The influence of students’ score by compare learning model auditory intelectually repetition and visualization auditory kinestetic of wave and vibration materials in SMP Negeri 33 Bandar Lampung

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Abstract. This research aims to know the influence of students’ score comparison in the cognitive and affective aspect, using AIR and VAK learning model. This sample research is VIII-A, with using VAK learning model as experimental class 1 and VIII-B using AIR learning model meanwhile sampling technique that is using pursosive sampling technique. This researcher used quasy eksperimental research. The design that researcher use is (control group pretest-posttest design). The data is being analyze by using normalized gain used microsoft excel program that aim to know improvement of students’ score. Then the data tested statistically to pretest and postest students’ score by doing normality test, homogeneity and t-test by using microsoft excel program. The average value in the cognitive aspect, the N-gain score of AIR class is fair category, the N-gain score of VAK class is high category. In the affective aspect VAK class is better of the VAK class. The result of statistical test calculated t_count > t tabel its mean that H0 was rejected and H1 was accepted. The result of this research showing that the magnitude of effectiveness AIR and VAK model is the fair category. VAK model more effective than AIR model.

1. Introduction

One of the important things for human is education. Education is the basic for life that also became differentiatior between human and the others. [1]Therefore, human life can be better when get an education, whether formal education and nonformal education. Developments in technological progress and the harmony of consept of life and nature is the influence from branch of science that we known as physics. Physics is the most basic science because based on observation was done related to the surrounding environment.[2] The preparation before providing learning service was one of the determinant factor in learning success.[3] To review learning success, learning model should be done when learning process take place. One of learning model that could applied is Auditory Intelectually Repetition (AIR) and Visualization Auditory Kinestetic (VAK) learning model. AIR learning model could efective when pay attention three aspects, such as hearing aspect, thinking aspect and repetition aspect[4]. Meanwhile VAK learning model optimizing three aspects for create comfortable learning situation and promises success when learning takes place such as vision aspect, hearing aspect and physical aspect [5].
Auditory Intelectually Repetition (AIR) learning model had three aspects: auditory, intelectually and repetition[6]. In AIR learning model, learn used auditory that is hearing aspect covers get the information and solve problems with discussion.[7] Because in this aspect there are hearing, listening, speaking, presentation, argumentation, expression, and response to opinions process.[8] Students with auditory learning style were 35% for understanding the learning material, with the help of model or learning method that proper.[6] It can be concluded that the activity which done in this stage was students listen to the material explanation from the teacher, and then do instruction by ask and answer question from students. Learning by using intelectually was thinking aspect covers filter information to solve the problems and build meaning. [4] In the Intelectually stage the students invited to think and solve the problem that teacher gave. In this stage students knowledge build by group discussion activity, where students active convey opinion and build teamwork to understand the material.[8] It can be concluded in this stage the activity that student done was students filted information that had been accepted and analyzed information by group discussion to understand the material. Learning by using repetition was repetition aspect covers keeping, deepening, expansion and stabilization information[4]. In repetition stage, the activity which done by researcher gave task/ quis to students as the material repetition form, so students could understand the material. Giving assignment and quis could be done more than one. The three of aspects that used in AIR learning moder were auditory, intelectually and repetition related to each other when the learning process takes place. There were advantages in Auditory Intelectually Repetition (AIR) learning model such as students more active to participate in the learning and often express his or her idea[9][10], besides the advantages, there were disadvantages Auditory Intelectually Repetition (AIR) learning model, such as AIR learning had three aspects: auditory, intelectually and repetition, so at a glance the learning need long time. But in this case could be minimize with made a group in auditory dan intelectually stage [11]. Made and prepare problem that have meaning for students is not easy job [12].

Beside AIR learning model that used three aspects when learning process takes place, VAK learning model also used three aspects when learning process takes place to improve students’ interest, students’ motivation and ask students’ to active when learning process takes place along improving students’ learning score [13]. Visualization stage using sense of sight covers see the picture, diagram, and watch the video.[14] The students’ learning method fit with this visual learning style, such as: note, illustration book, using colour for the important article, and memorize with picture association. [15] It can be concluded in this stage, students could observe the instruction from the researcher with learning media such as whiteboard that use colored markers for the important word. Auditory aspect was using the sense of sight covers accept information with solving problem from discussion [16]. It could be concluded in this stage students prioritize their sense of hearing in the learning process to understand the material. Kinestetic stage used sense of touch covers physic and direct involvement when learning process takes place like move, touch and experience yourself [7]. In this model had advantages such as the learning process would be more effective, because combine all three learning styles that could able to train and developing the each students’ potential.[9] Besides that there is disadvantages of Visualization Auditory Kinestetic (VAK) learning model: not many people could combine the three learning styles. Therefore people whose just could using one learning style, just could understand the material if using the method that more focus to one of the learning style being domination. [17]

Based on some research, AIR and VAK learning model had positive influence in learning process. VAK and AIR learning model had similarity and differences. The similarity of both this learning model used three styles students’ learning and utilize sensory devices owned by students, also in group formation consist of 4-5 peoples each group heterogeneous. The differences between two learning models was AIR learning model students given repetition from the information which had been
accepted for stabilization information before dopost test to know the score, meanwhile in the VAK learning model not given repetition before do post test to know the score.

In this research the researcher used dependent variable students’ learning score covers cognitive and affective scoring. The learning score is behavior change when had experienced learning activity.[9] To know the learning score could done with scoring activity. Scoring is a effort to know achievement of learning purpose. [10] Regarded to learning score cognitive aspect consist of six aspects, such as knowledge or memorize, understanding, application, analyze, synthesis and evaluation. The second first aspect low level cognitive dan the next four aspect includes high level cognitive.[11] In the affective aspect about attitude consist of five aspects such as accepted, answer or reaction, scoring, organization and internalization. [16] There is kind of categories affective aspect as learning score. The category start from basic level or simple until complex level. Cognitive scoring using instrument test, meanwhile affective scoring using observation sheet.

Based on preliminary research observation that the learning score still low in students one of causes because never using learning model can improve students’ learning score. Troubles that were set up physic students learning in SMP Negeri 33 Bandar Lampung among media use to physic learning only blackboard. Besides that, the method used still focus to the teacher. The troubles this factor from the low learning score in SMP Negeri 33 Bandar Lampung based on odd semester test scores of students in physic lesson in 2018/2019 at SMP Negeri 33 Bandar Lampung. From various descriptions above, related research before and preliminary research had been scoring In the form of the data from the final test students and learning and teaching observation activity in SMP Negeri 33 bandar lampung researcher interested to proposed the research entitles “The influence of students’ score by compare learning model auditory intelectually repetition and visualization auditory kinestetic of wave and vibration materials in SMP Negeri 33 Bandar Lampung.

2. Research Method
This research was implemented in SMP Negeri 33 Bandar Lampung. This method of research quantitative, and the kind of this research is experiment (quasi-experimental research) and group experimental design to pre-test and post-test. For approximately one month. After testing the hypothesis could known that there is a different significant student learning score between students was given AIR and VAK learning model. This research used two sample classes such as VIII A (model VAK) and VIII B class (model AIR). The material used in this research is wave and vibration. The validity of the instrument was tested first by the lecturer UIN Raden Intan Lampung.

The procedure of learning process in class by used Auditory Intelectually Repetition (AIR) learning model such as: auditory stage; 1) the teacher make a heterogeneous groups. Consist of 4-5 students, 2) the teacher dividing students’ worksheets, 3) the teacher dividing instructions how to complete the concepts on the students’ worksheet, 4) the students listen carefully to the teacher’s explanation of how to complete the concepts on the student worksheet, 5) the teacher given explanation to student about the material. And then intelectually stage; 1) the students were given the opportunity to understand the material, 2) the students appear in front to share idea for solve the problems about the material, 3) the students work on individual worksheets, 4) the students had a group discussion talking, collect the information, express ideas, solve the problem about the material. And then Repetition stage; 1) the teacher gives the questions about vibrations structurally and repeatedly, 2) the students work on the questions independently in a structures manner, 3) the teacher discuss question about vibration had been done by the students and discuss to confirms the true dan false answers, this is done structurally and repeatedly.[9]

Besides that in Visualization Auditory Kinestetic (VAK) learning model there are procedure in learning process in the class such as; visualization stage; 1) the teacher make a heterogeneous groups. Consist of 4-5 students, 2) the teacher dividing students’ worksheets, 3) the teacher dividing
instructions how to complete the concepts on the students’ worksheet, 4) the teacher using visual media to convey wave and vibration materials. 5) The teacher ask to students to express ideas to a picture or an image and wave. In auditory stage; 1) the teacher given explanation to students about wave and vibration materials.2) the teacher focused on students to understand about wave and vibration material similarity. Kinesthetic stage; 1) the teacher uses props during the learning process, and then show how to use these teaching aids to foster curiosity of students.2) the students can use props to complete students’ worksheets, give freedom to students to conduct experiments independently and be active in the supervision of the teacher.[18]

Then the post test results after learning are yested by using product moment, so that could use to measure learning score in kognitif aspect. Data analysis technique were carried out using the normality test using tiliefors test, homogeneity test by using fisher and hypothesis were measured using the t-test. Meanwhile for instrument affective measure d by using observation sheets.

3. Result and Discussion
The purpose of this research is to see the influence of AIR and VAK learning model to students’ score of wave and vibration materials, also to see compe AIR and VAK learning model to students’ score of wave and vibration materials. The result of this research had been implemented in SMP Negeri 33 Bandar Lampung show that AIR and VAK learning model is effective learning model. For get the data in this research, the researcher uses data collection methods is test dan observation sheet. This test use to measure students’ score in cognitive aspect. Test is the implementation of measurement activities using certain techniques or methods, including questions, statement, or a series of tasks doing by students to measure aspects of students behavior. [12]

In model AIR class, where the teacher utilize all of sensory devices they have by the students, covers three learning styles include hearing, intellectual and repetition question to understand the concept about wave and vibration materials in learning process to improve students score in cognitive and affective aspect. AIR learning model can make all students more active to participate in learning process. In experiment class 2 applied VAK learning model, where the teacher optimize the three potential learning modalities of students, where students knowledge in absorbing different information. This model helps students to learn according to ability, thus increasing interest, student motivation and requires active students when the learning process takes place and improves students learning outcomes. Overall VAK learning model given the positive influence to students score, this is indicated from the average value or acore of the final test of the student outcomes is higher than AIR learning model. After applying both learning model in each experimental calss, and then in both experimental class given post-test to see the students score and to see compare AIR and VAK learning model.

Based on analysis of research data on average score pre-test and post-test, the data show that students score experienced a significant change when learn using AIR and VAK learning model. Based on normality test can be known in class AIR 0.0789 (L_count)< 0.1755 (L_table) for pre-test, meanwhile for post-test obtained 0.1332 (L_count) < 0.1755 (L_table), its mean that accepted H_o and the data is normal distribution. In VAK class the analysis tested normality pre-test obtained 0.1589 (L_count) < 0.1784 (L_table), and then for post-test obtained 0.1130 (L_count) < 0.1784 (L_table), from the result of this analysis it can be seen that H_o is accepted and data is normality distribution.

Besides that the test results for the homogeneity of the AIR and VAK class pre-test with significant level of 0.05% obtained 1,63 (F_count) < 1,97 (F_table), so that the data is homogeneously distributed, meanwhile the results of the post test homogeneity test of the learning outcomes of the AIR and VAK students were obtained 0.73 (F_count) < 1,97 (F_table), so that the data is homogeneously distributed.
Table 1. Hypothesis test results

| Class | $T_{count}$ | $t_{table}$ | Results | Test decision |
|-------|-------------|-------------|---------|---------------|
| AIR   | 2.12        | 2.01        | $T_{count}>t_{table}$ | $H_1$ Accepted |

T-test result show that $t_{count}>t_{table}$, 2.12>2.02. In this case according to the hypothesis test criteria, namely if $t_{count}>t_{table}$, so $H_1$ accepted. So that can be concluded that the use of the AIR and VAK learning model has a good influence on the students score in SMP Negeri 33 Bandar Lampung.

Figure 1. The value of the students score

Students learning score on cognitive aspects can be seen from the results pre-test and post-test. In the first meeting given pre-test wave and vibration materials, which question is tested for validity, reliability, object style and degree of difficulty, and then after given treat with each learning model such as in class VIII B (AIR model) and class A (VAK model). In the last meeting of learning the students were given post-test to measure students score. Form the result of the average students score in the two experiment classes are different, the average score in class VIII B (AIR model) obtained 83, meanwhile in VIII A (VAK model) obtained 85, that is prove that there is a influence of AIR and VAK learning model to students score. Based on the observation test done by the science teacher in SMP Negeri 33 Bandar Lampung to researcher regarding application AIR and VAK learning model. Assessment of students in the affective aspect as follows:

Table 2. Observation result

| Class | Affective percentage |
|-------|----------------------|
| AIR   | 78.5%                |
| VAK   | 81.6%                |

The result of students score on the affective aspect can be reviewed from the assessment data of the observation sheet, which was carried out during the learning process or learning takes place. Based on the affective sheet assessment table, comparison seen in class VAK, where students curiosity, better than the AIR class. In this case can seen from the average score of affective class learning VAK obtained 81.6%, meanwhile AIR class obtained 78.5%.

From the presentation or expansion of learning scores on cognitive and affective aspects above, the VAK learning model is always higher than the AIR learning model. So it can be said that the VAK learning model is more influential than the AIR learning model. In accordance with research
conducted by Siswadi, Susilawati and Hikmawati, it was concluded that there was an influence of the VAK approach to the learning outcomes of 10th grade high school students[11]. In this study, there were obstacles that were found when conducting research, such as: there were a number of students absent when the learning process took place during four learning meetings conducted, while when students attended one learning meeting researchers were unable to record maximum learning scores. In this case the researcher limits the data that is processed only to students who attend all learning meetings.

4. Conclusion
Based on the results of research that has been conducted in SMP Negeri 33 Bandar Lampung in class VIII academic year 2018/2019. VAK learning model is better than AIR learning model based on learning score in the cognitive and affective aspects, through the N-gain value or score, percentage assessment of affective observation. There is a influence on the AIR (Auditory Intelectually Repetition) and VAK (Visualization Auditory Kinestetic) learning model to students score in the cognitive and affective aspects can be reviewed the results of the t-test show that \( t_{\text{count}} > t_{\text{table}} \).

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