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THE EFFECTIVENESS OF TWO STAY TWO STRAY, SOMATIC, AUDITORY, VISUALIZATION, INTELLECTUALLY, AND AUDITORY LEARNING TO IMPROVING NUMERICAL ABILITY

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Abstract

Purpose of the study: This study was conducted to determine the effect of the TSTS (Two Stay Two Stray) learning model, SAVI (Somatic, Auditory, Visualization, and Intellectually), and AIR (Auditory, Intellectually, Repetition) on the numerical abilities of students. The purpose of the study is to determine the effect of three models: TSTS, AIR, and SAVI.

Methodology: Type research used in this study is quantitative research. The type of experiment used in this study is quasi-experimental method; the hypothesis test used is the one-way ANOVA test.

Main Findings: The result of the research revealed that the data if TSTS combine with SAVI models there is no difference to increase the numerical abilities, but if one of TSTS or SAVI combines with the AIR model will give the best improvement to develop numerical abilities.

Applications of this study: It can be implemented in the scope of education, educators or teachers can choose the right learning model adapted to the curriculum to improve the numerical abilities of students. This research can provide input in choosing the right model for the learning process with the applied curriculum. Provide an overview of the impact of each learning model used in influencing student abilities. Because in each learning model has advantages and disadvantages of each.

Novelty/Originality of this study: The novelty of this study is to determine an effective learning model for students' numerical abilities. The learning model is the Two Stay Two Stray Learning, Somatic Auditory Visualization Intellectually Learning, and Auditory Intellectually Repetition learning models. Based on this research the reader can determine an effective learning model used to determine students' numerical abilities. The curriculum used is the 2013 curriculum. The application of learning models in the curriculum helps the learning process take place and improves students' numerical abilities.

Keywords: *Numerical Ability, Two Stay Two Stray, SAVI, Auditory Intellectually Repetition.*

INTRODUCTION

The importance of education in quality human resources and having extensive, competent, creative, and virtuous knowledge resources (Nurfitriyanti, 2016) makes education must have clear guidelines in the learning process. The curriculum was chosen as an educational program that was provided for all subject areas and teaching and learning activities that could develop and develop individual learners according to the educational goals sought to improve life in all fields there. There is no single curriculum that can be suitable for all time, so the curriculum needs to be updated (Arifin, 2016). Curriculum development is largely determined by the fundamentals implemented, including the philosophical and historical foundations, the basis of science and technology, the basis of psychology, and the socio-cultural basis to achieve an optimal level of understanding and effectiveness. The core of curriculum development has several objectives, namely finding knowledge that is not too visible, finding something new, looking for all social changes, and constructing the initial curriculum (Bahri, 2011). The curriculum integrates a variety of values in all subjects, one of which is mathematics. Mathematics is one of the most relevant sciences in the era of increasingly advanced technology today which consists of aspects of using numbers, calculation operations, and the use of complex logic (Jelatu, Mon, & San, 2019).

One of the importance of mathematics in the current era is in the field of computer science technology where recursive relation material is closely related to computer programming or graph theory which is the initial material in understanding network analysis (Puspitasari, 2016). Another mathematical contribution is in the industrial sector that has an impact on the environment. Mathematical modelling of science that is derived from mathematical concepts and operations in the real world and forms a variety of models to better understand in detail the real complex problem states. Differential equations are used for mathematical models in the case of the spread of pollutants in the air in the environment of a Steam Power Plant; this model is based on physical laws, namely the decrease of the momentum equation and the mass continuity equation (Masyhudi, Fatahillah, & Setiawan, 2018). The importance of mathematics in other fields of the industry is used to calculate the maximum profit of clothes produced using the simplex method

mathematical model. Knowing the acquisition of production results by yarn resources, to determine the total costs incurred as well as net and gross profits from goods sold (Rachman, 2017). Other mathematical roles can be seen in the insurance field. By using the K-Means algorithm method so that it can classify premium data, coverage, and claims according to the group from the lowest, medium to high according to insurance company policy (Novianto & Goeirmanto, 2019). Not only in these fields the role of mathematics can be found but also in various other fields such as finance, engineering, social, and agriculture (Puspitasari, 2016). Mathematics itself is in harmony with the numerical ability which is described as basic expertise consisting of various aspects such as the ability to solve mathematical problems, mathematical reasoning, the ability to process logic, and verbal calculations (Jelatu, Mon, & San, 2019).

In the 2018 PISA data released by the OECD on aspects of Indonesian mathematics classified at level one with a mean score of 379 and a standard deviation of 79. This acquisition is relatively low when compared to other ASEAN countries namely Singapore which ranks second in level four which has a mean score of 569 and a standard deviation of 94. The acquisition is still low compared to other worlds in the field of mathematics, so it is also closely related to the numerical abilities of students who are not high enough. Mathematics is a science that is considered difficult for most students. Mathematics also needs extensive thinking and analysis skills from both numeracy and abstract. Therefore numerical ability is very needed in mathematics especially to solve problems (Afriza, Hamid, & Marwan, 2016). Previous researchers have examined methods and models that have an impact on the numerical ability of students. Among other things, the pair check learning model, the investigation cell-based learning method group, and the PBL (Problem Based Learning) model (Purwanto et al., 2020). The role of numerical ability on critical thinking ability, numerical ability on learning outcomes, numerical ability and its relationship with learning outcomes, the relationship between numerical ability with problem-solving ability, numerical ability analysis in terms of gender differences, and numerical ability of students on the coast region (Sitriani, Kadir, Arapu, & Ndia, 2019)(Halyadin, Bey, Kadir, & Samparadja, 2019)(Gunur, Makur, & Ramda, 2018)(Rezawatimar, Maidiyah, & Suryawati, 2018)(Adduri, Tayeb, & Ikbal, 2017)(Afriza, Hamid, & Marwan, 2016)(Irawan, 2016).

The difficulty of mathematics for students makes them less interested to learn it. Therefore, there needs to be sensitivity and creativity of educators to change the perspective of mathematics is difficult by using various models and learning methods.

This study was conducted to determine the effect of the TSTS (Two Stay Two Stray) learning model, SAVI (Somatic, Auditory, Visualization, and Intellectually), and AIR (Auditory, Intellectually, Repetition) on the numerical abilities of students. The purpose of the study is to determine the effect of three models: TSTS, AIR, and SAVI.

LITERATURE REVIEW

The curriculum talks about how learning should be done, and what the learning process is like. Where the learning model becomes a tool to run the curriculum in the learning process. Fun learning supports student understanding, with the learning model will make learning not boring so students will be more interested in the learning process that is taking place. Based on research (Chapman, 2019) explains the importance of a flexible curriculum where the curriculum can be adapted to the needs of students because of the different needs of students. The curriculum becomes an important component of education and as a centre for the content of values that will be given to students. Curriculum Being the direction of all educational activities and also efforts to achieve educational goals (Arifin, 2016)(Bahri, 2011). The changes in social dynamics caused by several internal and external factors will also affect the curriculum shift. There must be something flexible and futuristic. There are some things or bases that can be changed or developed for the curriculum. First, the philosophical and historical basis. Reconstructivisme philosophy is the foundation of curriculum development in Indonesia and several other countries. The philosophy of education sees all phenomena in the main part of existence. Where is the way humans are in the Second World, psychological basis? Psychological foundation becomes an important position and role in curriculum development. Developmental psychology and learning psychology base on curriculum development in the field of psychology. Developmental psychology examines matters relating to individual development such as nature, phasing, aspects of development, individual development tasks. Learning psychology discusses various aspects of individuals who discuss learning the nature and theories of learning. The third basis is socio-cultural. In the life of the community, students can get formal or informal education. With its cultural richness and characteristics, it is the reason for the community to become a reference and basis for education. It is hoped that humans will be born who understand and can build the lives of their communities. Therefore, the purpose, content, and process of education adjust to the needs, conditions, characteristics, wealth, and developments in society. The last foundation is the basis of science and technology. The field of transformation and technology that is increasingly being developed in the field of science and technology can change the fabric of human life, so the curriculum can make students able to develop science and technology by coordinating and enhancing their development. From this basic aspect, it has an important contribution to curriculum development. The philosophical basis formulates educational goals, the psychological basis of members 'views, contents, and education processes, the socio-cultural basis of members' view of the goals and contents of education, while the basis of science and technology that addresses the learning process and educational content (Bahri, 2011).

It has become a natural thing in Indonesia with curriculum changes. Since the period after Indonesia's independence in 1945, Indonesia has experienced about ten times the curriculum changes. These changes include the first lesson plan in

1947; second, the 1952 curriculum was also called the decomposed lesson plan, twelve years later in 1964 experienced a third change, namely the 1964 education plan curriculum, the fourth change to the 1968 curriculum, about seven years after it was changed to the 1975/1976 curriculum, only lasted nine years in 1984 underwent a sixth change to the 1984 curriculum, the seventh was a 1994 curriculum, subsequently changed to the 2002 and 2004 curriculums, the ninth curriculum is the 2006 curriculum or called the education unit level curriculum, and the tenth is the 2013 curriculum. The curriculum is often changed because it has an adaptive nature so that educational outcomes have abilities that are in line with the challenges of the times that are developing and advancing (Huda et al., 2020).

There are four main principles that are used to develop the 2013 curriculum. The first principle is that the school is an integrated educational institution and the curriculum is an educational unit curriculum. Second, the teacher in an education unit is a unit of educators who are responsible for developing a joint curriculum. Third, curriculum development in the education unit is led by the school principal. And the fourth is evaluating the implementation of curriculum implementation conducted by the school principal (Pahrudin et al., 2020).

The 2013 curriculum is described as a curriculum in which competence is the basis in it. By integrating the values of attitudes, knowledge, and skills in the learning process. This curriculum is expected to produce outputs that have productive, effective, creative, and innovative attitudes that are also integrated through strengthening skills, knowledge, and attitudes (Yasin et al., 2020).

In learning mathematics, this curriculum focuses on student knowledge so that it can be applied to solve mathematical problems with a scientific approach. Problem-solving will be more meaningful if the math problems provided are arranged using contextual problems in students' daily story problems. Needs verbal ability in understanding the problem story and translated into mathematical sentences. On the other hand, students in solving the problem there must be calculations involving a number of number operations. So the need for numerical abilities which includes verbal and numeracy skills needed in mathematics learning that is in accordance with the 2013 curriculum (Prastowo, 2018)(Sarjana, Sridana, & Kurniati, 2018). TSTS, SAVI, and AIR learning become one of the forms of learning models that can run the existing curriculum system in order to take place so that the objectives of the curriculum that are designed can be achieved.

Numeric ability is considered important because it is very helpful for students in understanding, analyzing, and can be applied in everyday life. Numeric ability is the ability to handle a number and complete calculations, as well as patterns and logical thinking (Novita, 2017).

The numerical abilities of students that have different effects in the course of learning and affect student learning outcomes. The numerical ability in this study was measured using the TSTS, SAVI, and AIR learning models. Reviewing previous research has discussed the relationship of numerical ability with problem-solving ability, emotional intelligence and learning independence, spatial ability on students' mathematical communication skills, creativity and student attitudes towards mathematics learning with learning achievement (Gunur, Lanur, & Raga, 2019)(Gunur, Makur, & Ramda, 2018)(Gunarti, 2017)(Damayanty & Sumadi, 2016), research by making numerical abilities covariable (Lestari, 2019)(Andika, Dantes, & Parmiti, 2017)(Pica, Marhaeni, & Dantes, 2015)(Supatni, Dantes, & Tika, 2015), the influence of numerical abilities and student attitudes on cognitive competence, numerical abilities and learning motivation as well as numerical abilities and ways of learning towards learning achievement (Amaliyah, 2018)(Novita, 2017)(Indrawati, 2015), and numerical ability analysis reviewed from gender differences (Sitriani, Kadir, Arapu, & Ndia, 2019).

There are various kinds of models that are considered to have an impact in influencing students' numerical ability. One of them is TSTS (Two Stay Two Stray), this method trains knowledge and also learners' skills by exchanging information. Based on previous research, research has been conducted that discusses the TSTS learning model on learning outcomes (Habibi, et al., 2019), on critical thinking skills, on problem-solving skills, on mathematical communication skills, on interpersonal communication, on understanding concepts, and improving students' learning motivation (Astuti, Sutriyono, & Pratama, 2019)(Harta, Dharsana, & Renda, 2019)(Anwar & Pandegawati., 2018)(Desmawati & Farida, 2018)(Rahmawati, Masi, Kadir, & Jafar, 2019)(Anwar, Yuliani, & Fatmawati, 2018)(Arzak & Ibrahim, 2017)(Effendi, Soetjipto, & Widiati, 2016)(Susantika, Yunarti, & Gunowibowo, 2015)(Sutrisno, Samsudin, Liliawati, Kaniawati, & Suhendi, 2015)(Yulianti, Muntari, & Haris, 2015)(Wildan, 2014).

Other models are SAVI (Somatic, Audio, Visual, and Intellectual) that cans to improving students' numerical ability. This learning model refers to how students learn naturally such as listening, pondering, speaking, and involving physical activity, intelligence, and all the senses that merge into one at the same time (Agustina, Yurniwati, & Zulela, 2019). Previous research has been carried out by the SAVI model for problem-solving abilities, mathematical connection skills, increased understanding of mathematical concepts (Ramadhani, Huda, & Umam, 2019), interest in learning mathematics, mathematical representation abilities, learning achievement, creativity and mastery of knowledge competencies, increased mathematical activity, increased speaking skills, and the ability to write essays (Agustina, Yurniwati, & Zulela, 2019)(Cemara & Sudana, 2019)(Saraswati & Maulana, 2019)(Wulansari, Roesdiana, & Imami, 2019)(Wijaksana, Pratiwi, & Indriyah, 2018)(Mirnawati & Pribowo, 2017)(Novitasari, 2019)(Rahmawati N. K., 2018)(Haruminati, Suarni, & Sudarma, 2016)(Ulvah & Afriansyah, 2016).

Auditory or hearing which means in the learning process through the stages of listening, paying attention, expressing ideas, and responding. Intellectually or intelligence with the learning process using the ability to think, high concentration, analyze, solve problems (Munifah, Huda, Hamida, Subandi, & Umam, 2019), and apply. Repetition or repetition that aims to deepen the memory of students and understanding of the material that has been given and students can apply it to the practice questions, assignments, and quizzes (Martini, Tripalupi, & Haris, 2019).

In the AIR model, the active involvement of students in the process of learning mathematics will stimulate their courage to express ideas and also stimulate students to explain their ideas in mathematical language so that students are able to solve mathematical problems (Sagala, Umam, Thahir, Saregar, & Wardani, 2019) and have an impact on increasing numerical ability (Ulva & Suri, 2019). Previously researched AIR (Audiotorry Intellectually Repetition) models on several abilities, namely mathematical communication, mathematical problem solving, mathematical understanding, concept understanding, critical thinking, spatial, creativity and learning outcomes(Sumarni, et al., 2019), motivation and learning outcomes (Huda, Anggraini, Saputri, Syazali, & Umam, 2019), and learning interest(Harahap, 2019)(Martini, Tripalupi, & Haris, 2019)(Ramadhan & Aminatun, 2019)(Ridia & Afriansyah, 2019)(Ulva & Suri, 2019)(Agustiana, Putra, & Farida, 2018)(Hutagalung & Harahap, 2018)(Purnomo, 2018)(Winarti & Suharto, 2017)(Manurung & Aspia, 2016).

Based on the literature review we can look that the students' numerical ability can be improving by the best one of models learning as the previous research was talked (Maskur, et al., 2020). Therefore the renewal from this research is looking at what the best one of models learning between TSTS, SAVI, and AIR that can give an increase for numerical ability.

In addition, based on research information or previous research by researchers in literature studies, it is estimated that the TSTS (Two Stay Two Stray) learning model, SAVI (Somatic, Auditory, Visualization, and Intellectual) and AIR (Auditory Intellectually Repetition) can improve numerical ability. Even so, educators or teachers must be more creative and innovative in conducting the learning process.

METHODOLOGY

The type of research used in this study is quantitative research. The type of experiment used in this study is quasi-experimental where the samples were taken are three classes with different learning models but the abilities measured are the same, learning models used include TSTS, SAVI, and AIR with the ability measured is numerical ability. The experimental research method used aims to find out whether there are differences in treatment. This design is implemented to look at the effect of the treatment, This study uses three classes as a random sampling that will look at the pre-test and the post-test that obtained final data in the form of scores at the end of learning (Rahmawati, Lestari, & Umam, 2019). The sampling technique in this research was carried out by a random sampling technique, which is a random sampling technique that was applied in this study is the population consisting of three classes of experiments. This study aims to investigate the effect of the independent variable (independent variable) on the dependent variable (the dependent variable). The independent variables in this study are TSTS, SAVI, and AIR learning models while the dependent variable is numerical ability. Because this research involves three independent variables and one dependent variable, the analysis technique in testing the data used in this study is using a one-way ANOVA test with a p-value of 5%.

Stages of the TSTS Model
- **Preparation**
- **Presentation of Educators**
- **Group Activity**
- **Formality**
- **Group Evaluation and Awards**

Stages of the SAVI Model
- **Preparation**
- **Presentation of Educators**
- **Training**
- **Presentation of Results**

Stages of the AIR Model
- **Preparation**
- **Presentation of Educators**
- **Training**
- **Presentation of Results**

Figure 1: Research Design

Figure 1 provides information on the stages of the three methods to be applied where TSTS has a preparatory step that begins with the teacher giving presentations and explanations about the material to be studied then the teacher gives group activities by dividing some students into groups to solve the problems that have been given, the next step is

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formality and evaluation with an end to giving group awards to the group which is able to solve material problems regarding numerics.

Compared with the SAVI model which has a teacher preparation and presentation stage as the initial preparation of the TSTS model, but after the teacher gives a presentation and explanation the teacher will provide training to each student and appoint students to display the results that have been obtained. This is different from the AIR model which has several stages including the preparation made by the teacher in the form of delivering the material in detail and as a follow-up the teacher provides training individually to students and is endowed with the delivery of results. Data collection instruments in the form of numerical ability tests. Requirements for analyzing test data are tests of normality, homogeneity. Furthermore, testing the hypothesis using one-way Anava, and continued testing using the *Scheffe* test.

RESULTS/FINDINGS

Description of learning outcomes data, number, maximum value, minimum value, average, standard deviation, and variance of each class above are presented in Table 1.

Table 1: Description of Student Numerical Ability Data

Group	N	*Range*	*Minimum*	*Maximum*	*Mean*	*Std. Defiation*	*Variance*
TSTS	30	0.429	0.500	0.929	0.707	0.117	13.709
SAVI	30	0.544	0.400	0.944	0.707	0.152	23.302
AIR	30	0.462	0.538	1.000	0.846	0.132	17.488

Based on Table 1, for classes that use TSTS the average value obtained is 0.707 while the SAVI obtained an average value of 0.707 and the AIR obtained an average value of 0.846. The results of the numerical ability of students who use TSTS, SAVI, and AIR have differences. Classes that use the AIR (Auditory Intellectually Repetition) learning model have more impact on the learning process compared to the others because they have the highest average compared to the others.

Table 2: Normality Test

Group		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	**Df**	**P-value**	**Statistic**	**Df**	**P-value**
Value	**TSTS**	.112	30	.200*	.964	30	.395
	SAVI	.132	30	.190	.946	30	.133
	AIR	.149	30	.088	.908	30	.013

Note: This is a lower bound of the true significance*

To strengthen the results of the study, a hypothesis test was carried out using the one-way ANOVA test. Before conducting research testing, a prerequisite test is carried out. Prerequisite tests in the study include tests of normality and homogeneity tests. The recapitulation of the normality test results can be seen in Table 2.

From the data in table 2, namely the Normality test, for the p-value (p) in the shapiro-wilk test for TSTS is 0.395, the p-value in the shapiro-wilk test for SAVI is 0.133 and the p-value for the shapiro-wilk test for AIR which is 0.013, the p-value of each model> 0.05 ($p > 0.05$) because the p-value in the three sample classes is greater than $\alpha = 0.05$, it can be concluded that the three sample classes are normally distributed.

Table 3: Homogenity Test

		Levene Statistic	**Df1**	**Df2**	**p-value**
Value	**Based on Mean**	1.212	2	87	.303
	Based on Median	1.253	2	87	.291
	Based on Median and with adjusted df	1.253	2	83.359	.291
	Based on trimmed Mean	1.237	2	87	.295

Table 3 is the result of homogeneity test data, this test aims to test whether or not the assumptions for ANOVA apply, namely whether all three sample groups have the same variance. Uniformity variance test shows the probability or p-value of the entire sample is 0.295, which means p-value = 0,295 > 0,05 then in accordance with the test criteria and it can be concluded that the null hypothesis (H_0) accepted, so assuming that all three population variances are the same (homogeneous) can be accepted. Homogeneity test of three variants is also needed to continue the one-way ANOVA test, the following results of the hypothesis 3 categories of student learning outcomes can be seen in Table 4.

Table 4: Hypothesis Test (One-way ANOVA)

	Sum of Squares	Df	Mean Square	F	P-value
Between Groups	384017.689	2	192008.844	10.569	.000
Within Groups	1580507.300	87	18166.751		
Total	1964524.989	89			

Based on the results obtained from the results of hypothesis testing (One Way Anova) where it is seen that the probability value or p-value is 0,000 < 0,05. Thus the null hypothesis (H_0) rejected so that the three models have different impacts on improving numerical ability. This shows that there are differences in TSTS, SAVI, and AIR.

Based on the results obtained from the results of hypothesis testing (One Way Anova) where it is seen that the probability value or p-value is 0,000 < 0,05. Thus the null hypothesis (H_0) rejected so that the three models have different impacts on improving numerical ability. This shows that there are differences in TSTS, SAVI, and AIR.

Table 5: Scheffe Further Test Results

Group	P-value	Information
TSTS and SAVI	1.000	There is no difference
TSTS and AIR	.001	There is difference
SAVI and AIR	.001	There is difference

Based on Table 5, the results of the Scheffe follow-up test, it appears that the models have differences that affect the numerical ability, namely TSTS with AIR and SAVI with AIR. The impact is given between TSTS and AIR, the better is AIR, and the impact given between SAVI and AIR, the AIR model is also better. Of the three models, the AIR learning model has a better impact, as seen from the average value of AIR which is greater than the average value of TSTS and SAVI in table 1.

DISCUSSION / ANALYSIS

Next, to strengthen the conclusions, researchers review the steps of each learning model. In the first stage, all models make preparations starting from group formation and educators provide the motivation that raises students' interest in learning. The second stage of TSTS, SAVI, AIR together educators present or deliver material that will be the subject of discussion or can also educators provide stimulation so that students find what material will be discussed later.

After educators present or deliver the material, the third stage is training or group activities. At this stage, the students do the exercises and start discussing with each group according to the group discussion material and look for the results of the discussion that will be presented later. In the TSTS model, at this stage educators also explain how to form study groups and the transition process of each group as efficiently as possible. At this stage, all models aim to shape the activeness of students so that they train students to have experience of thinking and learning. At the TSTS stage, it is mentioned that there is a formality after the third stage, at this stage the teaching staff guides the students or study groups as they work on the task or material that is the subject of the discussion.

The fourth stage is the appearance or delivery of results in the SAVI and TSTS models, students present and can apply the results of their discussions together. It does not stop at the fourth stage, in the next TSTS model educators evaluate the results of the discussion of the material studied by each group or give orders to present group discussions. Then educators look for ways to reward each individual effort or group or group learning outcome. In the AIR model after the groups deliver their results, educators give assignments or quizzes to individuals or groups so that students repeat and review the learning material and also become a differentiator from other models (Arzak & Ibrahim, 2017)(Haruminati, Suarni, & Sudarma, 2016)(Purnomo, 2018).

Strengthened by the results of previous studies, that the AIR learning model impacts and influences and enhances numerical abilities, some of the numerical abilities include the ability to understand mathematical concepts, understanding mathematical problems, mathematical communication and mathematical problem solving (Agustiana, Putra, & Farida, 2018)(Purnomo, 2018)(Ridia & Afriansyah, 2019)(Ulvah & Afriansyah, 2016). TSTS can actually improve learning outcomes, critical thinking skills, problem-solving skills, mathematical communication skills, interpersonal communication, concept understanding, and improve student learning motivation (Anwar & Pandegawati., 2018)(Arzak & Ibrahim, 2017)(Astuti, Sutriyono, & Pratama, 2019)(Desmawati & Farida, 2018)(Effendi, Soetjipto, & Widiati, 2016)(Harta, Dharsana, & Renda, 2019)(Rahmawati, Masi, Kadir, & Jafar, 2019)(Anwar, Yuliani, & Fatmawati, 2018)(Susantika, Yunarti, & Gunowibowo, 2015)(Sutrisno, Samsudin, Liliawati, Kaniawati, & Suhendi, 2015)(Wildan, 2014)(Yulianti, Muntari, & Haris, 2015). The SAVI model can also improve problem-solving abilities, mathematical connection skills, increase the ability to understand mathematical concepts, interest in learning mathematics, mathematical representation abilities, learning achievement, creativity and mastery of knowledge competencies, increased mathematical activity, increased speaking skills, and the ability to write essays (Agustina, Yurniwati, & Zulela, 2019)(Cemara & Sudana, 2019)(Novitasari, 2019)(Saraswati & Maulana, 2019)(Wulansari, Roesdiana, & Imami, 2019)(Rahmawati N. K., 2018)(Wijaksana, Pratiwi, & Indriyah, 2018)(Mirnawati & Pribowo, 2017)(Haruminati, Suarni, & Sudarma, 2016)(Ulvah & Afriansyah, 2016).

Similar to the two previous models that the AIR model is also able to improve mathematical communication, mathematical problem solving, mathematical understanding, concept understanding, critical thinking, spatial, creativity and learning outcomes, motivation and learning outcomes, and learning interest (Harahap, 2019)(Martini, Tripalupi, & Haris, 2019)(Ramadhan & Aminatun, 2019)(Ridia & Afriansyah, 2019)(Ulva & Suri, 2019)(Agustiana, Putra, & Farida, 2018)(Hutagalung & Harahap, 2018)(Purnomo, 2018)(Winarti & Suharto, 2017)(Manurung & Aspia, 2016). Research on numerical abilities that were studied by previous researchers, namely numerical ability is the ability to handle numbers and complete calculations, as well as patterns and logical thinking(Novita, 2017). Then as for the relationship between numerical ability on problem-solving ability, emotional intelligence and learning independence, spatial ability on students' mathematical communication skills, creativity and student attitudes towards mathematics learning with learning achievement (Gunur, Lanur, & Raga, 2019)(Gunur, Makur, & Ramda, 2018)(Gunarti, 2017)(Damayanty & Sumadi, 2016), research by making numerical abilities covariable(Lestari, 2019)(Andika, Dantes, & Parmiti, 2017)(Supatni, Dantes, & Tika, 2015)(Pica, Marhaeni, & Dantes, 2015), The influence of numerical abilities and student attitudes on cognitive competence, numerical abilities and learning motivation as well as numerical abilities and ways of learning towards learning achievement (Amaliyah, 2018)(Novita, 2017), and analysis of numerical abilities in terms of gender differences (Sitriani, Kadir, Arapu, & Ndia, 2019). This study states that numerical abilities can be improved through the 2013 curriculum This study discusses numerical abilities that can be carried out through the 2013 curriculum as previously discussed the need for numerical abilities that fulfill the verbal and numerical skills needed in mathematics learning that is consistent with the 2013 curriculum (Prastowo, 2018)(Sarjana, Sridana, & Kurniati, 2018) and this curriculum focuses on student knowledge so that it can be applied to solve mathematical problems with a scientific approach. Problem-solving will be more meaningful if the mathematical problems provided are arranged using contextual problems in students' daily story problems. The relationship tactical itself in the direction of all educational activities and also efforts to achieve educational goals (Arifin, 2016)(Bahri, 2011). Besides being able to be improved through the curriculum, this research shows that numerical abilities can also be improved through the TSTS, SAVI, and AIR learning models. But when tested, in this study for all the numerical abilities have an impact. But what is more impactful or best is AIR. Then the AIR learning model gives a different impact in influencing and increasing numerical abilities.

CONCLUSION

Based on the result data and discussion it can be concluded that the TSTS (Two Stay Two Stray) learning model, SAVI (Somatic, Auditory, Visualization, and Intellectually) and AIR (Auditory Intellectually Repetition) differ in improving numerical ability. The AIR learning model has more impact on the numerical ability of students, compared to the SAVI and TSTS learning models.

As for suggestions that researchers can give based on the results of these studies, educators should be more creative and innovative in using and developing learning models or methods. The more learning models or methods, then we can analyze which learning models or methods have more impact to improve students' numerical ability.

LIMITATION AND STUDY FORWARD

In the next research, it is expected to develop SAV and AIR learning models by combining using IoT in a co-19 pandemic situation. So that the learning process in this situation continues to run and helps global problems, especially in the field of education

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AUTHORS CONTRIBUTION

Associate Professor Dr. Syamsul Huda as head of research in providing ideas and direction; **Associate Professor Dr. Munifah** the person who writes and integrated data and reference; **Muhamad Syazali, M.Si** as person who makes a process of analytical data; **Syarifah Sri Rahayu, S.Pd** the person who taken or sampling data in the location and looking for literature from previous research as the reference; **Rofiqul Umam, Ph.D.** as person who finishing the article/manuscript also translate to English.

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