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# The implementation of *aptitude treatment interaction* to increase students' learning activity and achievement in learning of the qur'an hadith in Madrasah Tsanawiyah

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ABSTRACT

This research is a classroom action research that aims to increase student learning activities and achievement in the subjects of the Qur'an Hadith through the *Aptitude Treatment Interaction* (ATI) learning model in class VIII MTs N 6 Sragen. The data collection method used observation sheets for teacher activities, student activities, and tests to determine learning outcomes. This research was conducted in two cycles. The procedure of this research includes four stages: (1) planning, (2) implementing actions, (3) observation, (4) reflection. Data were collected by observing and testing for each cycle after being given treatment through the *Aptitude Treatment Interaction* (ATI) learning model. The data collected were analyzed using quantitative and qualitative analysis. The results of research cycle I and cycle II showed an increase in the student learning activity by 78% and 88%, respectively, and an increase in student achievement by 83% and 98%, respectively. The results of this study indicate that *Aptitude Treatment Interaction* (ATI) can be an alternative problem-solving in the classroom, especially for students who have low achievement in al-Qur'an hadith subjects.



## 1. Introduction

The most important part of education is the learning process. Learning is an educational process in an educational institution. Education is said to be successful if the learning process goes well and produces quality results.(Sugawara et al., 2020) Success in the learning process is also assessed from what students have achieved in learning whether they have achieved the desired goals or not.(De Beer, 2019) Therefore, a teacher needs to take concrete steps to develop a well-organized and balanced learning design.(Serlina & Leonard, 2018) The learning process plays an important role in the world of education with a meaningful and quality learning process so that education can run well.(Kieft et al., 2008) Meaningful learning is fun learning that has the advantage of gathering all information in general so that the result is an increase in student performance.(Najib, 2016) If the student's ability increases, the student's academic achievement will have a positive effect. In addition to the meaning of learning, it must also have quality. Quality learning is the dream of every student.(Desti Widiani, 2021) With quality learning, the class atmosphere becomes fun. To achieve quality learning, various theories and learning strategies have been proposed by education experts.(Hwu et al., 2014)

The Aptitude Treatment Interaction (ATI) learning model can be understood as a model that has many effective learning strategies used to deal with the diversity of abilities of each student.(Suastini, 2018) Aptitude Treatment Interaction (ATI) aims to develop a learning model that cares and pays attention to the relationship between a person's abilities and his learning experience or specifically with his learning method.(Preacher & Sterba, 2019) To achieve this goal, Aptitude Treatment Interaction (ATI) seeks to find and select many approaches, strategies, methods, techniques, and tips that will be used as appropriate treatments, so that in the end it can produce positive results, optimizing learning achievement.(Snow, 1991).

One of the subjects in the syllabus at MTs N 6 Sragen is Al-Qur'an Hadith. If the Aptitude Treatment Interaction (ATI) learning model is to be implemented in these subjects, it must be adapted to the conditions that occur in the field for the effectiveness of this model to be developed. Based on initial observations of the implementation and learning outcomes of the Qur'an Hadith at MTs N 6 Sragen, several problems were found, including; 1) Learning so far still tends to be monotonous and has not been varied with other methods that are more varied, for example, those that pay attention to individual differences of students. This causes low or passive student activity, namely only 34% of active students and 66% of passive students, 2) Learning achievement is still low, this is evidenced by the results of the odd semester test which amounted to 40 students, as many as 22 or about 55% have not succeeded get a score of 6.5 as the Minimum Learning Completeness Standard (SKBM) that has been set.

The researcher also conducted preliminary interviews with several students on the conditions of learning the Qur'an Hadith at MTs N 6 Sragen. The result is that students feel less motivated and bored because teachers teach monotonously and learning is still teacher-centered without involving the abilities of students. The main problem of this phenomenon is the learning model used by the teacher in teaching and learning activities of the Qur'an Hadith which results in the activity and learning achievement of students is still low, so we need a way of learning that is more interesting, one of which is to pay attention to differences individual abilities of students.

Broadly speaking, there are several reasons and considerations why the Aptitude Treatment Interaction (ATI) model wants to be applied in learning the Qur'an Hadith, including: first, because the ATI model emphasizes the adjustment of learning (treatment) with differences in the abilities of students.(Widiani, 2019) Learning is developed based on the characteristics of the ability of each group, namely high, medium and low groups.(Lehmann et al., 2016) Second, the ATI model to be developed has the same consistency as the "multiple intelligence" theories, which is more focused on student development.(Pamungkas & Afriansyah, 2017) Third, the ATI model examines and discusses scientific issues related to human and environmental problems.(Septiana et al., 2021)

The three reasons and considerations mentioned above, from a learning point of view, ATI is a model that contains many learning strategies used for certain students according to the characteristics of their abilities. Based on the assumption that optimization of learning achievement can be achieved through adjustments between learning by taking into account differences in student abilities.(Suzuki & Dekeyser, 2017) On the other hand, learning the Qur'an Hadith has several weaknesses, including learning mater

## 2. Method

This research is classroom action research. This research is structured to solve a problem and make changes that function as improvements.(Syawal et al., 2017) This improvement effort is carried out by carrying out actions to find answers to problems raised from daily activities in the classroom.(Meesuk et al., 2020) This study consisted of two cycles with each cycle consisting of four stages, namely: planning, implementing, observing, and reflecting.(Jaelani et al., 2020) These four stages are carried out in two cycles, each stage of the cycle is based on input from the previous cycle.(Vogelzang & Admiraal, 2017).

The object of this research is class VIII students, totaling 40 people. The data collection technique used in this study is an observation technique that describes the activities of teachers and students, including a material understanding test technique (objective questions), and a questionnaire technique to determine student responses to learning.(Widiani & Jiyanto, 2020).

Before the instrument that will be used in this action research is given to respondents or students, an analysis of the instrument must first be carried out, it is hoped that the instrument used meets the eligibility criteria to be given to students.(Godínez Martínez, 2022) Analysis of the instrument was carried out on two instruments used in this study(Robbi et al., 2020), namely achievement tests and observations of student learning activities.(Prameswari, Sekar Aulia, 2023).

## 3. Findings and Discussion

### 3.1. Learning Achievement Test Instruments

A test is said to be good as a measuring tool if it meets the test requirements, namely having validity, reliability, and objectivity. The validity of this achievement test instrument uses content validity and construct validity (Khasinah, 2013).

1) Item validity

The calculation results rpbis then consulted with rtabel. If rpbis > rtable means that the item is valid, and vice versa if rpbis < rtable means the item is invalid.(Lin et al., 2017) The number of questions as many as 30 obtained rtable as big as 0.35 with db-2 (significance level 0.05%) in the first cycle of the trial test with 23 valid items, 2 invalid items. The recapitulation of the results of the calculation of the validity of these items can be seen in Table 1 below.

Table 1. Validity of Main Items "Laws in Reading Mim Sukun, Lam and Ra"

| No item questions | Total | Criteria |
|---|---|---|
| 1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 20, 21, 22, 23, 24, 25 | 23 | Valid |
| 3, 19 | 2 | Invalid |
| Total | 25 | |

Then in the final test of cycle II, the test instrument was tested with r table of 0.32.

Table 2. Validity of Main Items "Laws in Reading "Madd"

| No item questions | Total | Criteria |
|---|---|---|
| 1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 24, 25 | 22 | Valid |
| 1, 23, 24 | 3 | Invalid |
| Total | 25 | |

The number of items tested was 25 items, while those that met the valid criteria were 22 items, and 3 items were invalid.

2) Question reliability

Based on the results of the analysis of the test questions that have been carried out using the KR-20 formula, it is obtained r11 of 0.92 with very high criteria on the subject "Laws in Reading Mim Sukun, Lam, and Ra". While on the subject "Laws In Reading "Madd" obtained r11 of 0.73 with high criteria. The summary of the reliability of the items in the final test of the first and second cycles can be seen in Table 3 below.

Table 3. Summary of the reliability of the test items at the end of cycles I and II

| No | Cycle Test Trial | $r_{11}$ | $r_{table}$ | Criteria |
|---|---|---|---|---|
| 1 | I | 0.92 | 0.31 | Very high |
| 2 | II | 0.73 | 0.31 | Very high |

3) Power of differing questions

The results of the analysis of the differentiating power of the test subject matter "Laws In Reading Mim Sukun, Lam and Ra" There were 2 bad questions, 2 good questions (8%), 7

good questions (28%), and 14 very good questions (56%). The summary of the data is listed in table 4.

Table 4. Summary of discriminatory power of subject matter "Laws In Reading "Madd"

| No | Criteria | Total | Percentage |
|---|---|---|---|
| 1 | Very bad | 0 | 0 % |
| 2 | Bad | 2 | 8 % |
| 3 | Enough | 2 | 8 % |
| 4 | Good | 7 | 28 % |
| 5 | Very good | 14 | 56 % |
| Total | | 25 | 100 % |

The results of the analysis of the trial test on the subject "Laws In Reading "Madd" obtained 2 items with bad criteria (8%), only 2 items (8%), 20 items with good criteria (80%), while 1 item (4%) with very good criteria.

Table 5. Summary of discriminatory power of subject matter "Laws In Reading "Madd"

| No | Criteria | Total | Percentage |
|---|---|---|---|
| 1 | Very bad | 0 | 0 % |
| 2 | Bad | 2 | 8 % |
| 3 | Enough | 2 | 8% |
| 4 | Good | 20 | 80 % |
| 5 | Very good | 1 | 4 % |
| Total | | 25 | 100 % |

4) Question difficulty level

Based on the results of the trial analysis of the subject matter test "Laws in Reading Mim Sukun, Lam, and Ra", it is known that there are 6 items with difficult criteria (20%), while 19 items (80%) are known. To find out the level of difficulty of each item from the final test instrument in the first cycle, it is summarized in table 6.

Table 6. The level of difficulty of the test items "Laws in Reading Mim Sukun, Lam, and Ra"

| No | Difficulty Level | Number of questions | Criteria | Percentage |
|---|---|---|---|---|
| 1 | $0.00 < IK \leq 0.30$ | 6 | Difficult | 20 % |
| 2 | $0.30 < IK \leq 0.70$ | 25 | Medium | 80 % |
| 3 | $0.70 < IK \leq 1.00$ | 0 | Easy | 0 % |
| Total | | 25 | - | 100 % |

Subject "Laws In Reading "Madd", the criteria for the items after being tested there are 3 items that are difficult, and 22 moderate items. As summarized in table 7.

Table 7. The level of difficulty of the final test items in the first cycle "Laws In Reading "Madd"

| No | Difficulty Level | Number of questions | Criteria | Percentage |
|---|---|---|---|---|
| 1 | $0.00 < IK \leq 0.30$ | 3 | Difficult | 20 % |
| 2 | $0.30 < IK \leq 0.70$ | 22 | Medium | 80 % |
| 3 | $0.70 < IK \leq 1.00$ | 0 | Easy | 0 % |
| Jumlah | | 25 | - | 100 % |

After the test instrument has been tested in the class mentioned above, then with the feasibility and analytical considerations in the form of validity, the reliability of the question can be used as an evaluation tool for the implementation of the cycle (Meesuk et al., 2020).

### 3.2. Learning Activity Obsercvation Instruments

The preparation of the instrument for student learning activities in this study was designed by researchers and collaborative partner teachers. The instruments compiled must meet the aspects of student learning activities in the ATI model as an applied learning model (Tanduklangi et al., 2019) The aspects of the activity in this research are:

Table 8. Learning Activity Observation Instruments

| No | Learning activity |
|---|---|
| 1 | Answering/responding to the teacher's questions |
| 2 | Listening to the teacher's description of the learning objectives |
| 3 | Focusing on the activities the teacher does |
| 4 | Take notes in a notebook |
| 5 | Listen and pay attention to the examples given by the teacher |
| 6 | Doing assignments, such as worksheets, looking for study materials, etc. |
| 7 | Pay attention to the instructions given by the teacher |
| 8 | Actively discuss and help friends |
| 9 | Asking about material that you don't understand |
| 10 | Summarizing the material with the teacher |

### 3.3. Results of Cycle I

Cycle I was held twice face-to-face or meetings, each still discussing the same topic, namely the main topic “Laws In Reading mim sukun, lam and ra”.

From the implementation of the activities at the end of the cycle, student achievement results were also obtained, which showed a significant increase, namely the average classical and individual student learning outcomes. The comparison of the increase in student achievement obtained from the implementation of the end of the cycle I test is summarized in the following table.

Table 9. Improving Learning Achievement Cycle I

| Description | Preliminary Data | Cycle I |
|---|---|---|
| The highest score | 85 | 90 |
| Lowest score | 55 | 60 |
| Average score | 64.5 | 72.22 |
| Total Pass | 18 | 33 |
| Number of not pass | 22 | 7 |
| Classic pass (%) | 45% | 82.5% |
| Not pass (%) | 55% | 17.5% |
| The number of students | 40 | 40 |

Based on the data in table 9. above, the student's learning achievement of the Qur'an Hadith in the first cycle has increased. The increase consists of an increase in the percentage of mastery learning both classically and individually. Classically, the increase in the percentage of student learning completeness is 37%, from the initial data 45% to 82%. Meanwhile, students who did not complete their studies decreased by 37.5%. And for students who have not been completely assigned assignments, remedial the parts of the lesson that have not been mastered until they reach the targeted value. The number of students who must experience the remedial as many as 7 students.

Based on the table above, the increase in student achievement has increased. However, from the classical learning completeness data, student learning achievement has not reached 85% of all students or has not reached the graduation limit, which is 85% of the total number of students as many as 40 people in the class that are subject to action.

At the end of the lesson, all students gather in the classroom to conclude the subject matter, and do the post-test (end test of the cycle I). in the activity which lasted no more than 30 minutes, all

students looked active and enthusiastic about the Al-Qur'an Hadith subject, when compared to before the application of the ATI model. This increase can be seen from the magnitude of the increase in their learning activities and achievements. Data about the learning activities of the Qur'an Hadith students of class VIII, as listed in the following table.

Table 10. Student Learning Activities Cycle I

| No | Observed aspects | Score I | Score II | Average |
|---|---|---|---|---|
| 1 | Answering/responding to the teacher's questions | 3 | 4 | 3.5 |
| 2 | Listening to the teacher's description of the learning objectives | 4 | 4 | 4 |
| 3 | Focusing on the activities the teacher does | 3 | 4 | 4 |
| 4 | Take notes in a notebook | 5 | 5 | 5 |
| 5 | Listen and pay attention to the examples given by the teacher | 3 | 4 | 4 |
| 6 | Doing assignments, such as worksheets, looking for study materials, etc. | 5 | 5 | 5 |
| 7 | Pay attention to the instructions given by the teacher | 4 | 4 | 4 |
| 8 | Actively discuss and help friends | 4 | 4 | 4 |
| 9 | Asking about material that you don't understand | 3 | 4 | 3.5 |
| 10 | Summarizing the material with the teacher | 3 | 3 | 3 |
| | Total score | 37 | 41 | 40 |
| | % overall activity | 74% | 82% | 78% |

Based on table 10 above, most of the students began to look active in participating in learning the Qur'an Hadith on the subject “Laws In Reading mim sukun, lam, and ra”. Overall learning activities in the first cycle showed an average percentage of 78%, namely at the first meeting the student learning activities were 74%, the second meeting was 82%.

### 3.4. Results of Cycle II

The results of the end of the cycle II test showed a very significant increase. The summary of the final test scores for the second cycle can be seen in Table 11 below.

Table 11. Improving Learning Achievement Cycle II

| Description | Cycle I | Cycle II |
|---|---|---|
| The highest score | 90 | 90 |
| Lowest score | 60 | 64 |
| Average score | 72.22 | 77.88 |
| Total Pass | 33 | 39 |
| Number of not pass | 7 | 1 |
| Classic pass (%) | 82.5% | 98% |
| Not pass (%) | 17.5% | 2% |
| The number of students | 40 | 40 |

Based on the data in table 11 above, student learning mastery individually and classically has increased. The increase in classical learning completeness in cycle II from cycle I was 15.5%. And students who did not complete experienced a decrease in cycle II by 14.5%.

Based on the observations that have been made, in the second cycle, it was found that there were changes and increases in student learning activities. In general, changes and improvements in student

learning activities were seen after the development of the ATI learning model, in the early stages of learning, among others, increased student responses in answering questions posed by the teacher. Then the students' attention was focused on the lesson, because on the teacher's side there were also changes and improvements in terms of presenting interesting activities at the beginning of learning, concentrating on listening to the teacher's explanation of the learning objectives.

The recapitulation of cycle II learning activities is as summarized in table 12 below.

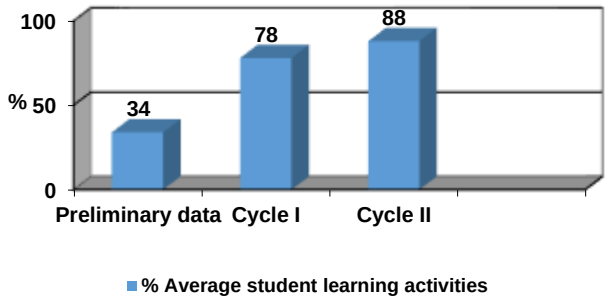
Table 12. Recapitulation of student learning activities in cycle II

| No | Observed aspects | Score I | Score II | Average |
|---|---|---|---|---|
| 1 | Answering/responding to the teacher's questions | 4 | 4 | 4 |
| 2 | Listening to the teacher's description of the learning objectives | 4 | 5 | 4.5 |
| 3 | Focusing on the activities the teacher does | 5 | 5 | 5 |
| 4 | Take notes in a notebook | 4 | 5 | 4.5 |
| 5 | Listen and pay attention to the examples given by the teacher | 3 | 3 | 3 |
| 6 | Doing assignments, such as worksheets, looking for study materials, etc. | 4 | 4 | 4 |
| 7 | Pay attention to the instructions given by the teacher | 5 | 5 | 5 |
| 8 | Actively discuss and help friends | 5 | 5 | 5 |
| 9 | Asking about material that you don't understand | 4 | 4 | 4 |
| 10 | Summarizing the material with the teacher | 5 | 5 | 5 |
| | Total Score | 42 | 45 | 44 |
| | Maximum score | 50 | 50 | 50 |
| | Percentage | 84% | 90% | 88% |

Based on table 12 above, the average percentage of student learning activities in cycle II is 88%. Or an increase of 10% from the first cycle (78%).

The diagram of increasing student activity in learning using the *Aptitude Treatment Interaction* learning model can be visualized in the following image.

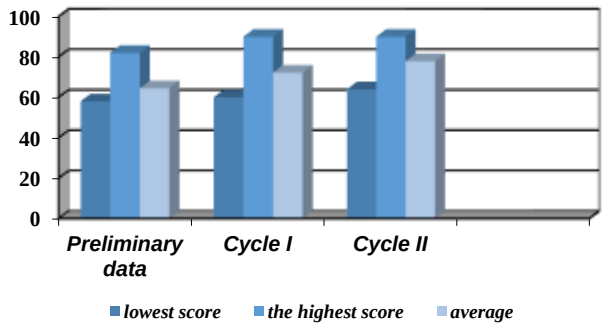
Figure 1. Diagram of increasing student activity




The improvement of students' learning achievement of al-Qur'an Hadith from the initial data, cycle I and cycle II includes; the overall score achieved by students (mean) in the first cycle increased by 7.73 from the initial data of the initial average of 64.5 to 72.23. Then the second cycle increased by 5.65 from the first cycle 72.23 to 77.88 in the second cycle. Meanwhile, the increase in cycle II from the initial data was 13.38 from 64.50 to 77.88. The average increase in student achievement per

cycle indicates the effectiveness of the learning model being developed. The results of changes and improvements in student achievement can be seen in the picture/diagram below.

Figure 2. Increase in Student Achievement

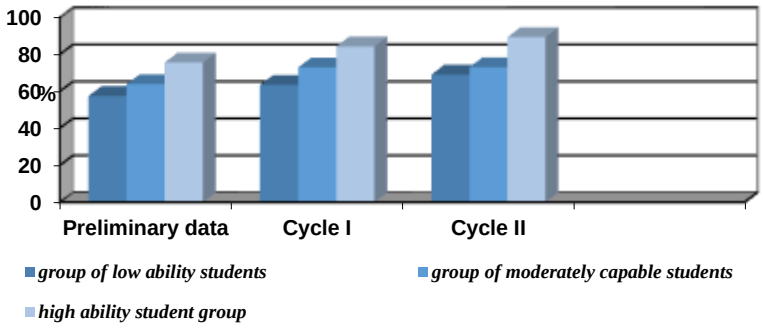



Based on the results of the final test of the first cycle, it is known that the number of students who experience learning mastery is 82.23%, the results show an increase from 45% before being given action, so that the increase in student achievement from and after being given the action increased by 38%, from a total of 40 students. In the first cycle, 33 students experienced complete learning with an average value of 72.23, so the value was much greater than before the application of the learning model, which only obtained an average score of 64.5.

Then the changes and improvements in each group (high, medium, and low groups), which were obtained from the increase in the average score of each group of students in each cycle were:

1) The group of students with low ability, in the first cycle, experienced a successive increase; 57.44 (initial data); 63.44 (cycle I), and; 69.06 (in cycle II).
2) The group of moderately capable students experienced an increase from the initial data of 63.84 to 72.85 in the first cycle, while in the second cycle the average score was 73.00.
3) The group of students with high abilities also experienced an increase. The mean value of this group from the initial data respectively is 75.54 (initial data); 84.27 (cycle I) and; 89.27 (in cycle II). The increase in learning achievement for each cycle can be visualized in the following figure.

Figure 3. Comparison of learning achievement (low, medium, and high groups)




The increase in student achievement in terms of each group showed that the ATI learning model applied to each group with different actions brought satisfactory results.

This is a characteristic of giving the ATI learning model treatment that is by its form, so the success of the treatment modification (*treatment*) further strengthens the views and opinions that state the need to pay attention to the principle of individuality in learning, namely adapting lessons to students' differences. As stated by Nasution: "*especially for children who are less intelligent, less quick to understand, less good at remembering; (1) teaching should be more concrete, lots of hands-on experience, lots of teaching aids; (2) a lot of repetition but an understanding is sought first; (3) varied, distraction, motivation, because their attention is less long; also sufficient physical activity*".(Smith & Sechrest, 1991).

In addition, the modifications made to the low-ability group in this action research also emphasize the motivational aspect, namely the encouragement given continuously to students so that they can improve their understanding of the lesson and in turn are expected to increase their activities and be able to optimize learning achievement. They must be guided, directed, and motivated in learning, then they can understand and understand.

As stated by Nurdin(Yeh & Lin, 2015), generalizing learning for all groups of abilities (*aptitude*) of students, feels unfair and can be seen as something that violates the principles of democracy in education. Because each ability group has different characteristics, especially in terms of ability (*aptitude*), which should receive different learning services according to their respective characteristics.(Maskur et al., 2020) Separating them absolutely into three different classes, namely the class of children who are smart, medium, and low, is feared to have an unfavorable psychological impact on students and parents.(Lehmann et al., 2016).

It seems that the best effort to deal with real conditions like this is through the provision of adaptive learning services, namely learning suitable services and by each of the characteristics of the student's abilities. As suggested by Cronbach, *"adaption by altering instructional methods teach different pupils with different methods*".(Allen, 2016) The suggestion above is supported by Beard and Hartley by stating that to overcome the problem of individual student differences in learning in the classroom, it can be done through…" *Matching teaching methods to a different group of student"*.(Beard & Hartley, 1984) Therefore, every professional teacher will always try to develop learning according to the needs of each student, one of which is what researchers and partner teachers have done for the students of MTs N 6 Sragen, especially class VIII.

## 4. Conclusion

The learning model plays an important role in a meaningful and quality learning process. The success of the learning process can be seen from the learning achievement activities of students. Optimizing learning achievement can be achieved through adjustments between learning by taking into account the differences in the abilities of students. The Aptitude Treatment Interaction (ATI) model emphasizes the adjustment of learning (treatment) with different abilities of students. Learning is developed based on the characteristics of the ability of each group, namely the high, medium, and low groups. The application of the Aptitude Treatment Interaction (ATI) learning model in al-Qur'an Hadith subjects at MTs N 6 Sragen was able to increase student learning activities. The percentage of student learning activities in cycle I and cycle II, respectively; 78% and 88%. Likewise, with student learning achievement there is an increase. This can be seen from the percentage of classical student learning completeness in the first cycle of 83%. While in cycle II, the percentage of classical student learning completeness is 98%. The results of this study indicate that Aptitude Treatment Interaction (ATI) can be an alternative problem-solving in the classroom, especially for students who have low achievement in al-Qur'an hadith subjects.

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