discussion

A summary of the results of normality test of data on improvement of students' chemical learning outcomes for each treatment combination is presented in Table 2.

Table 2. Test Results Normality of data Improved Student Chemical Learning Results Viewed from the motivation to learn and the type of learning model

Learning Motivation	**Learning Model (B)**					
	M3PK (B_1)			**PBL (B_2)**		
	χ^2_{hit}	χ^2_{tab}	**Conclusion**	χ^2_{hit}	χ^2_{tab}	**Conclusion**
High (A_1)	5,886	11,07	Normal Distributed Data	9,008	11,07	Normal Distributed Data
Low (A_2)	9,008	11,07	Normal Distributed Data	6,777	11,07	Normal Distributed Data

A summary of the homogeneity test data of the students' chemical learning outcomes for each combination of treatments is presented in Table 3.

Table 3. Homogeneous Test Results Data Improvement of Student Chemical Learning Results from the student's learning motivation and the type of learning model

Learning Motivation (X)	**Type of Learning Model (Y)**		F_{hit}	F_{tab}	**Conclusion**
	M3PK (Y_1)	**PBL (Y_2)**			
	S^2	S^2			
High (X_1)	51	42,5	1,2	3,18	Homogeneous data
Low (X_2)	35,83	35,83	1,0		

Since the students' chemical learning achievement data obtained in this study has proven to be normal and homogeneous distributions, then the statistical analysis requirements have subsequently been met. The average details of the increase in student learning outcomes obtained by students for each treatment combination are presented in Table 4.

Table 4. Mean Improvement of Chemical Learning Results Students who viewed from student learning motivation and type of learning model.

Learning Motivation (A)	**Type of Learning Model (B)**	
	M3PK (B_1)	**PBL (B_2)**
High (A_1)	$33 \pm 7{,}15^a$	$24{,}5 \pm 6{,}52$
Low (A_2)	$19{,}5 \pm 6{,}0^b$	$19{,}5 \pm 6{,}0^c$

Information: Different superscripts on the same row / column show a marked difference (P< 0.05) Hypothesis testing is done with Analisys of Variance (α = 0,05) with criteria: if Fhit > Ftable then Ho is rejected. Summary of analysis results of various teaching methods and test methods are presented in Table 5

Table 5. Summary of Analysis of Improved Variations of Chemical Learning Results Students who have the motivation to learn and the type of learning model.

Source Diversity	Db	JK	KT	F_{hitung}	F (0,05, db)
Treatment	3	0,63			
Factor A (Learning Motivation)	1	0,46	**0,46**	35	4,11
Factor B (Learning Model)	1	0,07	0,07	5,4	4,11
Interaction AB	1	0,1	0,1	7,7	4,11
Error	36	360	0,013		
Total	**42**	**361,26**			

Prior to learning, student data collection and questionnaire motivation to learn to obtain high school students who have high motivation and low motivation, followed by the provision of pre-test. Based on the data obtained then determined the sample of students who relative homogeny status. Based on the calculation of questionnaire motivation score learning, students are grouped into two, namely the group of high learning motivation and low learning motivation. For high motivation group then the students taken to be sampled are students who have score between 81-120 and low motivation group score is 0-80. Furthermore after the data collection then obtained a sample of 20 students in each class, 10 people who have low motivation and 10 people for students who have high motivation that relative homogeny status. Then students who have high motivation and low taught with the type of M3PK learning model in the same way is done in other class with PBL learning model. After the teaching is done then the students are given a post-test to find out student learning outcomes. Differences of learning outcomes before and after the treatment obtained were processed using variance analysis.

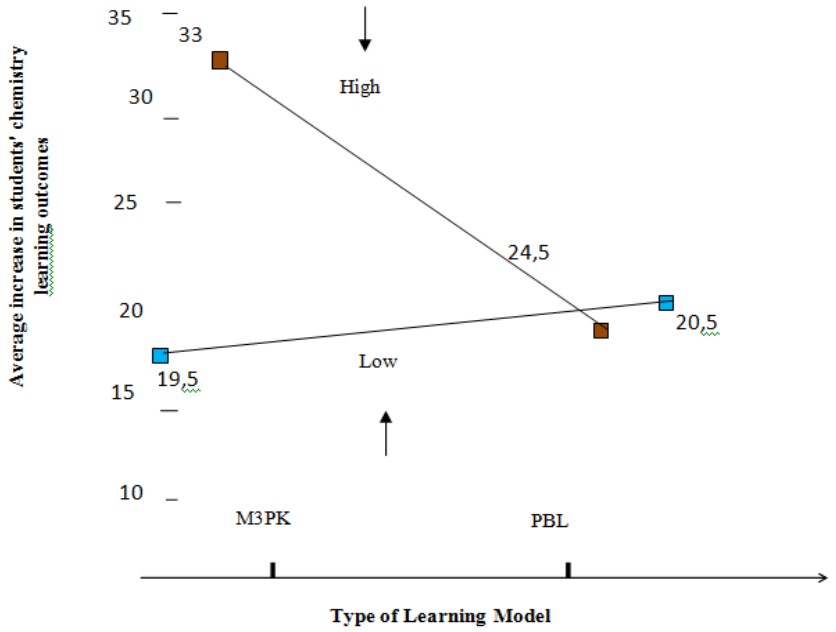

Figure 1. Interaction Form Factor Motivation learning (Factor A) and type of learning model (Factor B) to increase students' chemistry learning outcomes

Based on the form of interaction between motivation factor (Factor A) and type of learning model (Factor B) on the improvement of students' chemistry learning result as presented in Figure 1, it can be concluded that the students' learning motivation combined with the type of M3PK learning model provides an improved level of students' Highest of 33 ± 7.15. In contrast, the use of low learning motivation method combined with the type of M3PK learning model, giving the average increase in the students' chemical learning achievement is the lowest is 19.5 ± 6.0. High learning motivation with PBL model gives the average increase of students' chemical learning achievement which is relatively high that is equal to 24,5 ± 6,52 and low learning motivation with PBL model equal to 20,5 ± 6,0. It was statistically proved that there was no significant difference in the average increase in the students' chemistry learning outcomes using the type of PBL learning

model, both for students with high motivation and low learning motivation. Based on the gain data then obtained Fhitung for learning motivation obtained 35, F-count for the type of learning model model obtained 5.4 and for the interaction between learning motivation and learning model type obtained Fhitung of 7.7. Since Fcount> F table then Ha is accepted.

V. Conclusion And suggestion

Based on the results of data analysis that has been done in this study, then drawn some conclusions as follows: 1. There is influence of student's learning motivation and type of learning model to student's chemistry learning result; 2. There is an interaction between learning motivation factors combined with learning model factors to improve students' chemistry learning outcomes; 3. Students who have high learning motivation combined with M3PK learning model gives the highest average increase in student chemistry learning result that is equal to 33 ± 7,15. Conversely, the learning motivation of lace combined with the type of M3PK learning model, giving the average increase in the students' chemical learning outcomes is the lowest of 19.5 ± 6.0; 4. The use of PBL learning model model which is seen from the students 'learning motivation is high and low gives the average of the students' chemical learning achievement which is relatively high that is 24.5 ± 6,52 and 20,5 ± 6,0 respectively. In terms of statistics, there is no significant difference in the average increase in the students' chemistry learning outcomes using the PBL model type, whether for students with low or high learning motivation.

Based on the conclusions of this study, it is suggested that if teachers apply the learning chemistry should be considered the motivation in students so that students can apply the appropriate type of learning model. It is recommended that teachers should use the M3PK model type, as this study is expected to provide the highest grade of students' chemical learning achievement. The application of factor A (learning motivation) or factor B (learning model) separately in chemistry learning can also be done, but it would be better if the learning is taken into account the students 'learning motivation in order to improve students' chemical learning outcomes

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