
Development of Nomor Acak Learning Models to Increase Student's Learning Effectivity at PGSD FKIP University of Riau

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ABSTRACT

The developing of nomor acak learning model aims to improve the effectiveness of students' learning in some subjects. This learning model emphasises on students' readiness on learning process. This research implemented Research and Development method with four stages which are literature review, designing model, implementation and evaluation, and editing and publication. In designing model random number, it was found five learning syntaxes that consists of preparation, implementation of nomor acak model in learning process, evaluation, conclusion, and giving motivation. After applying this method four times, questionnaire was given to 83 students for evaluation, and the result showed that this method can improve learning effectiveness at level of 79,83%. It can be concluded that random number learning model can improve learning effectiveness.

Keywords: Nomor Acak Learnig Model, Learning Effectiveness

Introduction

In line with changes in better way of teaching and learning, primary school teacher education (PGSD) FKIP UR always strives to improve the quality of learning in accordance with the development and the demand of the current basic education. For elementary school teachers, they have an obligation to improve their teaching and learning process by using the latest learning models, strategies, approaches and methods.

Each learning model normally has its own characteristics, strengths and weaknesses; thus, the obligation of an educator is to improve and develop the learning model. Therefore, the researchers think that it is important to

develop learning models in PGSD by using nomor acak learning model.

Nomor acak learning model is a learning model which is designed to improve the effectiveness of teaching and learning process in the existing units in PGSD. Based on researchers' experience in implementing this model in the classroom, the researchers found that this method can make students more active, passionate, enthusiastic, serious and challenged to learn effectively.

Efficient and effective learning here means is the way of learning to achieve the maximum result in the expected learning objectives with costless way in term of manpower and time (Suwardi 2016).

The nomor acak learning model applied by giving the students the number randomly and they should remember this number until the end of the course. The purpose of this number is to make each student active in the learning process because each student must be ready with his respective materials if his number is called. In order to make the learning process active, at the end of the lesson, students will be asked to conclude the lesson by scrambling their numbers. In addition, every student must focus on the lesson because at the end of the lecture, their numbers will be scrambled once again to point who will perform based on lecturers' directions as learning motivation related to the materials.

This model also provides an opportunity for all students to be active in every learning stage because the number will be drawn on every occasion, and there is no exception for the number that has already been called. For students who are not active in learning activities, when their numbers are called, they must speak, if they do not speak, their number will be marked and they will be asked to do it again in the next occasion. Those who perform based on the instruction would be appreciated even if they do it wrongly, and then the numbers will be scrambled again. After that, the lecturer will correct the mistakes. Thus, the nomor acak learning model is considered to be very effective in the teaching and learning process.

Methodology

The methodology used in this study is research and development (R&D). According to Borg and Gall 1989: 782 (in Zufiady 2017), research and development model is "*a process used develop and validate educational product*". It is also called 'research-based development', which appears as a strategy

which aims to improve the quality of education. In addition to developing and validating the results of education, *research and development* also aims to discover new knowledge through 'basic research', or to answer specific questions related to practical problems through 'applied research', which is used to improve educational practices.

Result and Discussion

1. Nomor Acak Model

Nomor acak learning model is a learning model that emphasizes on the readiness of students in the learning process. This model is designed because of anxiety on the boring learning process in absorbing knowledge and the lack of participation in the learning process.

Lack of participation in the learning process takes place due to the lack of readiness of students in the lesson. It happens because: 1) lack of willingness to participate, 2) lack of responsibility, 3) the absence of learning trigger, 4) comfort zone, 5) lack of awareness toward the environment.

In addressing the students' readiness problems in learning, a concrete solution should be implemented by urging students to be ready in the learning process. If it is applied, there are some problems that should be considered in implementing nomor acak:

- 1) Students will feel anxious if they are not ready
- 2) Students must be prepared with the applicable rules
- 3) Students will feel there is a compulsion on being prepared to study
- 4) If students make mistakes, they will always defend themselves and seek

- various support to escape (make various excuses)
- 5) Low achieving students would be beaten by medium or high achieving students
 - 6) High and dense competition will make students always look for ways to get the opportunity to get more points with every possible mean
 - 7) Rich students will prepare themselves better than the poor students in terms of finding references
 - 8) Students will resent their friends if the learning problem is not solved
 - 9) High technology will make students easier in doing their academic work and it can also be used in negative ways
 - 10) The high pressure for students' readiness will make students stressful and not be able to think objectively
 - 11) Students must be ready for punishment or appreciation
 - 12) Creative ideas will arise to face the problem of readiness
 - 13) The strong lecturer's active role as a control in the learning process will trigger authoritarian learning.
 - 14) It is required to record any events from the beginning to the end of the lecture

Based on the design of the model that has been made, it can be seen: the form of nomor acak learning model, the type of nomor acak, steps of nomor acak model, and nomor acak evaluation.

- 1) The form of nomor acak learning model
 Nomor acak gives random numbers to each student with the instruction that each student is required to remember their number during the class. This number is given to each student at the beginning of the course along with the learning contract. The explanation on

- the number was given at the same time.
- 2) The type of nomor acak
 This nomor acak model uses a random number application downloaded from APP on android. Each student will be ready to learn at any time and when they find the number is selected, they must be responsible for the learning process.
 - 3) Steps of nomor acak model
 At the beginning of the course, while discussing the college contract, the numbers are distributed randomly to each student. Rules are made in the course by using this random number where every student is required to be active in the learning process by speaking up or being active in the discussion forum for at least ten times in one semester.
 If the learning material requires a study group, it can be adjusted with the random number. For example, if there are 40 students in the class, they can be divided into 4 groups. Those who are more active in the lecture will be given points to determine the final mark at the end of the semester. The syntax of nomor acak learning model is:

Table 1. Nomor Acak Model Syntax

Stages	Lecturer's activity
Stage 1. preparation	<ul style="list-style-type: none"> • Preparing students to study by checking students' attendance, preparing media, and apperception • The lecturer appoints the daily minutes in the learning activity through

	random number
Stage 2. Nomor acak learning activities	<ul style="list-style-type: none"> Lecturers give students the opportunity to conduct learning activities in accordance with the contract that has been given. Lecturers monitor all learning activities.
Stage 3. Evaluation	<ul style="list-style-type: none"> The lecturers scramble the number to see the students' ability to understand the subject matter by giving a verbal question and will be answered by a random number.
Stage 4. conclusion	<ul style="list-style-type: none"> The lecturer scrambles the number to appoint the student who will give the conclusion. If the conclusion is deemed unsatisfactory, the lecturers scramble the numbers one more time to improve the conclusions and so on. The conclusion is summarized by lecturers
Stage 5. motivation	Lecturer scrambles the numbers to point the students who will provide the motivation for learning, and the class ends.

- 4) Nomor acak evaluation
The evaluation process conducted in universities certainly has the range, size and weight percentage in marking such as attendance, task, quiz, practice, mid test and final test. Nomor acak evaluation is also

implemented in accordance with established rules. The difference is that the emphasis on this model is on the learning process. This emphasis on learning process aims to make learning process more effective.

- a) Process stage
This stage takes place in the learning process based on the student's activeness. Active students will be awarded points which is calculated based on their activeness in the learning process according to nomor acak model.
- b) Final assessment stage
This stage runs in accordance with the rules that have been agreed in the lecture contract.

2. Result of questionnaire of learning effectiveness

- a. Instrument Validation
Instrument validation is performed on several aspects including expectation, reality, and the effectiveness of learning process. dilakukan terhadap beberapa aspek yang meliputi harapan, kenyataan, dan keefektifan proses pembelajaran. The results of the instrument validation for the expectation aspect can be seen in the following table:

Table 2 Instrument validation result for expectation aspect

No.	Rated aspect	Average %	Category
1.	I feel satisfied when this nomor acak learning model is implemented	83.33	Very Valid
2.	I feel the learning process is getting	75	Valid

	better		
3	I feel nomor acak model can increase the seriousness in learning	75	Valid
4	I feel satisfied because the model used can improve student performance in learning	83.33	Very Valid
Average		79.16	Very Valid

After the data has been analysed in table 2, the average for each statement is ranging from 75 to 83.33 which is in the valid and very valid category. The average of validity of expectation aspect is 79.16 which is categorized as very valid. It means that expectation aspect was written completely in accordance with the designated instruments.

The next assessed aspect is the formulation of indicators. Validation results for the aspect of formulation of indicators can be seen in the following table.

Table 3 Instrument Validation Results for the Aspect of Reality

No.	Rated aspect	Average %	Category
1.	I feel anxious during the lecture	83.33	Very Valid
2.	Nomor acak learning model makes me compelled to do the	91.66	Very Valid

	assignment		
3.	After the course completion, I feel the benefits of learning	91.66	Very Valid
4.	I feel fair in the lecture process	75	Valid
5.	I am motivated in everyday life	75	Valid
6.	I feel encouraged to compete with each other	75	Valid
Average		84.94	Very Valid

After the data has been analysed in table 3, the average for each statement is ranging from 75 to 91.66 which is in the valid and very valid category. The average of validity of formulation of reality aspect is 84.94 which is categorized as very valid. It means that formulated indicators are appropriate. For the effectiveness learning process aspect, the validation result is as follows:

Table 4 Results of Validation of Effectiveness of Learning Process

No.	Rated aspect	Average %	Category
1.	Sufficient study facilities	91.66	Very Valid

2.	I find it helpful to develop myself	91.66	Very Valid
3.	The existence of interaction between lecturers and students	91.66	Very Valid
4.	Valuable learning experience was reflected in the delivery of the material	83.33	Very Valid
5.	I find a good learning result	83.33	Very Valid
6.	Well time use	75	Valid
7.	Freedom of knowledge is widespread	75	Valid
8.	I feel I have a right in learning	91.66	Very Valid
Average		85.41	Very Valid

After the data has been analysed in table 3, the average for each statement on the effectiveness of learning process aspect is ranging from 75 to 91.66 which is in the valid and very valid category. The average of validity of formulation of reality aspect is 85.41 which is categorized as very valid. It means that formulated indicators are appropriate with learning indicators.

b. Result of students learning effectiveness questionnaire

The assessment result of the instruments is through questionnaire that has been given to the students in the end of the lesson. This assessment can be measured through

the revelation presented in connection with students' understanding on the developed model. The given statement is assessment instrument component which is designed by the researchers. There are 18 statements that can be seen in the following table:

Table 5 Results of Assessment of the Disseminated Questionnaire

Number of Respondents	Average Value%			percentage (%)	Category
	Expectation	Reality	The effectiveness of the learning process		
83	78.38	81.47	79.66	79.83	Very effective

After the data has been analysed in table 5, the average for expectation aspect is 78.38 which is in strongly agree category, reality aspect is 81.47 which is also in strongly agree category, and the effectiveness of learning process aspect is 79.66 which is also in strongly agree category. Overall percentage is 79.83% which is in strongly agree category.

Based on the above explanation, the developed instrument on the learning model development is effectively implemented in university level. It can be seen from the questionnaire result which shows 79.83% which is beyond the expected category. To conclude, this developed model has been successfully implemented.

Conclusion

Based on the instruments which has been developed on the learning model development, it is effectively implemented in

university level. It can be seen from the questionnaire result which shows 79.83% which is beyond the expected category. To conclude, this developed model has been successfully implemented.

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