Application of the Team Assisted Individualization (TAI) Learning Model in Improving Understanding of Mathematical Concepts

Mia Misastri[1], Ricky Purnama Wirayuda[2], Syarbaini[3]
[1]Mathematics Education Study Program, Universitas Jambi, Jambi, Indonesia
[2,3]Al-Hidayah Kebon IX Islamic Foundation, Jambi, Indonesia

Article Info

ABSTRACT

Purpose of the study: Research This done with objective For analyze understanding draft mathematics competence number with using the Learning Model Team Assisted Individualization (TAI) for students class IV Madrasah Ibtidaiyah Al-Hidayah Kebon IX Muaro Jambi.

Methodology: Deep data study This in the form of quantitative and qualitative data which is analyzed in a manner descriptive and data obtained through stages observation as much as 2 cycles with sample as many as 18 students.

Main Findings: After done 2 cycles obtained happen enhancement understanding draft improved mathematic using learning models Team Assisted Individualization (TAI). enhancement results from understanding draft mathematics competence number student by 26.73%.

Novelty/Originality of this study: Updating from study This is related research with enhancement understanding draft mathematics competence number with using the Learning Model The previous Team Assisted Individualization (TAI).

Corresponding Author:
Ricky Purnama Wirayuda,
Al-Hidayah Kebon IX Islamic Foundation, Jambi, 36363, Indonesia,
Email: pwricky27@gmail.com

1. INTRODUCTION

Education is a process of deliberate activity For obtain useful results [1], [2], and have role important in development and realization self individual [3], [4]. Education refers to effort enhancement quality source Power man For create more human educated and caring to environment surrounding Growth quality life man seen from growth quality education [5]. In education given guidance by educators to growth child educate For show his life [6][7]. Education is also thing that is n't can separated from life human. Education can made as reject measuring For progress nation. Advanced nation that has source Power good quality human from spiritual aspect, intelligence and skills [8], [9]. One way you can done For reach objective the is continuous updates continuously in field education , in particular mathematics

Learning objectives mathematics in education is for participants educate own ability understand draft mathematics [10], [11]. Participant educate must capable control concepts For solve problems encountered and mastery draft is base for application draft mathematics at the level next [12], [13]. Based on Permendiknas No. 22 of 2006," Purpose learning mathematics in schools for participants educate own ability For understand draft math, explained linkages between concept and apply draft in a manner flexible, accurate, efficient, and precise in solving problem".

For form ability understanding concept, a teacher is required For prepare learning that can help increase ability understanding draft especially in learning math. Where is understanding draft really important in learning math. According to [14], [15] "understanding draft is ability participant students in the form mastery a number

material lesson, however capable disclose return in another easy form understandable, give data interpretation and ability apply suitable concept with structure cognitive he has.

Based on study preamble that has researcher do at Madrasah Ibridaiyah Al-Hidayah, researcher find a number of problem among them that is, ability state repeat A draft count, at the moment learning lasts teacher only give example on the board write Then participant instructed to teach attention and participants instructed to teach do exercises in the book package, participants educate fast forget about learning Because learning No meaning that is participant educate only memorize concept and no understand, and participants educate No Can reveal return what have put forward by the teacher.

From the description of the class teacher, in the learning process math, participant teach in class the Still difficult For understand draft mathematics taught by the teacher as well Still Lots participant students who haven't Can answer question given with right. Then researcher do interview with participant educate class IV, researcher get that data participant teach in class the bored with the learning process, the teacher only use method lecture. understanding participant educate to learned concept not enough deep, because the teacher only focus on method lecture without request participant educate For put forward the idea about learned concept. So that not enough give chance to participant educate find Alone the concept For develop ability think in solve something problem mathematics.

Based on above problems, appropriate action. For handle problem lack of understanding draft mathematics participant educate is with learning models cooperative learning type Team Assisted Individualization (TAI). Learning Models Team Assisted Individualization (TAI) is one of the learning models that can enable participant educated [16], [17]. According to Maison et al. [8], argued "Team Assisted Individualization (TAI) is one type of learning model communicating cooperative superiority learning group and individual learning". So, the learning model Team Assisted Individualization (TAI) is a learning model priority group gift help individually.

Learning cooperative type Team Assisted Individualization (TAI) is also suitable For overcome problem learning mathematics [18]. Besides collaborating in groups, on the learning model Team Assisted Individualization (TAI) is also inserted learning in a manner individual. Moreover another learning model cooperative learning can build atmosphere earnestness involved good between participant educate nor with the teacher so expected understanding draft mathematics participant educate increase. Besides that learning with the *Team Assisted Individualization (TAI) model* is also capable strengthen peace draft mathematics in students in accordance with research conducted [19]. According to research Pratiwi, [16] The Team Assisted Individualization (TAI) Learning Model has an effect to understanding concepts and skills generic science student. Based on problem on so researcher interested For do masterful research. For analyze understanding draft mathematics competence number with using the Learning Model Team Assisted Individualization (TAI).

2. RESEARCH METHOD

The method of implementing this training uses an action research approach. Creswell mentioning *action research are systematic procedures done by teachers to gather information about, and afterward improve, the way their particular educational setting operate, their teaching, and their student learning* [20]. action research is take action based on research and examine the actions taken [21], [22]. Steps in this action research includes action planning, action implementation, observation, and reflection [23].

The type of research data is in the form of qualitative and quantitative data. The data is data on the process of applying the Team Assisted Individualization (TAI) learning model in the form of qualitative data. Reports on student learning outcomes specifically on the cognitive aspects of students' concept understanding abilities are processed with quantitative data and test results are carried out at the end of each learning cycle. This research carried out at the Al-Hidayah Kebon IX Islamic Foundation, to be precise at Madrasah Ibtidaiyah Al-Hidayah, the population in study This is students of Madrasah Ibtidaiyah Al-Hidayah. Determination sample in study This using purposive *sampling technique* that is with criteria student has or currently learn material competence number so that sample in study This that is student class IV and Teacher on process learning in class IV Madrasah Ibtidaiyah Al-Hidayah Kebon IX Muaro Jambi.

Data used in study This using qualitative and quantitative data, where qualitative data obtained through reserve and also interview. Data collection techniques used in study This through observation. Observations made is observation implementation of the learning process, and observation understanding draft mathematics participant educate. Interview is a dialogue of 2 people with objective For get something information. Interview technique in study This done between researcher with participant educate For tell problem during the activity process learning learning and getting data about problem participant educate in learning application of learning models Team Assisted Individualization (TAI). Interview used For strengthen and validate the results data observation. While quantitative data obtained use test. The test used For collect data ie For measure how far the participants educate experience change results Study before and after take action specifically from aspect cognitive understanding participant educate the eyes lesson mathematics.

3. RESULTS AND DISCUSSION

3.1 Results

Research has been carried out on learning mathematics on rounding material in basic competence (KD) 3.7 explaining and rounding and measuring length to the nearest unit and 4.7 solving the problem of rounding the results of measuring length and weight to the nearest unit. Researchers carry out according to the stages of planning, implementation of action, observation, and reflection. The results of the research were taken from the results of observations of teacher activities which were analyzed qualitatively, as well as the results of observations of teacher activities which were analyzed qualitatively, as well as the results of observations of student activities and the results of testing understanding of mathematical concepts were analyzed quantitatively and qualitatively.

Based on pre-cycle learning outcomes, in Cycle I with competence basic (KD) 3.7 explain and do rounding and measuring long to unit closest Indicator learning that is explain and do rounding results measurement long and heavy to units, tens, or hundreds closest. Cycle use four stages that is planning, implementation action, observation, and reflection. Reflection results this made base for determine action cycle improvements next.

Observation results, from the 18 aspects observed There are 17 aspects implemented. Researcher see the teacher has carry out the learning process with in accordance learning model steps Team Assisted Individualization (TAI) according to Fathurrohman, [24] activities that are not done ie teacher still not enough give apperception preparation participant educate in follow learning, and less teachers push participant educate for gather information from activity medium group going on. Observation results This show that the teacher has carry out in accordance with learning models Team Assisted Individualization (TAI)[24].

Observation results to participants educate using 4 indicators, indicators First indicator ability state repeat A concept on the descriptor participant educate can write draft rounding with right. In cycle I participants educate Already experience enhancement in write draft count rounding with right. On indicators classify objects based on concept on the descriptor participant educate can group draft rounding use Language they Alone with fast and precise. Participant educate Already experience enhancement in group draft rounding use Language Alone with fast and even still Not yet right. And on the indicators give example or counter example from concepts learned on the descriptor participant educate can answer with Correct about statement draft rounding. There is still 1 participant students who haven't can answer with Correct about statement draft rounding namely DFL. While on the indicators serve draft in various representation on the decryptor that is descriptor participant educate can make questions/conclusions about understanding draft rounding. In cycle I still there were 8 participants students who haven't can make questions/conclusions about understanding draft rounding namely AF, BWP, DFL, FK, MEA, NSR, NF, VWP. In cycle I participants educate Already capable answer question although Still No clear and coy and a lot his voice No clear.

In cycle 1 it was also carried out testing understanding draft participant educate. Based on results test understanding draft participant students in cycle I are visible with percentage results test understanding draft mathematics in a manner classic cycle I was 73% with predicated enough (C) and still need For improved again on cycle next. Test results understanding draft mathematics participant educate cycle I proved Not yet reach criteria expected completeness, because percentage in a manner classic is 73% with predicated enough (C).

Cycle II with competence basic (KD) 4.7 complete problem rounding results measurement long and heavy to unit closest. Indicator learning that is finish problem rounding results measurement long and heavy unity closest. Cycle it also uses four stages that is planning, implementation action, observation, and reflection. The results in cycle II show that the teacher has carry out in accordance with steps model learning team assisted Individualization (TAI). Next on observation activity participant students in cycle II obtained results on indicators ability state repeat A concept on the descriptor participant educate can write draft rounding with right. In cycle II, participants educate Already experience enhancement in write draft count rounding with right.

Observation results on indicators classify objects based on concept on the descriptor participant educate can group draft rounding use Language they Alone with fast and precise. In cycle II, participants educate experience improvements to the descriptor group draft rounding use Language they Alone with fast and precise. On indicators give example or counter example from concepts learned on the descriptor participant educate can answer with Correct about statement draft rounding. In cycle II, participants educate Already experience enhancement in answer with Correct about statement draft rounding. As well as on indicators serve draft in various representation on the decryptor that is descriptor participant educate can make questions/conclusions about understanding draft rounding. In cycle II, participants educate Already Can make questions/conclusions about understanding draft rounder from even found already clear and no coy and precise.

Next results test understanding draft mathematics participant students in cycle II. researcher can conclude that No There is participant students belonging to the predicate not enough once, less, and enough. Then, 5 participants students who are in the predicate good, namely BWP, DFL, FK, MRA, RPD and 13 participants students who are in the predicate really, namely AF, AU, ASF, JA, KNA, KFI, KN, MA, MSB, MEA, NSR, NF and VWP.

Based on results observation activity participant learn (understanding draft mathematics) cycles I and II were obtained results that participant successful learner reach criteria completeness in cycle I totaled 18 participants educate as well as Cycle II totaled 18 participants educate. Percentage in a manner classic cycles I and II, namely 60.35% and 87.08% respectively. Comparison results observation activity participant learn (understanding draft math) inter cycle can seen in the picture following:
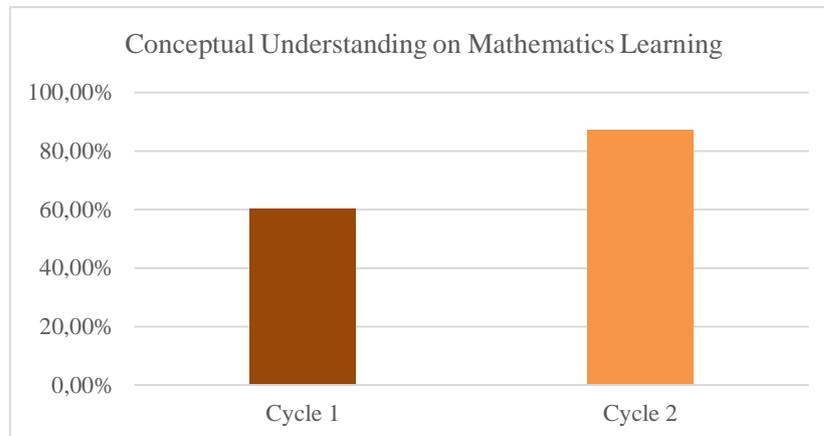

Figure 4.1 Comparison Percentage understanding Draft Between Cycle

The results of testing students' understanding of concepts in cycle I can be seen that there is an increase compared to before the Team Assisted Individualization (TAI) learning model was applied. The percentage classically increased from 46.11% in pre-cycle to 73% in cycle I. However, cycle I did not meet the established success indicator criteria, namely ≥75%. Test results understanding draft mathematics participant students in cycle II increased to 88%. Results data Study participant educate can presented in Figure 4.2 below this :
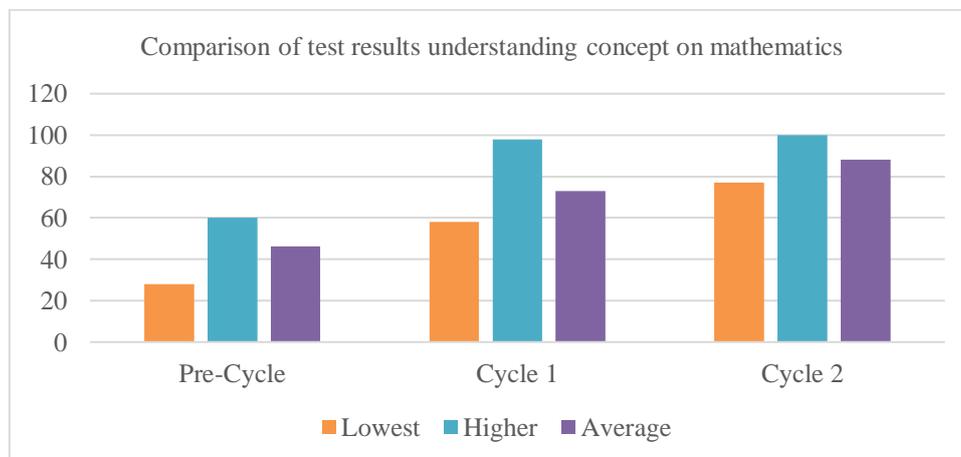

Figure 4.2 Comparison of Test Results understanding draft Mathematics Students in Pre-cycle, Cycle I and Cycle II

From the data above can concluded that , between mark participant students during the pretest, cycle I and cycle II. Grade point average at the time test understanding draft math before apply the model ie of 46.11 while in the first cycle that is by 73 and at the moment Cycle II already experience enhancement namely 88. The results of research in cycle II have fulfil criteria success study that is minimum grade point average of 65. In addition, the actions taken in the learning process Already seen exists repair. Completeness classical obtained on the cycle second by 88%. This show that Cycle II already meet the desired target achieved with a completeness target classic by 75%. So that No next to cycle next.

3.2. Discussion

The research results obtained, that the use of the *Team Assisted Individualization (TAI) learning model* in increasing understanding of mathematical concepts went well and the obstacles or problems found during the learning process could be corrected in the next cycle and finally achieved the expected success criteria. This is according to Aunurrahman, [25] which states "Team Assisted Individualization (TAI) learning model can

increase understanding concept". Improvement efforts understanding draft mathematics participant educate done in 4 stages namely: planning, implementation, observation, and reflection.

At stage planning every cycle from cycle I to cycle II the first thing done researchers and teachers collaborate determine timetable implementation research, then prepare teaching materials such as materials, preparing Handouts, Plans Implementation Learning, Worksheet Students and prepare appropriate learning media. After that no forget researchers prepare sheet observation understanding draft participant students and also sheets observation implementation of the RPP. At stage observation done For know is There is enhancement understanding draft mathematics participant educate every time it is done cycle. For know enhancement understanding draft participant educate seen from results Study understanding draft participant educate in accordance with existing indicators. Besides that observations made for see implementation of the RPP with method fill in sheet observations that have provided before carry out action.

In using the learning model Team Assisted Individualization (TAI), the teacher must more Good Again in apply the steps so that the indicators are observed can reached [26], [27]. Participant educate shared become group small group of 4-5 people. Then distribution handouts and LKPD for each participant educate. Then participant educate notice teacher's explanation short tree material to be discussed at the meeting it's by the teacher. Teacher asks participant educate Study in a manner individual material contained in the handout and work on it the questions contained in the LKPD. After That participant educate discuss about material and correct LKPD answers with Friend One group.

According to Nurhasanah [28] "knowledge or understanding student That discovered , formed , and developed by students that myself". After That participant educate present results the discussion to front class and teacher gave chance to participant educate for give response. The last step that is conclude results discussion. Evaluation to the way discussion and refinement answer participant taught by the teacher. After That implementation results test understanding draft mathematics end and participants educate do it in a manner individuals and announcements score each group during cycle as well as application and delivery award for super group, group great, and group ok.

Based on study from Cycle I and Cycle II were carried out researcher happen enhancement understanding draft improved math using learning models Team Assisted Individualization (TAI). In cycle I results observation about understanding draft mathematics that is of 60.35%. In this first cycle, still There is lack of observation teacher activities and activities participant educate using learning models Team Assisted Individualization (TAI) that is, less teachers give apperception preparation participant educate, no convey objective learning and less motivating participant educate . Constraints found participant educate A little difficult arranged and often scrambled inside learn . In cycle II results observation about understanding draft mathematics that is of, 87.08%. In this second cycle results observation and results Study participant educate has exceed criteria success, so cycle can terminated. In cycle II with results observation to teacher activity using the learning model Team Assisted Individualization (TAI) already done .

Percentage achievements action from results observation cycle I to cycle II has experience improvement in understanding draft mathematics participant educate. Study results participant educate categorized as complete individually achieve value ≥ 65 as many as 18 people and results Study participant educate said complete in a manner classic if reach $\geq 75\%$ of amount participant educate. Based on results observation and results test understanding draft math, then can concluded that understanding draft mathematics can increase with using learning models Team Assisted Individualization (TAI) [29]-[31].

Refer to results research conducted previously from a number of research that has performed by [32] application of learning models cooperative Team Assisted Individualization (TAI) type can increase results Study eye student lesson mathematics material congruence and symmetry in class V SDN Sukarajakulon I District Jatiwangi Regency Majalengka Year Teaching 2015/2016. Learning that with learning models cooperative Teams Assisted Individualization (TAI) can increase social student interaction [34]. Researcher do study to students to be able increase understanding draft through learning models cooperative Team Assisted Individualization type. Excess learning cooperative type of Team Assisted Individualization (TAI) applied learning student-centered groups and tutoring between group.

Study This offer recommendation including: learning models cooperative type team-assisted individualization (TAI) to be alternative for internal teachers carry out learning at school, in particular For enhancement mathematics Skills solving problems and communications, included ability self for student. TAI Embedded learning model in group small consisting from heterogeneous members, encouraging student For involved active in activity learning. Obstacles faced during this implementation overcome with assign student For learn material especially formerly in accordance to the planned teaching program unit in a manner independent Because comprehensive understanding simplify and speed up settlement problem in time short. Especially this learning method expected can become trigger For form construction think future students in solving problem, communication, and ability self For face other people aspects life.

4.   CONCLUSION

Based on study from Cycle I and Cycle II were carried out researcher can concluded there is enhancement understanding draft improved math using learning models Team Assisted Individualization (TAI). In cycle I results observation about understanding draft mathematics that is of 60.35%. In cycle II results observation about understanding draft mathematics that is of, 87.08%. In this second cycle results observation and results Study participant educate has exceed criteria success, so cycle can terminated. In cycle II results observation to teacher activity using the learning model Team Assisted Individualization (TAI) already done. This prove that learning model Team Assisted Individualization (TAI) can increase understanding draft participant educate.

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