Using Nomor Acak Learning Models of Physics Students in the FKIP of Riau University

Zufriady, Syahrilfuddin, Runi Santika,Reni Yohana
PGSD Program, FKIP,Universitas Riau
Pekanbaru,28293, Indonesia
Email: zufriady@lecturer.unri.ac.id

Abstract:Learning models that are always evolving make researchers interested in developing to learning models. This research try to introduce nomor acak learning models to physics students in the FKIP of Riau University to Management Education course. Nomor acak models is a learning model that emphasizes that students are active during the learning process, this model has been designed before its and is still tried in a small scope. This research uses action research method by describing all activities carried out during one semester in accordance with the stages of the model with the steps of preparation, implementation, evaluation, conclusion and motivation. From the results of the implementation for one semester the average grades of class A and B are as follows: midterm exam 85.14, final exams 81.83, Weight, 84.5, Obtaining a value of A17.5 (45.46%), Value of A-16, 5 (42.85%), Value of B+ 4.5 (11.68%). From the learning outcomes that appear after the end of this semester it can be seen that the nomor acak learning models is able to increase the value of students.

Keywords: Nomor Acak Learning Models, action research, learning outcomes

1. Introduction

Changes in the way teaching and learning progresses make educators motivated to find new formulas and strategies in improving or improving the learning process in their classrooms. Correspondingly, as an educator at PGSD FKIP Riau University tried to improve and improve the quality of the learning process because it became a demand and had become an obligation.

Changes from the way of learning will theoretically be contained in models, strategies, learning approaches that need to be tested and improved according to the learning needs in the field. Thus, researchers feel the need to continue and implement research studies that have been made using a nomor acak learning models. In the previous research, new researchers tried to develop a random number theoretically and from the analysis, this application was suitable and suitable for use by several students of PGSD FKIP University of Riau.

From the previous picture after the researcher tried a nomor acak models in PGSD FKIP UNRI, the researcher tried to apply this learning model in different classes and different study programs, namely in the Physics Study Program FKIP UNRI. This nomor acak learning models is used in accordance with the steps used theoretically in PGSD FKIP UNRI.

Nomor acak (rundom number) learning models have been designed so that active students start from the beginning of the lecture until the end of the lecture because every time they get the possibility to always get a random number, if they are not ready they will feel ashamed of

friends if the number appears. There are five steps from this model, namely the preparation phase where students are prepared to learn by completing learning tools such as learning to learn, attendance and learning media. Then proceed with randomizing the number for one student as searching for notes to record all events during the learning process.

The second stage is learning activities using random numbers. Here the student activities run according to the lecture contract that has been agreed upon and the lecture material that has been distributed while monitoring the student's activities well. In the third stage, it is conducting evaluation by randomizing numbers to see students' understanding. Some numbers are randomly drawn up so conclusions can be drawn about the students' understanding of the material that has been discussed and continued by reviewing the material that they feel has not been completed. Next is the fourth step by asking students for conclusions by randomizing the numbers from students and the fifth step is asking students to provide motivation according to the topic of the material given (Syahrilfuddin, 2017).

2. Methodology

The research methodology used is action research. According to Greenwood & Levin, 1998, p.122 in Cathy MacDonald 2012, p.36 states that action research is considered as systematic and oriented to data analysis as the answers needed by data collection, data analysis and direct and implemented interpretation. Furthermore, he mentioned that this research involved community members or groups of organizations to improve their systems. This means that this action research can be carried out as a way to improve the existing system according to time and social change so that the problem can be resolved.

Action research carried out in even semester with second semester physics student class 2017 in the academic year 2017/2018 in class A and B as many as 77 people in the course used is the subject of education management. This research was conducted for a full semester consisting of 14 meetings, one mid semester exam and one semester final examination.

The research conducted for one semester was observed every time the meeting was held 16 times face to face, then the results of this observation were analyzed, then described according to the steps led by the learning model that was made. Data from learning outcomes such as midterm and semester exams are processed for later description.

3. Result and Discussion

From the results of the implementation of learning for one semester, it runs using a nomor acak learning modelsin analysis according to the stage of the implementation phase in accordance with the agreed contract. The agreed lecture contract is:

1. In this education management course using a nomor acak learning modelsby playing random numbers using a mobile phone on a random number application downloaded in APPSTORE or PLAY STORE. Each student is given a random number and each number is grouped according to the number they have got, such as example number 34, meaning that a student will be a group of three with number four.

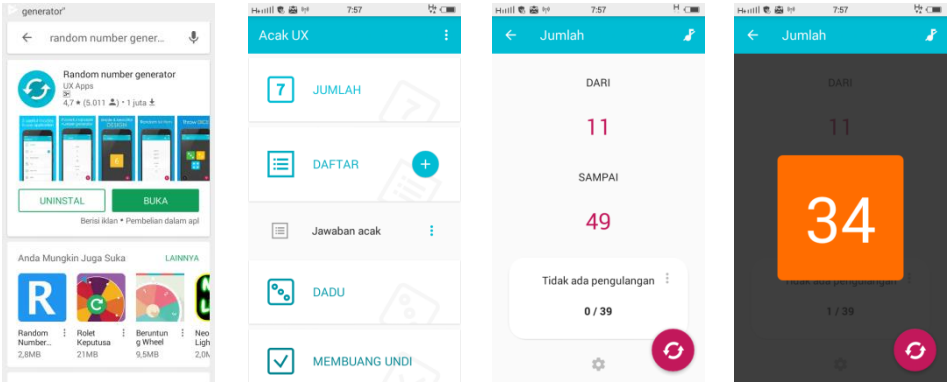

Figure 1. Figure Random Number Generator Application 2018

2. During the learning process each student must be active in lectures with an agreement that each student must be active at least five times as a lecturer, meaning that the student as a moderator, note taker, speaker, questioner, answer, refute, review, conclude and give motivational words.
3. Every student who happens to be numbered after random, they must be ready to be active in accordance with the request from the beginning of the entrance to the end of the meeting. If they are not ready then they will feel ashamed of friends because they will be waited for in the intervals of some time and the focus of friends will be on the student whose number came out earlier.
4. Other contracts besides the use of models are also agreed upon in the period of tolerance for delays, absences, ethics in discussions, ways to respect opinions, ways of dress and others.

Next is the discussion of the results of the actions carried out using random numbers. Here the discussion is generally in accordance with the stages or steps of the nomor acak learning models. Of the two classes analysed the lecture contract process is treated equally, but of the two classes it certainly has a different class character which according to the researchers' analysis is caused by the character of each student and also due to the meeting hours. Where class A is scheduled at 10:00 to 11:40 while class B is scheduled at 1:00 a.m. to 2:40 p.m. class A is more active than class B because most observations of class B students are lacking in focus such as sleepiness, anxiety and often permission to urinate or go to the toilet. This means that here the meeting hours become issues that must also be considered in the implementation of learning.

The discussion in accordance with the steps of the learning model that has been made previously consists of five stages, namely preparation, implementing nomor acak learning models, evaluations, conclusions and motivational words. For more details can be seen below:

a. Stage of Preparation.

   This preparatory phase prepares students to study with the preparation of learning media such as LCD Projectors and learning materials that have been stored in laptops, learning devices, and attendance.

   The beginning of the activity on this implementation the lecturer opened the class with greetings and a little introductory learning for the day, then looked for students for presenters, minutes and moderators by randomizing student numbers. This group speaker

has been determined by the group but who is the speaker is designated by one person to randomize the numbers from their group.

For example, if the group who appeared on the day was group three, then from the group of three random numbers appeared, so each student must be ready to appear as the speaker. As for minutes and moderators, the numbers are randomly classically by way of anyone will get the opportunity to appear as a moderator or note-taker. If one of those who gets the opportunity as a note-taker, the work is to record the events that take place during the learning hours from beginning to end. Whereas the number designated as moderator, he is entitled to the implementation of the material and friends on that day. For example, the moderator has the right to manage classes such as grouping friends, asking for management of friends' seats, organizing classes widely both in conducting discussions. The right is fully handed over to the moderator for the continuity of the course material on the day of walking. Lively or lack of class is also determined by the quality of the moderator.

After the numbers are random for presenters, minutes and moderators, the class is submitted by the lecturer to the moderator. Furthermore, the moderator already has a strategy for running class discussions. Some examples of activities carried out by the moderator are: dividing student seats, class is divided into two camps, if the camp one asks, then the one who will argue or find a solution is the second camp, while after the speaker must be responsible to all the questions that have been submitted by clarifying. There are also moderators dividing by four groups, where each group gives questions and must be answered by other groups, while the material remains controlled by the speaker. So the moderator is quite free in managing the class.

b. The implementation phase of a nomor acak

At this stage the lecturers' activities give the class to the moderator and the moderator to call the brazier to deliver the material is a discussion that has been prepared by the speaker. The moderator also manages the class according to what is desired so that the learning test can run well. here the foresight of the moderator is expected. After the class is finished form and the speaker is welcome to explain with powerpoint that other students have been prepared to be calm and prepare questions if later they are not understood.

After the material was delivered by the speaker, the moderator opened the opportunity to ask, the first term was usually opened for three questioners and the second term was opened for two artists. Every time the question is opened, the student in question raises his hand to ask, even half of the students ask. Here is the opportunity from the moderator to randomize who is likely to ask. There are moderators who scramble with random numbers and there are also moderators giving the opportunity to ask “hompimpa” to do it (folk games to look for winners by raising their hands using their palms and their hands face down).

Questions are answered by the speaker and if it is deemed insufficient, the speaker asks for help from the group's friends to add. In addition the moderator also has a role in throwing questions to other students. Question after question is answered until the end of the first session. Every student is allowed to get information from the internet using

cellphones or laptops. The next session also carried out the same question and answer activities as before but on this occasion only two questioners were opened.

After completing the discussion for these two sessions, the moderator asks the lecturer to review or straighten out the material they have discussed. Lecturers review all activities by looking at the activity notes that have been made by the minutes or what they have recorded elsewhere. So that the material presented on the occasion goes as expected.

c. Evaluation phase

In this evaluation phase, it is used to measure students' abilities about the material that has been conveyed and discussed. Numbers are returned at random to determine which students will have the opportunity to provide evaluations. Some students were appointed to receive questions given by lecturers. If the questions given are not satisfactory, return the numbers repeatedly to finally get good results. In general, questions given by lecturers can be answered by students.

d. Conclusion stage

Some students who are asked to give conclusions by returning to randomize the student numbers and students whose numbers come out, must give conclusions. After several random numbers the students gave to conclusions, then the next opportunity was given to other students to give questions by raising their hands. Back in the struggle for conclusions to conclude, with carefulness to provide opportunities for students who are quicker to raise their hands, but if it is difficult to determine then return to “hompimpa”.

From the results of the conclusions that have been given by the students, it is analysed by the lecturer about the delivery of indicators of learning and if a perfect conclusion is submitted by the student, the lecturer returns the overall conclusion.

e. Motivational word stage

After finishing giving conclusions, it continued by providing motivation for the results of the students' reflection on the learning activities that have been carried out, both about the material and about the situation of the lecture. Student numbers return at random to determine who has the opportunity to give the word motivation. Some students provide motivation. If it is deemed necessary the lecturer also provides opportunities for other students to provide motivation by raising their hands the same as in the activities concluded above. Like some examples of motivational words from students, "life is valuable but more valuable if we can respect others", "class will be good if managed by good people", "try seriously, because the results will not disappoint you"after completing giving students motivation, the class closes by reminding the group that will appear the following week to prepare themselves and better material than the previous day. Usually before the closing greeting the lecturer gives a final motivational word and the student claps and only ends with greetings.

This activity runs like this every week and at the eighth meeting the midterm exam is held with an average grade of 84.89 and an average class B of 85.38. From these results it can be seen that the students' understanding of the material has been classically high. The end of the semester final examinations were also carried out with grade A grade of 82.36 and class B 81, 30.

CLASS 2A PHYSICS			CLASS 2B PHYSICS		Class average 2A and 2B
Average midterm exam	84,89		Average midterm exam	85,38	85,14
Average final exams	82,36		Average final exams	81, 30.	81,83
Average value weight	84,88		Average value weight	84,13	84,5
Earnings A	20 (52,63%)		Earnings A	15 (38,46%)	17,5 (45,46%)
A-Value Gain	14 (36,84%)		A-Value Gain	19 (48,71%)	16,5 (42,85%)
B + Value Gain	4 (10,52%)		B + Value Gain	5 (12,82%)	4,5 (11,68%)
Value Gain B	0		Value Gain B	0	0
Value B Achievement -	0		Value B Achievement -	0	0
Acquisition of C +	0		Acquisition of C +	0	0
Value of C	0		Value of C	0	0
Gain of Value D	0		Gain of Value D	0	0
Value of E	0		Value of E	0	0
Number of students	38		Number of students	39	-

Table 1. Figur Acquisition of midterm exam, final exams and final grades in Education Management subjects

From the table above it can be seen that the student learning process is active so learning will be effective so that it can be seen from the results of their learning is also felt good. The acquisition of the final grade of the education management course on the average student obtains a very high value range that gets value of A are 45.46%, obtained value of A-are 42.85%, and value of B+ are 11.68%, meaning that there is no value low like.

4. Conclusion

Based on the development research process that has been carried out so far, starting from the development of a nomor acak learning models in the PGSD Study Program and now with the application of the nomor acak learning model of the Physics Study Program it can be concluded as follows:

1. The application of a nomor acak learning model emphasizes student learning activities and by emphasizing to students to be active and serious in the implementation of the teaching and learning process. Thus the average of students in each teaching and learning process is always preparing themselves.
2. Application of learning models with nomor acaks can also improve learning outcomes. This can be seen from the two physics classes A and B get a relatively high average range of educational management subjects such as value of A are 45.46%, acquisition of values of A- are 42.85%, and value of B+ are 11.68 %.

Acknowledgement

Based on the results of the research, the application of this nomor acak learning models can use at every level of education, from elementary school (high class), junior high school, high school and students college. And also can be applied with other learning methods or approaches.

References

Cathy Macc Donald, 2012, Understanding Participatory Action Research: A Qualitative Research Methodology Option Dalhousie University. http://journals.nipissingu.ca/index.php/cjar/article/view/37/33diakses18 Agustus 2018.

Syahrilfuddin, Zufriady, 2017, Development of Nomor Acak Learning Models to IncreaseStudent's Learning Effectivity at PGSD FKIP University ofRiau. http://fkip.unri.ac.id/wp-content/uploads/2017/11/Proceeding-of-The-1st-URICES.pdf(diakses 8 Februari 2018).

Trianto, 2013, Mendesain Model PembelajaranInovatifProgresif: Konsep Landasandan Implementasinyapada Kurikulum Tingkat Satuan Pendidikan (KTSP). Jakarta: KencanaPrenada Media Group.

YusiRiksaYustiana, 1999, KonsepDasarPenelitianTindakanhttp://file.upi.edu/Direktori/FIP/JUR._PSIKOLOGI_PEND_DAN_BIMBINGAN/196611151991022-YUSIRIKSAYUSTIANA/Artikel%2C_modul._penelitian/penelitian_tindakan/m.2tindakan.pdf diakses 1 September 2018

Zufriady, 2017, Model Pengembangan Kreativitas Anak Melalui Pembelajaran Seni Budaya Berbasis Musik Riau Bagi Siswa Sekolah Dasar Kelas Atas. Jurnal Primary PGSD FKIP Universitas Riau| Volume 6 | Nomor 1 | April – September 2017.