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The Effect of Arias (Assurance, Relevance, Interest, Assesment, Satisfaction) Learning Model and Portofolio Assesment To Learning Outcomes And Creative Thinking Ability Of High School Student (Subject of Immunity System for 2nd grade of SMA Negeri 3 Jember Academic Year of 2016/2017)

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ABSTRACT

This quasy experiment study aimed to analyze the effect of ARIAS (Assurance, Relevance, Interest, Assesment, Satisfaction) learning model withPortofolioAssesmentto learning outcomes and creative thinking ability. Subjects in this study were 36 students of XI IPA 4and 36 students of XI IPA 5 SMA Negeri3Jember. Data collection techniques used were interview, observation, documentation, and tests. Data were analyzedusing descriptive with quantitative and qualitative approach. Based on the results of the study showed that there was significant effect of ARIAS (Assurance, Relevance, Interest, Assesment, Satisfaction) learning model withPortofolio towards learning outcomes and creative thinking of students at XI IPA SMA Negeri 3 Jember.

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INTRODUCTION

Education in Indonesia still lower than education in another countries such as Finland, Japan, South Korea, Europe and America. PISA (*Programme for International Student Assesment*) held science and mathematics literacy study on 2015 known that Indonesia is on 62th position of 70 countries that been investigated. PISA (*Programme for International Student Assesment*) study result on 2015 known that Indonesia's education still worse in Asia when we compare it with Singapore that got 1st position, Japan on 2nd position, Taipei on 4th position, Macau on 6th position, Vietnam on 8th position, Hongkong at 9th position, Korea at 11th position, and Thailand on 54th

position. While on study result of TIMSS (*Trends in International Mathematics and Science Study*) show that Indonesia's students is on 36th position of 49 countries that been investigated on capability of implementing scientific procedures^[1].

Education in Indonesia must be improved especially on learning process in class to create student who can achieve 1st position on every scientific championship either nationally or internationally. Teacher usually face some obstacles during learning process in class such as students that hard to focus during learning process, this obstacle makes students unable comprehend the learning material and cause student's learning outcomes still under the minimum score^[2].

Creative thinking ability will be well developed if students learn by them selves, given trust to think and free to give their own suggestions. Creative thinking ability also can be developed by drilling the students to explore all their capabilities by them selves. However, the optimum development of creative thinking depends on the way teacher teach them. The learning methods and interactions between teacher and students can give trust, reward, and motivation to solve each problem in learning process by find the new methods or study from many literatures on many learning sources to trigger the creative thinking ability appearance^[3].

Inovation on learning process should be held to make students engaged and motivated to attend the class. The using of learning model will determine the effectiveness and efficiency of learning process in class. ARIAS is a learning model that modify from ARCS learning model that developed by M. Keller by adding *assessment* component on it^[4]. ARIAS learning model is a conceptual structure that describe systematical procedure in organize learning experience to achieve learning goals^[5].

Student's learning outcomes is very important to be improved. The student's learning outcomes consist of three domains, such as cognitive domain, affective domain and psychomotor domain. The student's learning outcomes can be measure by assessment instrument. Assesment is a process to collect various data that related with student learning development. Result assesment of student's development becoming benchmark for success of teachers to deliver the learning material to their students and becoming student's reflection related to their learning achievement.

Portofolio is an assesmentmethodchosen in this research. Through portofolio, students can collect all the learning assignments in one portoflio in a way to makes teacher and students will be able to monitor its progress. Portofolio as an assesment is an information collecting method that systematically collect data from student's own learning assignments. This data collections arrange systematically and organized well as a feedback for teacher and students^[6].

Based on research result related to ARIAS (*Assurance, Relevance, Interest, Assesment, Satisfaction*) learning model done before, (Husna, 2011; Kriana, 2013; Piktoriawandkk, 2014; Purnamasaridkk, 2013; Siahaandkk, 2010) it showed evidence that ARIAS can improve student's learning outcomes. Portofolio, on the other hand, had also proved to be effective in improving learning outcomes (Isandespha, 2013; Santoso, 2007; Sutrisno, 2013).

Based on all the result of research done before, researcher conduct research with title "The Influence Of Learning Model ARIAS (*Assurance, Relevance, Interest, Assesment, Satisfaction*) an PortofolioAssesment towards learning outcomes and

creative thinking ability of student (Subject of Immunity System for 2nd grade of SMA Negeri 3 Jember Academic Year of 2016/2017)".

METHODS

This research is a quasy experiment that held on May, 2017 at SMA Negeri 3 Jember. The subject of this research are all of student at 2nd grade IPA SMA Negeri 3 Jember academic year of 2016/2017 that consist of five classes namely XI IPA 1, XI IPA 2, XI IPA 3, XI IPA 4, and XI IPA 5. Two classes were used on this research, one class for experiment class and another class for control class. Collecting data method used in this research including interview, observation, documentation, and test.

The effect of treatment variables were measured using Analysis of Covariance for cogntive learning outcome, Paired Sample T-test for affective learning outcome for creative thinking ability. Technical qualitative data analysis to analyze interview data. Interview data used to support learning implementation data.

RESULTS AND DISCUSSION

The result of this study consist of student's learning outcomes result of cognitive domain and affective domain, and creative thinking ability of student. Table 1 describes the result of data analysis on the effect of ARIAS and Portfolio on cognitive learning aoutcomes.

Table 1. ANCOVA result of student's pre-test post-test

Source	Type III Sum of Squares	df	Mean Square	F	p
Corrected Model	794.689 ^a	2	397.345	5.425	0.006
Intercept	187507.704	1	187507.704	2559.865	0.000
Pretest	66.342	1	66.342	0.906	0.345
Kelas	382.017	1	382.017	5.215	0.025
Error	5054.186	69	73.249		
Total	509355.000	72			
Corrected Total	5848.875	71			

Based on Table 1 that shows there is a significant influence (p=0.025) between control class and experiment class. Which means there is significant difference between classes after being treated with ARIAS and Portfolio assessment.

Table 2 describes the result of data analysis on the effect of ARIAS and Portfolio on affective learning outcome.

Table 2. Paired Sample T-test result of student's affective score

	Paired Differences			t	df	p
	Mean	Std. Deviation	Std. Error Mean			
Afektif Kelas Eksperimen - Afektif Kelas Kontrol	4.028	12.468	2.078	1.938	35	0.061

Based on Table 2 shows student's affective score with significant value ($p=0.061$), so H_0 is accepted and H_1 is rejected, meaning there is no significant difference between student's affective score mean of control class and experiment class.

Table 3 describes the result of data analysis on the effect of ARIAS and Portfolio on creative thinking ability.

Table 3. Paired Sample T-test result of student's creative thinking ability

	Paired Differences			t	df	p
	Mean	Std. Deviation	Std. Error Mean			
Kemampuan Berpikir Kreatif Kelas Ekperimen - Kemampuan Berpikir Kreatif Siswa Kelas Kontrol	10.083	20.564	3.427	2.942	35	0.006

Based on Table 3 shows student's creative thinking ability score with significant value ($p=0.006$), so H_0 is rejected and H_1 is accepted, it means that there is significant differences between student's creative thinking ability score of control class and experiment class.

Science learning especially in the subject of Biology will easily learned by student when associate their learning with student's daily activities. Learning material must be delivered in interesting fashion to rise motivation and make them aware of the advantage of learning that subject while learning process happen in class.

Biology is a part of science that obtained and developed through a series of processes known as scientific process. This process built of scientific attitude and produce scientific product that consist of concept, principle, and theory that universally applicable so Biology learning process emphasize direct experience to give space for students to emerge creative thinking and has scientific behavior^[7].

Biology learning emphasize on contextual learning because Biology learning can be learned through natural phenomena which happen our surrounding. Contextual learning is a learning concept that help teacher associate learning material with natural phenomena to emerge students make relationship between knowledge they had and its application on their life^[8]. ARIAS learning model usually on relevance stage, researcher associate learning material with its purpose and advantage of learning that material on student's daily life. Learning material presented in form of phenomena that happen on student's daily life in a video to motivate learning.

ARIAS learning model has 5 implementation stages namely assurance, relevance, interest, assesment, and satisfaction. Based on interview result known that ARIAS (Assurance, Relevance, Interest, Assesment, Satisfaction) learning model with portfolio assesment to help and motivate student in their learning. The student's interest in learning and comprehension improved by motivation.

Student's learning motivation somehow becoming weaker in some circumstances. Weaken motivation will lead to weaken learning activity, and ultimately the student's learning outcomes become low^[9].

ARIAS (Assurance, Relevance, Interest, Assesment, Satisfaction) learning model on this research consist of five components. 1) Assurance on this research has purpose

to build confident on students by giving students chance to utter their opinion and knowledge they have about immunity system subject. 2) Relevance on this research done by giving explanation to students about immunity system during the learning process. This stage implemented by giving the advantage and association learning immunity system generally and spesifically. After receieve knowledge about immunity system and its association on daily life, students became more serious and enthusiastic in learning process. 3) Interest on this research has function to improve the student's motivation. This stage implemented by divide the class into several small groups to discuss the problem on student's worksheet. 4) Assesment on this research is evaluation. Evaluation is a feedback about strength and weakness of student's learning process to motivate the students to learn well so they can achieve good learning outcomes. Assesment that used in this research is portofolioassesment which include of all student's assignments. Through portofolio students can monitor their strenght and weakness in understand immunity system subject so it will improve the student's motivation in learning process. 5) Satisfaction on this research associate with proudness of learning outcomes they have got. Students that already achieved their good learning outcomes felt proud. This stage implemented by giving reward such as pen, pencil, correction tape, rubber eraser to students that active in learning process. Through student's portofolio students could monitor their learning progress through their collection of student's assignments with the scores they have been achieved.

ARIAS (Assurance, Relevance, Interest, Assement, Satisfaction) learning model with portofolioassesment influence student's cognitive learning outcomes. The mean of student's cognitive learning outcomes on experiment class (86.81) is higher than on control class (77.75) on this research. Student's cognitive learning outcomes obtained through pre-test and post-test score. Similar result had been obtained by previous studies ^[10,11]. ARIAS (*Assurance, Relevance, Interest, Assement, Satisfaction*) learning model and portfolio assessment proved to improve cognitive learning achievements.

Student's affective learning outcomes on this research focused on attitude assesment because it is easier to observe than spiritual attitude. Assesment of student's affective learning outcomes done by direct observation to student's activity during learning process by using observation sheet. Paired Sample T-test result on Table 2 shows that significant value ($p=0.061$) so there is no significant difference towards student's affective learning outcomes between control class and experiment class. On experiment class known that student's affective learning outcomes mean about 83.19 (± 8.632) and on control class has student's affective learning outcomes about 79.17 (± 10.922).

Student's learning outcomes either cognitive or affective can influenced by two factors such as internal and external factors. Internal factors that influence student's learning outcomes involve attitude to learn, learning motivation, concentration to learn, precess the learning material, recall all the knowledge they have got before, student's confidence, student's learning behavior, and and student's aim. External factor that influence student's learning outcomes such as teacher as learning tutor, learning facilities and infrastructure, assesment policy, school environment, and school curriculum.

The improved learning process in classroom activity through ARIAS and Portfolio could in turn improve student's creative thinking ability which enable students becoming more active in searching informations and comprehending the learning material. On experiment class, student's creative thinking ability mean score is about

78.31 (± 10.408). While on control class student's creative thinking ability is about 68.22 (± 17.586). Implementation of ARIAS (Assurance, Relevance, Interest, Assesment, Satisfaction) learning model with portofolioassesment concluded it can improve student's creative thinking ability. On control class, creative thinking ability score obtained from student's worksheet, while on experiment class obtained from student's portofolio assignment. Creative thinking ability has two indicators such as: 1) Originality, students do the assignment and its contents do not similar with another students. 2) Elaboration, students do the assignment in detail. Creative thinking ability defined as ability to gice answer that different with another students. Elaboration defined as ability to develop and elaborate ideas ^[12].

CONCLUSION

Based on result and discussion that have been explained before, it can be conclude that:

- a. ARIAS (Assurance, Relevance, Interest, Assesment, Satisfaction) learning model with portofolioassesment compared with conventional learning model is significantly different ($p=0.025$) towards student's cognitive learning outcomes of 2nd grade students SMA Negeri 3 Jember. ARIAS learning model with portofolioassesment compared with conventional learning model has not significantly different ($p=0.061$) towards student's affective learning outcomes of 2nd grade students SMA Negeri 3 Jember;
- b. ARIAS (Assurance, Relevance, Interest, Assesment, Satisfaction) with portofolioassesment compared with conventiona learning model has significantly different ($p=0.006$) towards student's creative thinking ability of 2nd grade students SMA Negeri 3 Jember.

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