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Analysis of Flipped Classroom Learning with a Scientific Approach to Students' Mathematical Problem Solving Ability in View of Self Efficacy

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ABSTRACT

Opportunity is material at the junior high school level that is easy to relate to the problems of everyday life. Even so, there are still findings that show students' difficulties and errors in solving opportunity problems. Students' disbelief in their ability to solve problems is thought to be an obstacle for students, besides that the learning model and approaches implemented in schools are one of the factors in improving students' problem-solving abilities. However, further research is needed to prove it. This study aims to analyze the effectiveness of flipped classroom learning with a scientific approach in terms of student self-efficacy, as well as to describe students' mathematical problem-solving abilities on opportunity material in terms of students' self-efficacy in solving problems. The research subjects were class VIII students of SMP IT Insan Cendekia Semarang. The results of the study show that flipped classroom learning with a scientific approach is proven to be effective in improving students' problem-solving abilities. In addition, the level of self-efficacy of students also shows that students who are in the category of higher self-efficacy tend to have better problem-solving skills. This result is proven by The results of the study show that flipped classroom learning with a scientific approach is proven to be effective in improving students' problem solving abilities. In addition, the level of self-efficacy of students also shows that students who are in the category of higher self-efficacy tend to have better problem-solving skills. This result is proven by the results of the study show that flipped classroom learning with a scientific approach is proven to be effective in improving students' problem-solving abilities. In addition, the level of self-efficacy of students also shows that students who are in the category of higher self-efficacy tend to have better problem-solving abilities. This result proven that there is an influence between students' self-efficacy on the mathematical problem-solving abilities of students who are taught using the flipped classroom learning model with a scientific approach. So, in other words, self-efficacy has a positive effect on students' problem-solving abilities.

Keywords: problem solving ability, flipped classroom, self-efficacy, scientific approach

INTRODUCTION

Education is essentially a process to prepare humans to survive in their environment.[1] Education is said to be successful if positive changes occur in students both in terms of knowledge, abilities, behavior, and attitudes that can be used in social life through the teaching and learning process at school.[2] According to the National Council of Teachers of Mathematics (NCTM) there are five mathematical abilities that students must have, namely problem solving skills, reasoning skills, communication skills, and the ability to make connections, and the ability to representation.[3] Problem solving abilities have become an important issue in mathematics education and should be a focus in learning mathematics in schools, as well as many mathematical abilities that also intersect in problem solving. [4, 5] This is in

line with one of the Regulations of the Minister of National Education (Permendiknas) Number 22 of 2006 regarding the objectives of learning mathematics, which states that problem solving abilities include the ability to understand problems, design mathematical models, complete models, and interpret the solutions obtained.[6]

However, it turns out that a large number of students have not acquired the basic skills needed in solving mathematical problems.[7] The ability of Indonesian students is only dominant at the level of knowledge and application, while at the level of thinking only 1% of students answer correctly. [8, 9] The results of the PISA analysis prove that in 2015 Indonesia ranks 62 out of 72 countries with an average point of 386. Then in 2018 Indonesia ranks 67 out of 72 countries with an average point of 379.[10] This is reinforced by the observations that researchers made at SMP IT Insan Cendekia that students still experience difficulties when working on math problems in the form of stories. The teacher at the school also stated that the initial difficulties that often occur to students are when identifying what formula to use, the next steps for processing, and interpreting conclusions.

Based on the problems that have been found, problem-solving skills are an important activity in learning mathematics. This ability is important to have in everyday life so that you can develop other thinking skills, such as making decisions and solving problems. In addition, it is necessary to have a sense of student confidence in their ability to express their ideas, contribute to one's success in solving a problem. Self-efficacy is related to a person's belief that he can do something adequate to deal with certain situations.[11] Students with high self-efficacy are not only faced with more experience in mastering themselves, but also tend to interpret self-efficacy in a better way.[12]

One learning method that is able to maximize this is the flipped classroom method. Flipped classroom learning can be a suitable method to be applied to schools that carry out face-to-face and online learning.[13] Flipped classroom is learning by switching between learning in class to be at home.[14] Learning at home can be done by giving assignments through videos, textbooks, or others while learning is done in class, namely deepening the material by giving questions to be discussed together. This model can also support students' development in problem solving, critical thinking, and social interaction.[15, 16] Several studies also show that the flipped classroom method applied in learning is able to show good results.[17] Widyastuti & Sujadi stated that by implementing the flipped classroom students' mathematics learning outcomes had increased.[18] Apart from using the flipped classroom method, many factors influence student achievement in solving mathematical problems, such as internal and external factors. Internal factors are students' interest and motivation in learning mathematics.[19-23] While external factors, namely the use of approaches and implementation of learning,[24, 25] and about the suitability test with the ability of students.[23] So that in improving the ability to solve mathematical problems an appropriate learning approach is also needed, one of which is a scientific approach.[26] Abidin states that teaching and learning activities that use a scientific approach require students to think systematically and critically to solve problems according to the steps of the scientific method.[27] This is in line with research Usmadi & Ergusni which states that flipped classroom learning with a scientific approach can help increase student interest and motivation in learning mathematics.[28] In addition, other studies also reveal that if math self-efficacy is high, then students' mathematical problem-solving abilities will also increase significantly.[29, 30] Therefore, to be able to improve students' abilities in solving mathematical problems, self-efficacy must be a concern of the teacher because it is not only learning outcomes and achievements that need to be improved but also students' confidence in solving a mathematical problem. In addition, self-

efficacy is one of the main factors that can influence the success of flipped classroom learning.[31-33]

Based on this, it is necessary to carry out an analysis related to the ability to solve mathematical problems in terms of aspects of student self-efficacy, especially when implementing flipped classroom learning with a scientific approach. This analysis refers to the causes of difficulties in solving problems and the lack of confidence in the strengths possessed by students.

LITERATURE REVIEW

1. *Flipped Classroom*

The Flipped Classroom model is a reverse class learning model in which students rotate between face-to-face meetings in the classroom and online learning outside the classroom. The model reverses between student activities at school and at home. Students can determine for themselves when and where they want to access learning materials for face-to-face meetings in class. Meanwhile, in class or face-to-face, students have enough time to discuss, ask some questions, or engage in other exercises.[34] The characteristics of the Flipped Classroom include: (1) Rotation, namely the exchange of schedules between offline and online learning during and after school respectively; (2) Learning Methods, namely teaching materials and teacher directions delivered during online learning; (3) Activities, students study teaching materials at home; (4) Settings, namely students can ask questions through the LMS used; and (5) Location, namely students are directly involved in discussions during offline learning held in class.[35] The advantages of Flipped Classroom learning are that the learning atmosphere is interesting and students have plenty of time to study at home. The disadvantages of this learning model include the need for a fairly good internet connection to access teaching materials, as well as adequate tools such as mobile phones, laptops, and so on to support learning at home.

2. Scientific approach

The scientific approach to learning is based on scientific processes by carrying out logical and empirical steps.[36] The essence of the scientific approach is to provide learning experiences for students and educators so that they can position themselves as facilitators, motivators, educators and others. The application of a scientific approach in learning involves process skills such as observing, classifying, measuring, predicting, explaining, and concluding.[37] The characteristics of the scientific approach according to Abidin, including: (1) Objectives; (2) Factual; (3) Systematic; (4) Method; and (5) Careful and Precise.[27] The advantages of the scientific approach besides being able to guide students to think critically, are being able to guide students to solve problems through planning, data collection, analysis, and drawing conclusions. In addition, the drawback of this approach is that it takes up learning time.

3. Problem solving skill

Polya explaining problem solving is an effort made to get a solution to a problem.[38] Problem solving ability is connected with reading or reading comprehension, [39, 40] interest in mathematics and attitudes to mathematics, as well as the level of intelligence.[41] As for the mathematical problem-solving abilities that refer to the Polya stages with the NCTM indicators are as follows.

Table 1. Indicator of Mathematical Problem-Solving Ability

Polya's Stages	NCTM Indicator
Understanding Problems	Students are able to write down or mention the information provided from the questions that have been asked; Students are able to include questions in the questions; Students are able to explain the sketch of the problem.
Planning Problem Solving	Students have a problem-solving plan with clear procedures; Students are able to choose or predict a strategy to solve a given problem; Students are able to present problems using simpler language.
Do a Problem-Solving Plan	Students are able to solve problems with the strategies they use with the right results
Evaluating Problem Solving Results	Students are able to re-evaluate the results or answers that have been completed. Students are able to draw conclusions from solving problems.

4. Flipped Classroom Model with a Scientific Approach

The steps or syntax of the Flipped Classroom learning process with a scientific approach, [28, 42, 43] are as follows.

Table 2. Flipped Classroom Learning Model Steps with a Scientific Approach

Flipped Classroom Syntax	Main Scientific Activities	The Syntax of the Flipped Classroom Learning Model with a Scientific Approach
Introduction of the flipped classroom model and distribution of teaching materials	Observe	The teacher informs and introduces the flipped classroom model to students. Students study teaching materials that have been given by the teacher before face-to-face learning takes place. The teacher reviews the teaching materials that have been given to students before face-to-face learning takes place.
Asking question	Ask	The teacher gives the opportunity for students to ask questions that are not understood. The teacher divides students into several groups, each group consisting of 4-5 people. The teacher distributes Student Worksheets (LKPD) to each group. The teacher gives a time limit for students to understand and solve the problems that exist in the LKPD with their group mates.
Doing individual and group assignments	Trying or Gathering Information	Students are welcome to use existing learning resources in finding information to solve problems in LKPD. As long as students solve problems in LKPD, the teacher supervises them by going around each group. The teacher provides guidance to each group that needs direction in solving problems in LKPD.
Process the information found	Reasoning	Students analyze the information they have obtained to compare or find a relationship between the information they have processed and the existing theory. Based on the information that has been obtained, students solve problems in LKPD. Students formulate conclusions based on the information obtained from the results of the discussion.
Evaluation and Clarification	Communicating	The teacher asked the representatives of each group to present in front of the class the results of their group discussions. Other groups provide feedback from the results of the presentation including questions and answers to confirm, complete information, or provide other responses.

5. *Self-Efficacy*

Bandura expressing beliefs or what is called self-efficacy is self-perception regarding one's ability to organize and carry out the actions needed to produce good achievements. Self-efficacy will affect the way individuals interact with stressful situations. There are 3 indicators or dimensions of self-efficacy, including: (1) Level, namely a person's belief in his ability to complete tasks; (2) Strength, namely one's persistence when completing tasks; and (3) Generality, namely a person's belief when overcoming situations in facing a given task.[44]

MATERIALS & METHODS

The design used in this research is sequential explanatory design. The sequential explanatory design research design chart according to Cresswell presented in the following chart.[45]

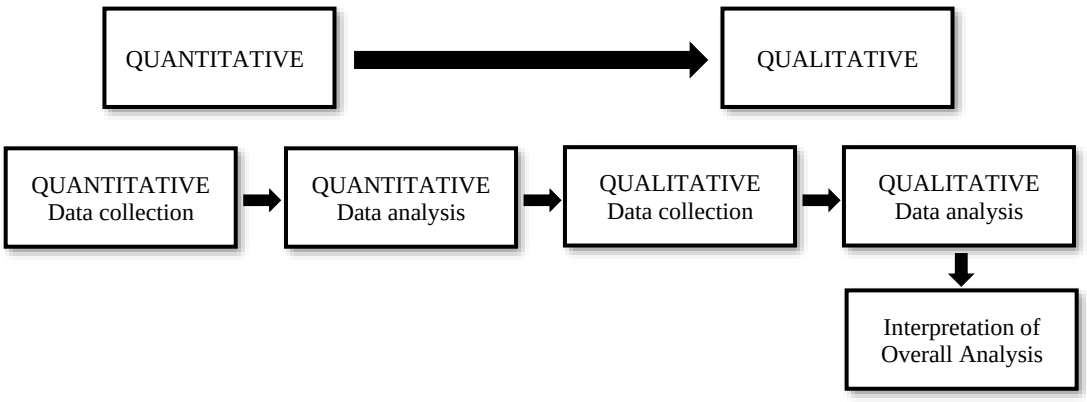

Figure 1. Research Design Chart

While the quantitative research design in this study was quasi-experimental. The quasi-experimental design used was a non-equivalent pretest-posttest control group design. This design includes a control group and an experimental group. The research instruments used were tests of mathematical problem-solving abilities, self-efficacy questionnaires, student response questionnaires, student activity observation questionnaires, and interview guidelines.

STATISTICAL ANALYSIS

1. Validity test

The validity test was carried out on the pre-test test questions and the final test of mathematical problem-solving abilities. The item is said to be valid if the results $r_{xy} > 0{,}361$. The validity of the 7 test items on the initial test of mathematical problem-solving ability are obtained 2 items number 1 and number 2 have moderate criteria with each index 0,474 and 0,545. Then 2 items number 3 and number 4 have high criteria with each index 0,664 and 0,693. While the other three items have low and very low criteria. So that there are only 4 items on the initial test of valid mathematical problem-solving abilities.

The results of the validity of the 7 test items for the final test of mathematical problem-solving abilities obtained 5 questions with high criteria namely item 1 with the index 0,737, item 2 with an index 0,752, item 3 with an index 0,686, item 4 with an index 0,692, and item 5 with an index 0,733. While the other two questions have very low criteria. So that there are only 5 items on the initial test of valid mathematical problem-solving abilities.

2. Reliability Test

The item is said to be reliable if $r_{11} > r_{tabel}$. The value for r_{tabel} $N = 30$ is 0,361. Based on the results of the analysis of the reliability of the test instrument, the reliability coefficient value for the initial test of mathematical problem-solving ability is equal to 0,651 and the reliability coefficient for the final test of mathematical problem-solving ability is equal to 0,817. These results indicate that the two test instruments $r_{11} > r_{tabel}$, meaning the initial test instrument and the final test of mathematical problem-solving ability, are reliable and have high reliability criteria

3. Difficulty Rating Test

The difficulty level test was carried out on the pre-test test questions and the final test on mathematical problem-solving abilities. The test results of the difficulty level of the seven items on the initial test of mathematical problem-solving ability obtained moderate criteria. While the results of the test of difficulty level of 7 items on the final test of mathematical problem-solving ability obtained 5 questions with moderate criteria, and 2 questions with easy criteria.

4. Discriminating Power Test

The discriminating power test was carried out on the pre-test test questions and the final test on mathematical problem-solving abilities. The results of the different power test of 7 items on the initial test of mathematical problem solving ability obtained 4 items with good criteria, and 3 items with poor criteria. While the results of the difficulty level test of 7 items on the final test of mathematical problem-solving ability obtained 5 questions with good criteria, and 2 questions with poor criteria.

5. Normality test

The results of the chi-square normality test for the initial test of mathematical problem-solving abilities obtained scores $Sig. = 0{,}089 > 0{,}05$. Meanwhile, the normality test for the final test of mathematical problem-solving ability obtains a value of $Sig. = 0{,}312 > 0{,}05$. So, it can be concluded that the sample comes from a normally distributed population.

6. Homogeneity Test

The homogeneity test of students' mathematical problem-solving abilities was tested using the Levene Statistical Test. Initial test of homogeneity test of

mathematical problem-solving ability to obtain a value of $Sig. = 0{,}342 > 0{,}05$. While the results of the homogeneity test of the final test of students' mathematical problem-solving abilities obtained a value of $Sig. = 0{,}348 > 0{,}05$. So, it can be concluded that the variance of the control class is the same as the experimental class.

7. Preliminary Data Average Similarity Test

Test the similarity of the initial data average using the independent sample t test, the value obtained $Sig. = 0{,}315 > 0{,}05$. So it can be concluded that the average initial test results for the mathematical problem solving abilities of the experimental class and the control class have the same mathematical problem solving abilities.

RESULT

1. Analysis of the Learning Effectiveness of the Flipped Classroom Model with a Scientific Approach

a. Preparation phase

The preparatory stage in this study was carried out by preparing learning tools, namely the Syllabus, Learning Implementation Plans (RPP), Student Worksheets (LKPD), Preliminary Tests and Final Tests of Mathematical Problem-Solving Ability. The validation results of the learning tools used in this study meet the valid criteria.

b. Implementation Stage

Data at the implementation stage were obtained from student activity observation sheets (limited to research subjects), and student response questionnaires to learning. The results of observations of student activity during 4 meetings show percentage of 77,37% which means the result is included in the good category. As for the student response questionnaire, it obtained an average percentage of 81% those included in the good category. So it can be concluded that students are actively involved and show a positive response in participating in learning mathematics with the Flipped Classroom model with a scientific approach.

c. Data Processing and Data Analysis Stage

After the data is proven to be normal and have the same variance, then it is continued with hypothesis testing to determine the effectiveness of the Flipped Classroom learning model with a scientific approach. The results of the hypothesis test are described as follows.

1) Proportion Adequacy Test

Based on the adequacy test the proportion were obtained $z_{hitung} = 5{,}649 > z_{tabel} = 1{,}64$. So, it can be concluded that, the proportion of students who achieved KBM in the Flipped Classroom learning model with a scientific approach who achieve KBM in the final test of mathematical problem-solving abilities has reached 75%.

2) Proportion Difference Test

Based on the adequacy test the proportions were obtained $z_{hitung} = 5{,}431 > z_{tabel} = 1{,}64$. So, it can be concluded that the proportion of the completeness of the mathematical problem-solving abilities of students who are taught using the Flipped Classroom model with a scientific approach is more than the proportion of the completeness of the mathematical problem-solving abilities of students who are taught with the Discovery Learning model with the RME approach.

3) Mean Difference Test

Based on the average difference test obtained the value $Sig.$ (2-tailed) is $0{,}000 < 0{,}05$. So, it can be concluded that the average final test results for students' mathematical problem-solving abilities given Flipped Classroom learning with a scientific approach are more than students given Discovery Learning with the RME approach.

4) Influence Test

Based on the simple linear regression test, the value of $sig.\, 0{,}029 < 0{,}05$, with a constant value $a = 12.408$ and the regression coefficient is obtained $b = 0{,}824$. Therefore, the regression equation is $\hat{Y} = 12.408 + 0{,}824X$. Because the value of the regression coefficient is plus $(+)$, and $sig. < 0{,}05$, thus it can be concluded that there is an influence between students' Self Efficacy on the

mathematical problem-solving abilities of students who are taught using the Flipped Classroom learning model with a scientific approach. So, in other words, self-efficacy has a positive effect on students' problem-solving abilities.

2. Analysis of Students' Problem-Solving Ability in View of Self Efficacy after the Implementation of the Flipped Classroom Model with a Scientific Approach

The research subjects in this study totaled 6 students who were divided into 3 categories of self-efficacy, namely 2 students in the moderate category, 2 students in the high category, and 2 students in the very high category. The summary of the final ability profile of mathematical problem solving possessed by research subjects based on indicators of mathematical problem-solving ability can be seen in table 3 below.

Table 3. Profile of Final Mathematical Problem-Solving Ability of Research Subjects

Research subject	Indicator of Mathematical Problem Solving Ability			
	I	II	III	IV
S-1	Pretty good	Pretty good	Pretty good	Not good
S-2	Pretty good	Good	Good	Not good
S-3	Good	Good	Good	Pretty good
S-4	Good	Pretty good	Good	Pretty good
S-5	Good	Very good	Good	Good
S-6	Good	Good	Good	Good

Based on table 3, it can be seen that subjects S-1 and S-2 are students who have moderate self-efficacy categories, subjects S-3 and S-4 are students who have quite high self-efficacy categories, while subjects S-5 and S-6 is a student who has self-efficacy with a high category. In plain view, there is a significant difference related to students' mathematical problem-solving ability based on the level of self-efficacy.

DISCUSSION

1. Analysis of the Learning Effectiveness of the Flipped Classroom Model with a Scientific Approach

The effectiveness of learning is considered good if the results of the assessment are at 3 stages, namely: (1) the preparation stage, the learning tools that have been prepared are valid; (2) the stage of implementing student activity is at least in the good category, getting a positive response from students (the percentage is more than 70%); and (3) the stages of data processing and data analysis have met the requirements for effectiveness. The results of the research on the learning effectiveness of the Flipped Classroom model with a scientific approach that has been described previously stated that the learning tools met good standards, observations of student activity exceeded the percentage 70%, namely the size 77,37% and met the good criteria. Then the student's response to learning during the 4 meetings obtained a value of 81%, which means that it met a good standard.

The results of the hypothesis test also met the four standards of effective learning, namely: (1) the results of the final test of the experimental class' mathematical problem solving abilities had achieved the specified classical mastery, namely 75%; (2) students who passed the final test of mathematical problem-solving abilities in the experimental class totaled 29 out of 30 students, which means that the proportion of students who passed the final test of mathematical problem-solving abilities in the experimental class was more than students in the control class where there were only 10 out of 30 students who complete; (3) the average final test results for the experimental class' mathematical problem solving abilities were 77,5, while the average in the control class was .61,8. Based on this description, it can be concluded that the Flipped Classroom learning model with a scientific approach has achieved the criteria for effective learning.

2. Analysis of Students' Mathematical Problem-Solving Ability in View of Self Efficacy after Implementation of the Flipped Classroom Model with a Scientific Approach

This section will describe the profile of mathematical problem-solving abilities which are analyzed based on the self-efficacy category of research subjects through research results that have been found after implementing the Flipped Classroom learning model with a scientific approach. There are 2 decision-making criteria used by researchers to conclude how good the mathematical problem-solving abilities of each self-efficacy category are, including: 1) If 2 research subjects in the same self-efficacy category get the same ability results, then the results of these abilities are taken as conclusions; 2) If 2 research subjects in the same self-efficacy category get different ability results, then the result of the lowest ability is used as a conclusion.

Table 4. Profile of Final Ability of Mathematical Problem Solving Viewed fromSelf Efficacy

Category *Self-Efficacy*	Indicator of Mathematical Problem-Solving Ability			
	I	II	III	IV
Currently	Pretty good	Pretty good	Pretty good	Not good
High enough	Good	Pretty good	Good	Pretty good
Tall	Good	Good	Good	Good

Based on table 4, it is known that students in the high category seem to have the best mathematical problem-solving abilities than students in the medium and high enough categories. This is because students in the high category have achieved good criteria on all indicators of mathematical problem-solving abilities. Students in the fairly high category seem to have better mathematical problem-solving abilities than students in the moderate category. The following is a description of students' mathematical problem-solving abilities from each category of self-efficacy they have.

a. Profile of Medium Category Students' Mathematical Problem-Solving Ability

Based on the results of the analysis, students in the middle category have fewer good abilities than the other 2 self-efficacy categories. Medium category students show fairly good problem-solving skills on almost all indicators. This is in line with research Ashri & Khaerunnisa which states that students with moderate self-efficacy can solve questions well, but lack of accuracy causes answers to be incorrect.[46] Based on these facts, students in the moderate category seem to just accept the results of working on the questions that have been worked on, causing inaccurate question answers, as well as irregular steps for working on answers.

This is appropriate Imaroh et al. which states that students with moderate self-efficacy can make mathematical models or mention information that is known and asked, but make calculation errors due to inaccuracy so they do not reach the correct conclusions.[47] Chasani et al. & Rahmawati et al. revealed that students with self-efficacy were fulfilling two indicators namely writing down known information and solving problems according to plan.[48, 49] In addition, the flipped classroom learning model helps develop self-efficacy and student learning outcomes, so that students' mathematical problem-solving abilities also increase significantly.[50]

b. Profile of Student's Problem-Solving Ability Category is quite high

Based on the results of the analysis, students in the fairly high category have abilities that are in the middle compared to the other categories, namely medium and high. The results of the analysis show that the students' mathematical problem-solving abilities in the high enough category are in the good category for indicators 1 and 3, as well as the good enough category for indicators 2 and 4. The criteria for good and good enough ability occur because students in the high enough

category individually show the most more diverse performance when compared to medium and high category students.

The active participation of students in the high enough category was involved in asking questions, conveying ideas, and presenting the results of group work in class. However, some of the students in the high enough category seemed hesitant and embarrassed to express their opinions, and had to be appointed beforehand so that they were willing to be actively involved in learning. This is in line with research Atho'illah et al. which states that students with high enough self-efficacy abilities can solve problems but have not yet completed them.[51] In addition, student self-efficacy and the Flipped Classroom learning model can help improve learning outcomes, mathematical literacy, and students' problem solving abilities. Kuswidyanarko et al. revealed that students who have good self-efficacy abilities will get success when carrying out the learning process in class.[52]

c. Profile of Students' Problem-Solving Ability in the High Category

Based on the results of the analysis, students in the high category have the highest ability than the other categories, namely the moderate and high enough categories. The results of the analysis showed that the students' mathematical problem-solving abilities in the high category were in the good category in all indicators of mathematical problem-solving abilities determined by the researcher. Good ability criteria are indicated by high involvement by high category students in participating in learning, lots of efforts to try to solve problems, even high category students are the easiest students to be asked to ask questions, ideas, or presentations in front of their friends.

Students with high self-efficacy are able to write down what is known and asked about the questions, are able to make a mathematical model of the problem questions, are able to solve problems on questions, and conclude the results of the right answers and can reflect on the whole process that has been carried out in solving problems.[46, 53] This is in accordance with the opinion Khotimah et al. & Mutiarawati et al. which states that self-efficacy influences student problem solving. This means that the higher the student's self-efficacy, the higher the student's problem-solving ability. In addition, the Flipped Classroom learning model also plays an important role in helping improve mathematical problem solving skills.[54, 55] The results of the study show that Flipped Classroom learning has a significant effect on mathematical problem-solving abilities and self-efficacy. [53-54, 56-58]

CONCLUSION

Based on the research that has been done, it is concluded that the learning effectiveness of the Flipped Classroom model with a scientific approach is stated to be quantitatively and qualitatively valid based on the criteria for effevtive learning, namely: (1) learning tools are valid and meet good standards; (2) observation of student activity and student responses to learning are in good category; (3) the proportion of the results of the final test of mathematical problem solving ability achieves Minimum Learning Mastery; (4) the proportion of the results of the final test of students' mathematical problem solving abilities who achieved Minimum Learning Mastery in the Flipped Classroom learning model with a scientific approach was more than the proportion of classical mastery classes using the Discovery Learning model learning with the RME approach; and (4) the average mathematical problem-solving ability of students who are implemented with the Flipped Classroom learning model with a scientific approach is more than the average mathematical problem-solving ability of students who are given the Discovery Learning model with the RME approach.

The final profile of students' mathematical problem-solving abilities in terms of self-efficacy, namely: (1) students' mathematical problem-solving abilities in the moderate category show fairly good achievement on indicator 1, indicator 2, and indicator 3, but

not well on indicator 4; (2) students' mathematical problem solving abilities in the high enough category show good achievement on indicator 1 and indicator 3, but quite well on indicator 2 and indicator 4; (3) students' mathematical problem solving abilities in the high category show good achievement on the four indicators.

Declaration by Authors

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