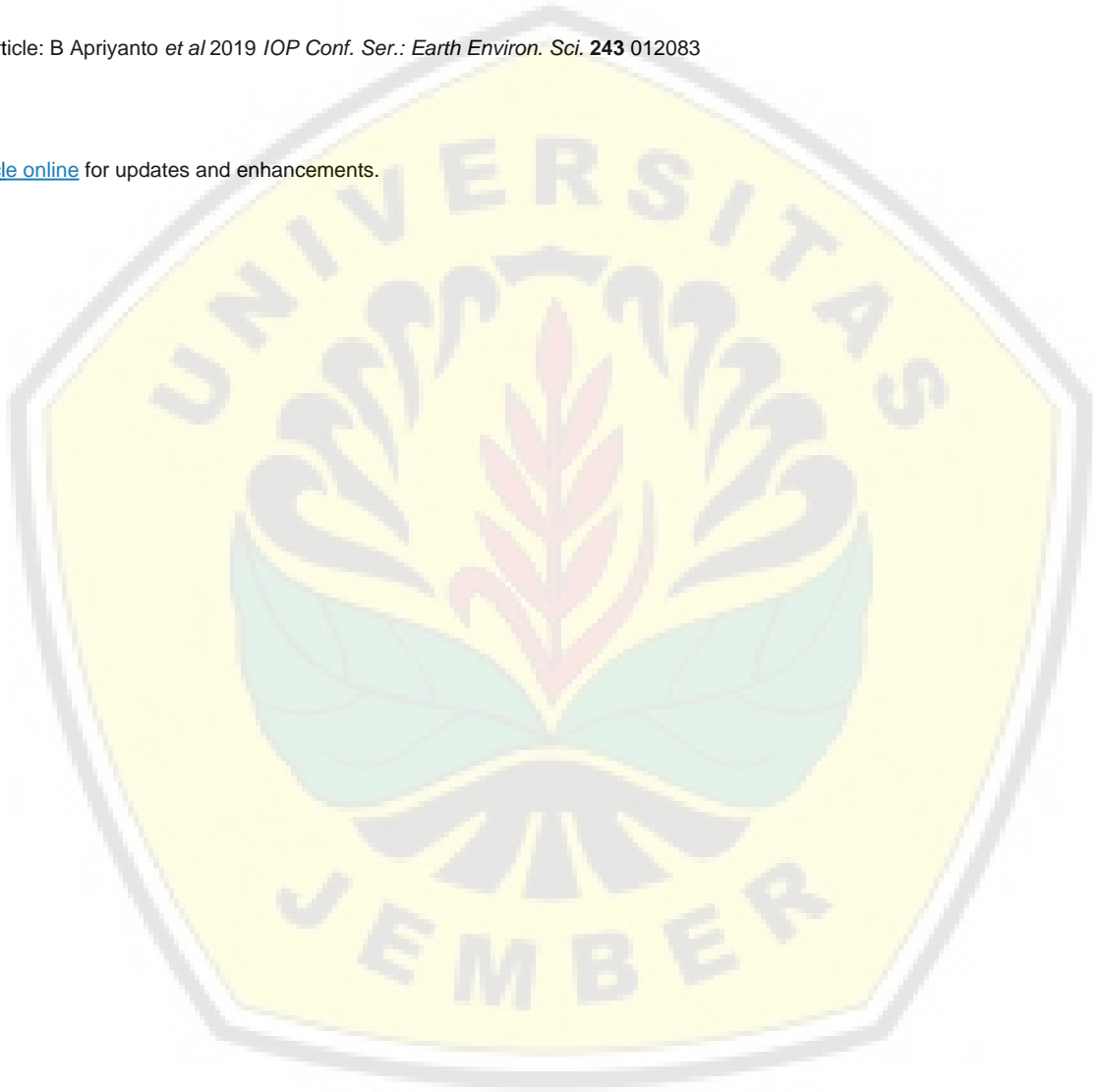


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The influence of interaction aptitude-treatment (ATI) learning models in improving the geography learning achievement of class XI students in Senior High School PGRI Lumajang

BApriyanto^{1*}, F A Ikhsan¹, E A Nurdin¹, F A Kurnianto¹, R P N Puji², M Zulianto³

¹Department of Geography Education, University of Jember, East Java, Indonesia

²Department of History Education, University of Jember, East Java, Indonesia

³Department of Economic Education, University of Jember, East Java, Indonesia

*e-mail: apriyanto.bejo@unej.ac.id

Abstract. This study is a preexperimental study that aims to determine the improvement of geography learning outcomes of class XI Senior high School PGRI LUMAJANG in the 2016/2017 school year taught by using the AptitudeTreatment Interaction learning model. The variable studied in this study is the Aptitude-Treatment Interaction learning model as an independent variable and an increase in learning outcomes as a response variable, while the research design is "pre-test and post-test group". The subjects of this study population were all students of class XI Senior high School PGRI LUMAJANG in the 2016/2017 school year consisting of 156 people. While the sample is 28 people taken using a random class assuming that the class taken is homogeneous. The results of descriptive analysis show that the average increase in geography learning outcomes in class XI of Senior high School PGRI LUMAJANG taught by the ATI learning model in general is 19.63%. In the average high category, the increase was 18.41%, in the average medium group the increase was 16.28% and in the low group the average increase was 25.63%. The results of inferential analysis indicate that there is an increase in Geography learning outcomes in class XI students Senior high School PGRI LUMAJANG in the 2016/2017 academic year taught through learning using the Aptitude-Treatment Interaction (ATI) learning model

1. Introduction

Senior high School PGRI Lumajang is one of the schools that basically has conventional learning, namely teaching in a class with varied lecture methods, the laboratory has sufficient supporting tools, and the experiment has run optimally and the practicum is done at the same time all the material in each semester or every two semester which has experiments available at the Laboratory.

Senior high School PGRI Lumajang basically has students who have different characteristics. This diversity of individuals is the ability to receive subject matter especially physics subjects. Some students assume that physics lessons are a difficult and frightening lesson



Therefore it is necessary to try a learning approach that allows students or students to understand Geography in particular. And one of them is a learning model that pays attention to the individual diversity of students, namely the Aptitude-Treatment interaction (ATI) learning model.

The superiority of this learning model can be found in the principle put forward by Snow in Syafruddin (Nurdin, S.2005: 40) as follows:

First, that a highly structured learning environment is suitable for students who have low abilities. Whereas a less structured (flexible) learning environment is more appropriate for smart students.

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Second, that for students who have a lack of self-confidence or difficulty in adjusting (anxious or inferior), they tend to learn better when they are in a highly structured learning environment. Conversely for students who are not anxious or have high self-confidence (independent), learning will be better in a rather loose (flexible) learning situation.

From the principles stated above, it can be understood that in implementing the ATI approach model, the problem of grouping and regulating the learning environment for each aptitude characteristic of students is a fundamental problem that must receive the attention of education practitioners (teachers).

On the basis of this description, the author is interested in studying it empirically in the form of pre-experimental research in students of Class XI IPS. With the title: Application of Aptitude-Treatment Interaction (ATI) Learning Model to Improve Geography Learning Achievement of Class XI Students of SMA PGRI Lumajang.

With regard to this, the formulation of the problem to be answered in this study are:

Is there an increase in physics learning outcomes of XI IPS students at SMA PGRI Lumajang in the 2016/2017 academic year if taught using the Aptitude-Treatment Interaction (ATI) learning model?

Nature and Definition of the ATI Approach Model

Substantially and theoretically Aptitude-Treatment Interaction (ATI) can be interpreted as a concept / approach that has a number of learning / treatment strategies that are effectively used for certain individuals according to their respective abilities (Nurdin, S. 2005: 37). This means that from the point of view of learning (theoretical), ATI Approach is a concept (model) that contains a number of learning / treatment strategies that are more or less effectively used for certain students according to the characteristics of their abilities. In line with the definition above Cronbach (Nurdin, S. 2005) defines the ATI approach to an approach that seeks and finds treatments that are compatible with differences in student abilities, namely that treatment is optimally effective applied by students with different levels of ability.

Statistically and methodologically, ATI Approach is interpreted as a statistical interaction that is multiplicative (combined) from at least one human variable (independent) and one treatment / treatment variable (independent). In influencing one variable of learning outcomes (dependent).

Snow in the book (Nurdin, S. 2005:) describes the reciprocal relationship between learning outcomes obtained by students with the regulation of learning conditions. This

means that academic achievement of learning outcomes obtained by students is influenced by the conditions of learning developed by the teacher in the class. Thus implicitly means that the more suitable the treatment / learning method applied by the teacher with students' aptitude differences, the more optimal learning outcomes achieved. Based on the meanings stated above, several essential meanings can be obtained from ATI Approach, as follows:

First, ATI Approach is a concept or model that contains a number of learning strategies that are effectively used for certain students according to their aptitude.

Second, as a theoretical framework, ATI Approach assumes that the optimization of academic achievement / learning outcomes will be created if the treatments in learning are adjusted to the students' aptitude.

Third, there is a reciprocal relationship between academic achievement / learning outcomes achieved by students with the regulation of learning conditions in the classroom or within other words, academic achievement / learning outcomes obtained by students (achievement) depends on how the learning conditions developed by the teacher in the class).

From the formulation of the essential understanding and meaning stated above, it appears that ATI Approach essentially aims to create and develop a learning model that truly cares and pays attention to the interrelationship between a person's aptitude and learning experience or typically with learning methods.

2. Methods

This type of research is a pre-experimental research that was held at SMA PGRI Model Lumajang. This research design is a pre-experimental study that uses the design of the Pre-test and Post-test group (Arikunto, S. 2006: 85) as follows: $O_1 \quad X \quad O_2$

Information:

X = Treatment

O_1 = Pretest

O_2 = Posttest

3. Results and Discussion

The results of descriptive statistical analysis are shown in the following chart:

skor	Pretest	Posttest
High score	10	17
Low score	3	8
Mean score	5.86	12.55
Standar Deviasi	2.47	1.61

The results of calculations using the t-test on the real level = 0.05 as a whole obtained $t_{hitung} = 9.32$ in the high group obtained $t_{hitung} = 3.26$, in the medium group obtained $t_{hitung} = 7.70$ in the low group obtained $t = 4.22$. Because t_{hitung} is greater than t_{table} then H_a be accepted.

High groups will receive lessons faster so that if students from these three groups are combined in one class to receive material, the low group will feel inferior and feel depressed as well as the middle group if there is a high group in a room, they always feel they cannot

even though they are actually capable only they are slow to accept material. However, it cannot be denied that the shortcomings that occur in this learning model can also occur, for example in high groups, namely the need for references that allow for self-study (Nurdin, S. 2005).

The results of inferential analysis show that there is an increase in learning outcomes in students if taught by Aptitude-Treatment Interaction learning methods. It can be seen in testing the hypothesis that the research hypothesis is accepted. Likewise, in the estimated interval the average difference is 23 people at a high increase that reaches 58.97%, 9 people at a moderate increase with a percentage of 23.08% and 7 people at a low increase with a percentage of 17.95%.

This gives an indication that learning using the Ati model can provide improved learning outcomes that tend to be adequate in learning by paying attention to individual diversity. In line with the support of opinions from Nurdin, students who have less self-confidence or are difficult to adjust (anxious or inferior), tend to learn better when they are in a structured learning environment. Whereas a learning environment that is less structured (flexible) is more appropriate for students who are clever, but on the other hand in high groups besides independent learning there is a tendency to still need guidance.

Aptitude-Treatment interaction (ATI) learning model influences student learning outcomes allegedly because: first, students are trained to become experts. One of the advantages of Aptitude-Treatment interaction (ATI) learning model is providing greater opportunities and more time for students to master the material that is part of it (Zuhri, 2007). Direct student involvement in learning can improve students' understanding of the subject matter. This happens because in the Aptitude-Treatment interaction (ATI) learning model, students are faced with problems around their residence. Like the problem of environmental damage in Lumajang Regency. In addition, there is individual accountability from each group member when joining expert groups. This influence is allegedly also caused by the Aptitude-Treatment interaction (ATI) learning model students are required to be "experts" on the material that is their responsibility. This can encourage students to strive to fully understand the material. Each student will discuss material related to his assignment in the "expert group" and discuss how to teach it when returning to the original group.

Next, students discuss in groups to come up with ideas through expert groups. In this discussion there is a mental activity of students in the form of taking information, merging it, and rearranging it. The key to the success of discussions in expert groups is that each group member contributes all thoughts to solving problems in a group of experts.

In materials in environmental conservation, students are given more time to find, record, and understand important things and then integrate them with other expert groups. In this study, almost every item used in overall experienced an increase compared to the initial ability. This indicates that with students mastering more material, it will open opportunities for students who have low ability to improve their abilities by learning from other students and students who are highly capable can share knowledge or teach students who are low ability. Ibrahim (2000) argues that "there is a process of mutual cooperation between each student towards group members by providing the information needed to do the test well".

Mastery of material that gives more opportunities for students to interact with full meaning with reading material that is part of it and provide opportunities for students to be responsible for learning and expressing ideas that are understood to other members in their group. What students discuss and teach others causes him to gain understanding and master

the way to learn. In real terms the advantages of Aptitude-Treatment interaction (ATI) learning model applied in geography learning from the results of this study are indicated by learning outcomes that are better than conventional learning.

In this learning, students are given enough time to learn and the teacher as a guide and facilitator provides assistance in accordance with the needs of students. Thus, all students can achieve learning goals. According to Aronson (2012) "learning with an Aptitude-Treatment interaction (ATI) learning model can overcome the weaknesses found in conventional learning". For example, only clever students will achieve the learning goals, while students who are less intelligent only get a portion or not at all.

Second, students learn to explain material to group friends. Hill & Hill (1993) revealed that "one of the benefits of learning with Aptitude-Treatment interaction (ATI) learning models is that students are trained to get used to being able to teach others". In addition to increasing motivation, group work in Aptitude-Treatment interaction (ATI) learning models can increase work enthusiasm and generate higher interest in understanding the views of friends (Lord, in Adnyana, 2004). In this study, students return to the original group to teach the part of the topic that is part of it. Next, students take turns giving explanations and discussing assignments related to material that are the responsibility of group members. This is in line with cognitive elaboration theory that is when information must stay in memory and related to information that already exists in memory, students must be involved in several types of structured activities (Slavin, 1995). One of the most effective ways is to explain the material to others. Learning that really won't happen, without the opportunity to discuss, make questions, practice and even teach others (Silberman, 2001).

The presentation activity requires students who are more capable of helping students who lack understanding of material / material content. Students who are smart and have the ability to understand the contents of the material / material are given the opportunity to use their time by helping students who are less intelligent. This is in accordance with the opinion of Arends (2004) that "cooperative learning is very beneficial for students who have high ability or low ability". High-ability students can become tutors for low-ability students. In this process students with higher academic abilities benefit, because their knowledge can be more profound.

Third, students are active during learning. According to Thahir (1989) in his book entitled *Understanding Active Student Learning (CBSA)* "in a CBSA a learning condition is attempted which involves a number of physical, intellectual, mental, and social abilities of students, so that optimal learning outcomes are obtained". This has relevance in the Aptitude-Treatment interaction (ATI) learning model, students are required to be "experts" on the material that is their responsibility. This can encourage students to strive to fully understand the material. Each student will discuss material related to his assignment in the "expert group" and discuss how to teach it when returning to the original group. The findings of this study support the previous findings by Anwar (2005) which concluded that "learning with Aptitude-Treatment interaction (ATI) learning models of students will have a positive response, can improve better relationships among friends, and lead to self-confidence". This further clarifies that learning with Aptitude-Treatment interaction (ATI) learning models has a significant influence on learning outcomes, even though it is applied to different fields of study and at the class level.

4. Conclusion

Based on the results of research and discussion, it can be concluded that there is an increase in physics learning outcomes of IPS XI grade students of PGRI Lumajang 2016/2017 academic year if taught using the Aptitude-Treatment Interaction (ATI) learning model. Thus the Aptitude-Treatment Interaction (ATI) learning model is a learning model that can be used to improve Geography learning achievement mainly in the low and moderate groups, but there is a tendency for the Aptitude-Treatment Interaction (ATI) learning model to be less suitable for highly capable students.

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