
DEVELOPMENT OF TEACHING MATERIALS ON PLSV USING SCIENTIFIC AND CONTEXTUAL APPROACH TO IMPROVE MATHEMATICS COMMUNICATION ABILITY AND SELF CONFIDENCE

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ABSTRACT

Development of teaching materials on PLSV material using combination of scientific and contextual approach to improve mathematical communication ability and self confidence to seventh grade junior high school students. The purpose of this research and development is to obtain a design for developing mathematical teaching materials in the form of lesson plans and worksheet with combination of scientific and contextual approaches to PLSV material for smpn 3 cipeundeuy this study also aims to test the level of validity, practicality, and effectiveness of teaching materials with a combination of scientific and contextual approaches to PLSV material. This research is a development research. The results showed that based on the assessment of material experts and mathematics teachers, the teaching materials developed had very valid criteria with an average total score of 190.33 for lesson plans and 297.5 for worksheets. Based on the results of filling out questions on communication skills and student responses questionnaires about self-confidence, there has been a significant increase. So it can be concluded that with the development of teaching materials by combining scientific and contextual approaches with the results of filling out observations of the implementation of learning and the results of evaluating learning outcomes, it can be concluded that the teaching materials developed have a very good level of effectiveness with the percentage of learning implementation of 94.87% and the percentage of completeness students to 95%.

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INTRODUCTION

Mathematics is one of the subjects taught at all levels of education which has a very important role in mastering science and technology. The rapid development in the field of information and communication technology today is based on the development of mathematics in number theory, algebra, analysis, probability theory, and discrete mathematics. While

mathematics according to Kusumawardani et al. (2018) is formed as a result of human thinking related to ideas, processes and reasoning. At the initial stage, mathematics is formed from human experience in their empirical world, because mathematics as a human activity is then processed in the world of ratios, processed analytically and synthetically with reasoning in the cognitive structure so that we arrive at a conclusion in the form of mathematical concepts that have been developed. formed can be understood and can be easily manipulated appropriately, then used notations and terms that are mutually agreed globally (universally) known as mathematics.

Mathematical communication ability is the ability of students to convey mathematical ideas both orally and in writing. Students' mathematical communication skills can be developed through the learning process at school, one of which is the mathematics learning process. This happens because one of the elements of mathematics is the science of logic which is able to develop students' thinking skills. Thus, mathematics has an important role in the development of mathematical communication skills. According to Prayitno (Tambunan, 2021) mathematical communication is a way for students to express and interpret mathematical ideas orally or in writing, either in the form of pictures, tables, diagrams, formulas, or demonstrations. A broader understanding of mathematical communication is put forward by (Nugrawati, Nuryakin, & Afriliyanto (2018), namely connecting real objects, pictures, and diagrams into mathematical ideas; explaining mathematical ideas, situations and relations orally or in writing with real objects, pictures, graphing and algebra; expressing everyday events in mathematical language or symbols; listening, discussing, and writing about mathematics; reading with understanding a written mathematical presentation, making conjectures, constructing arguments, formulating definitions and generalizations; explaining and asking questions about mathematics that has been studied. studied.

Self-confidence is a person's belief in being able to behave as expected and desired and a person's belief that he can master a situation and produce something positive. Self-confidence according to Braden in Walgito is a person's belief in the abilities that exist within him. The characteristics of individuals who have self-confidence are having a calm and balanced attitude in their social situations. One of the attitudes in solving the problem is self-confidence. The self-confidence that each individual has in viewing himself with reference to his self-concept. In addition, self-confidence will also provide motivation for achieving one's success in solving the problems at hand. So that the higher one's self-confidence in one's own abilities, the stronger the enthusiasm to complete the work (Hendriana, 2014).

The curriculum in Indonesia places mathematics as a compulsory subject to be given to elementary school to high school students, even to universities for several related fields. Mathematics is also very closely related to everyday life. The high school mathematics curriculum contains details of topics, basic math skills, and attitudes that students are expected to have at each school level. According (Susanti, 2014) basic mathematical abilities can be classified into five main competencies, namely mathematical understanding, problem solving, mathematical communication, mathematical connections, and mathematical reasoning. other higher abilities are mathematical critical thinking skills and mathematical creative thinking abilities. while the attitude that students must have is a critical and careful attitude, objective and open, appreciating the beauty of mathematics, as well as curiosity and pleasure in learning mathematics. In learning mathematics, communication skills are very important. According to Umar (2012) mathematical communication skills can support other mathematical abilities. Students' mathematical communication skills are also very necessary to be able to present what they get from the learning they do, one of which is for the national development sector in an effort to educate the nation, can organize mathematical thinking both verbally and in writing, in addition students can provide the right response between other students and media in

learning. Even in social interaction, someone who has good communication will be easier to socialize with anyone. Students are also able to realize an education system and be proactive in responding to the challenges of an ever-changing era.

Based on a preliminary study in the field, the approach used by the teacher is using a scientific approach, the teaching materials used are also sourced from curriculum books, and students' initial ability to the PLSV concept using a scientific approach is still a lot of students whose scores are below the KKM. In general, in PLSV material, students must understand the concepts in this material because if students do not understand the PLSV material concepts, students will have difficulty working on practice questions. The importance of understanding the concept of PLSV material is that students can solve real problems related to linear equations and inequalities of one variable in everyday life. Based on the results of observations in class, it can be seen that students' mathematical communication skills are still low. This can be seen when students are asked to describe a diagram, students still find it difficult to describe it. In addition, on other subjects such as PLSV material, there are still students who are less precise in writing mathematical models. In addition, the lack of self-confidence is still visible in students. Indications that students' self-confidence is still lacking, namely students look less confident when asked to express their opinions, students are not confident in their abilities so that when the teacher gives assignments to students, they prefer to see their friends' work rather than doing it themselves. This is in line with the results of research observations by Agustyaningrum & Widjajanti (2013) that based on the results of questionnaire analysis, the average student confidence in learning mathematics is 74.03%. A total of 26.47% or about 18 students still have a confidence level of less than 70%. This cannot be left alone, because self-confidence is an important aspect in learning mathematics. According to Lie (Agustyaningrum & Widjajanti, 2013) someone who is confident will be confident in his ability to complete a job and problem. Therefore, the ownership of self-confidence in students will slowly grow students' mathematical communication skills.

From the explanation above, it can be concluded that students' mathematical communication skills are still low, so the authors provide a solution by developing teaching materials using a combination of scientific and contextual approaches which aim to improve students' mathematical communication skills. From this description, the author will conduct research that aims to develop teaching materials. This research is a development research because it aims to develop teaching materials. Based on the description above, the title of this thesis will be used, namely, "Development of Teaching Materials in PLSV Materials Using a Combined Scientific and Contextual Approach to Improve Mathematical Communication Skills and Self Confidence in Junior High School Students".

METHOD

Research and Development Methods (Research and Development) is a research method used to produce certain products, and test the effectiveness of these products. (Triyono, 2012) Research and Development or Research and Development (R&D) is a process or steps to develop a new product, or improve an existing product, which can be accounted for Research and development methods are research methods used to produce certain products, and test the effectiveness of these products (Purnama, 2016) . the steps for implementing the research and development strategy carried out to produce certain products and to test the effectiveness of the product in question, are: Potential and Problems in Data Collection Product Design Validation Design Revision of Product Trial Design Product Revision Trial Product Usage Mass Production(Purnama, 2016) .

Research and development modified from the ten steps of research and development from Gall, Borg, & Gall (1996). The ten steps referred to are (1) preliminary research/pre-

survey; (2) research planning; (3) Initial model/product development; (4) Expert testing and implementation of initial field trials; (5) Revised initial/limited field test results; (6) Implementation of the main field test; (7) Revised main field test results

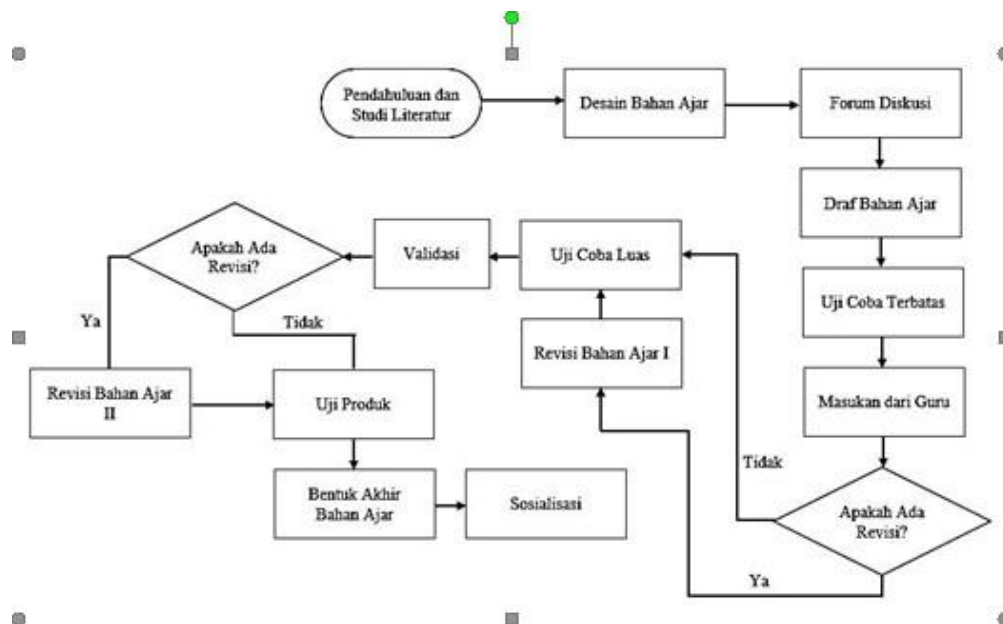


Figure 1. Development Research Flow

The subject of this research is the development of teaching materials for a limited trial at SMPN 3 Cipeundeuy, and for an extensive trial at SMPN 1 Cipeundeuy. For the teaching materials that were developed, a limited trial was conducted for 5 students of SMP class VII with high, medium and low criteria, each represented by two students. Meanwhile, to test the breadth of the product, it was tested on one class of students. The subjects for the product test in this study were class VII students of SMPN 3 Cipeundeuy with the sample selected based on considerations made by the researcher and based on certain criteria, namely the number of students, class conditions, suggestions from teachers and the school. In this study, the class used as the research sample was class VII A, totaling 35 students, to serve as the control class and class VII B, totaling 35 students, serving as the experimental class where the total number of students who were given treatment in the study amounted to 70 students. The research location for the limited trial was carried out at SMPN 3 Cipeundeuy with a total of 33 students, while for a wider trial it would be carried out in two schools, namely SMPN 1 Cipeundeuy, and SMPN 3 Cipeundeuy with a total of 33 students, so the total number of students in the trial wider area is 66 students, all located in West Bandung Regency. The instruments in this study were written tests to measure students' knowledge of PLSV material, questionnaires/student attitudes to measure teacher and student responses (open and closed), and teacher and student observation sheets.

RESULTS AND DISCUSSION

Results

From the explanation of the research objectives to develop a teaching material using two combinations, validation is needed for the teaching material itself. Validation was carried out to expert validators, namely lecturers, then by mathematics subject teachers and proved the level of readability to students of the relevant level in the study. Lecturers provide validation for teaching materials whether or not it is appropriate for the developed teaching materials to be used with revisions or without revisions as well as subject teachers to validate whether the

content is in accordance with the proposed level or not whether it can be used with revisions or without revisions while students filled out questionnaires and were interviewed whether they were able to achieve a high level of readability or not. The following is an initial view of the teaching materials prior to the limited trial, which is presented in Figure 2.

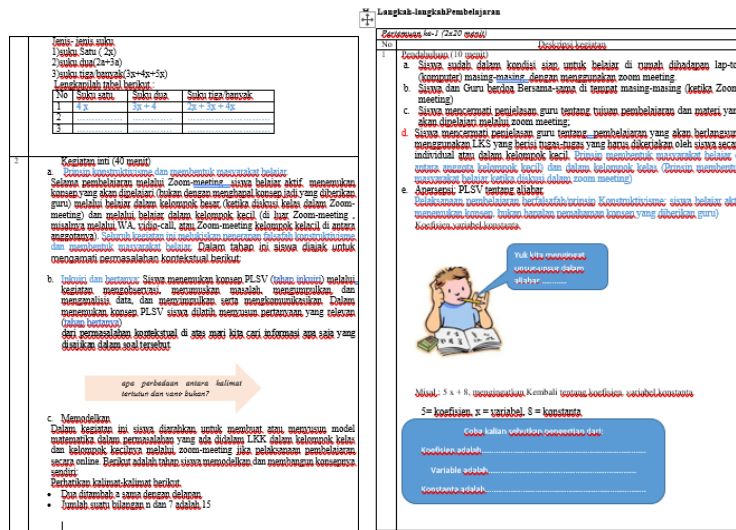


Figure 2. Initial Appearance of Teaching Materials Before Trial

Figure 2 shows the design or initial draft of the teaching materials that the authors developed prior to the trial. Then the authors proceed to the stages of developing teaching materials to the next stage. In the first stage, after the authors conduct a preliminary study and have a design and draft of teaching materials, the authors carry out initial validation (expert judgment) to look for deficiencies and revisions of the product that the compiler has developed. This stage is carried out to determine whether the teaching materials developed are feasible or not to be continued at the limited trial stage and wider trial. The validation results show that the average percentage of the validation aspects on the validation sheet of the teaching materials is still at 32%, so the expert validators conclude that the teaching materials can be tested with revisions.

The next stage of development research is limited trial. This limited trial was conducted at SMPN 3 Cipeundeuy and there were 33 students in class VII at the time of the online-based limited trial. In this limited trial, it was conducted to measure the students' readability of the teaching materials that the compilers developed. One of the techniques that the authors used to obtain data from the trial was in the form of interviews with students and the provision of questionnaires regarding teaching materials in the WA group. The following is a table of results from a limited trial that the authors have conducted at SMPN 3 Cipeundeuy. To get data on student readability during the limited trial, the authors hereby conduct virtual interviews with several students to find out what parts are difficult or poorly understood by students.

The following are the results of the limited trial documentation at SMPN 3 Cipeundeuy.



Figure 3. Limited trial

The next stage is a broad trial. For this stage, it is no different from the limited trial, it is still the same as the interview and questionnaire technique, only for the broad trial the authors researched in several schools, namely SMPN 1 Cipeundeuy. The following is a table of results from a wider trial that the authors have carried out at SMPN 1 Cipeundeuy in the West Bandung Regency area:

Table 1. Extensive Trial Results

No	Statement	Response	
		Yes	Not
1	is you understand problem which given in the LKK?	30 47.6%	33 52.4%
2	is you understand order from table which there is in LKK?	25 39.6%	38 60.4%
3	Do you understand the language that contained in LKK?	43 68.2%	20 31.8%
4	is language on LKK already effective/not complicated?	32 50.7%	31 49.3%
5	is you capable capture information which exists on LKK?	24 38.09%	39 61.91%
6	Are the teaching materials/LKK more practical than package book?	33 52.4%	30 47.6%
Percentage Average Whole		49,4%	50,6%

Final Validation is carried out to find out whether the teaching materials developed are feasible or not after the discovery of several shortcomings at the trial stage such as limited trials and extensive trials. From several stages of development research, the authors carried out and got the results that from initial validation and teaching materials could be tested with revisions, at the time of the trial there were still some students who still did not understand the content of the questions due to low legibility limitations and students were not confident in completing assignments, but in the final stage of the trial, many students had understood the contents of the question, therefore after a long journey at the final validation stage, it was concluded that teaching materials made using a scientific approach and a contextual approach were suitable for product testing with revisions. The following is a display of teaching materials after the trial process.

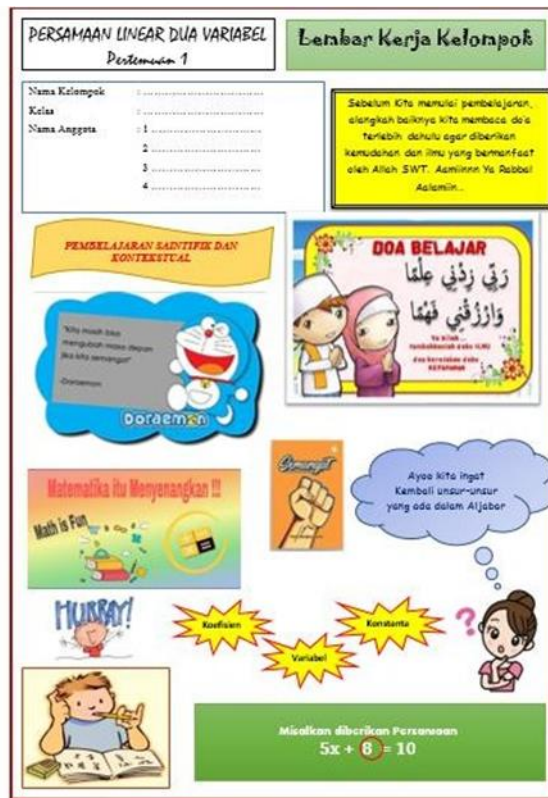


Figure 4 Display of Teaching Materials After Trial Activities

This product test was carried out by researchers at SMPN 3 Cipeundeuy in class VII which was carried out for 8 meetings on the material of Linear Equations of One Variable. In the implementation of the limited trial, there were pretest and posttest activities to measure students' communication skills before and after the teaching materials were used. Product socialization was carried out by researchers in limited meeting activities with school principals and fellow teachers to provide information on the development of the preparation of teaching materials which were compiled from the combination of a scientific approach and a contextual approach as a solution for learning, especially in learning mathematics. The following are product socialization activities that the compilers do can be seen in Figure 5 as follows:




Figure 5. Product Socialization Activities

The following is the final form of teaching materials when product socialization activities are carried out, after the teaching materials have gone through the development flow that the compilers did, they are presented in Figure 6.

H. Langkah-langkah Pembelajaran

Persemanan No-1 (2x20 menit)

No	Deskripsi kegiatan
1	<p>Pendahuluan (10 menit)</p> <ol style="list-style-type: none"> Siswa sudah dalam kondisi siap untuk belajar di rumah dihadapan lap-top (komputer) masing-masing dengan menggunakan zoom meeting. Siswa dan Guru berdoa Bersama-sama di tempat masing-masing (ketika Zoom-meeting) Siswa mencermati penjelasan guru tentang tujuan pembelajaran dan materi yang akan dipelajari melalui zoom meeting. Siswa mencermati penjelasan guru tentang pembelajaran yang akan berlangsung menggunakan LKS yang berisi tugas-tugas yang harus dikerjakan oleh siswa secara individual atau dalam kelompok kecil. Prinsip membentuk masyarakat belajar di antara anggota kelompok kecil) dan dalam kelompok kelas (Prinsip membentuk masyarakat belajar ketika diskusi dalam zoom meeting) Apersepsi: PLSV tentang aljabar Pelaksanaan pembelajaran berfasafah prinsip Konstruktivisme: siswa belajar aktif menemukan konsep, bukan hapalan pemahaman konsep yang diberikan guru) Koefisien, variabel, konstanta  <p>Misal: $5x + 8 = 10$, mengingatkan Kembali tentang koefisien, variabel, konstanta 5= koefisien, x = variabel, 8 = konstanta</p>


PERSAMAAN LINIER DUA VARIABEL
Dosen: M. A. ...

Nama Kelompok:


Kelas:

Nama Anggota: 1.
2.
3.
4.


PEMBELAJARAN SAINTEK DAN KONTEKSTUAL




DOA BELAJAR



PEMBELAJARAN SAINTEK DAN KONTEKSTUAL



DOA BELAJAR



Lembar Kerja Kelompok

Sablon: Kita memulai pembelajaran dengan baik kita membaca doa terlebih dahulu agar diberikan kemudahan dan ilmu yang bermanfaat Amin Allah SWT. Amine Ya Allah Amin...

Figure 6. The final form of teaching materials

The learning scenario of teaching materials developed by the compilers for Class VII SMP students uses a combination of scientific and contextual approaches. Steps and principles of the Scientific and Contextual Approach; (1) Constructivism philosophy: building or compiling new knowledge based on experience, through the active involvement of students during the learning process. This philosophy underlies all activities in the Contextual-Scientific approach, which is oriented towards active student learning (not memorizing information from the teacher) starting from the beginning of learning; (2) Forming a learning community: during learning (contextual and scientific) students learn to collaborate in small groups (outside [learning by Zoom-meeting) and large groups (class discussions in learning with Zoom-meeting), giving and receiving information from each other. group members or members of other groups. This principle underlies all learning steps and is implemented from the beginning of learning; (3) Asking and Inquiry: finding activities accompanied by asking involve students in observing activities, formulating problems, collecting and analyzing data, and concluding and communicating the concepts found; (4) Modeling: modeling activities involve the results of observation, data collection and analysis, and communicating the results in the form of mathematical models; (5) Communicating and Reflecting: analyzing all the activities that have been carried out and concluding and communicating the results, then making a summary at the end of the lesson as a form of reflection; (6) Authentic Assessment (conducted by the teacher): conduct an assessment from the beginning to the end of learning in cognitive and affective aspects through observing student activities during learning. At the end of a learning period (a number of meetings) for example at the end of a learning period, a mathematics description test and a Likert model affective scale are carried out.

In using a combination of a scientific approach and a contextual approach, not all seventh grade junior high school students accept mathematical concepts well, there are students who are more comfortable with the scientific approach, there are also students who prefer to be given new things. Students have difficulty in working on communication problems. The

following are the results of the analysis of the difficulties experienced by students during learning activities using a combination of a scientific approach and a contextual approach, with 6 students taken, namely Student 1 and Student 2 with High ability, Student 3 and Student 4 with Medium ability, while Student 5 and Student 6 with moderate ability. low:

Table 2 Level Difficulty Which experienced Student

No	Respondent	Type Difficulty	Level Difficulty		
			Tall	Curren tly	Low
1	Student 1	group of friends not all Cooperate			<input type="checkbox"/>
2	Student 2	Not there is			<input type="checkbox"/>
3	Student 3	Not can makemodel		<input type="checkbox"/>	
4	Student 4	Not understand fill in table		<input type="checkbox"/>	
5	Student 5	Not understand question	<input type="checkbox"/>		

From Table 2, it can be seen that two high-ability students both experienced low-level difficulties or had no difficulties at all. Meanwhile, two moderately capable students both experienced moderate difficulty, and two low-ability students both experienced high level difficulties where they did not understand at all the learning they were carrying out. The compiler also determines the score limit for the percentage of student achievement in solving communication problems, which is 70% in accordance with the KKM at the school. Then the following percentage of student achievement will be presented in Table 3 below:

Table 3

Percentage of Posttest Score Achievement Mathematical Communication Ability Experiment Class and Control Class

Sample	No. Question	Average	high school	Percentage	Category
Class Experiment	1	83	100	83%	Achieved
	2	80	100	80%	Achieved
	3	77	100	77%	Achieved
	4	71	100	71%	Achieved
	5	52	100	52%	Not yet Achieved
Class Control	1	72	100	72%	Achieved
	2	74	100	74%	Achieved
	3	57	100	57%	Not yet Achieved
	4	60	100	60%	Not yet Achieved
	5	49	100	49%	Not yet Achieved

From Table 3, it can be seen that the percentage for each item of mathematical communication skills for the experimental class as a whole is already good in solving questions number 1, 2, 3 and 4 with an average percentage above 76%. But in solving problem number 5 students have difficulty because it can be seen from the average percentage below 70%. As for the control class, only questions number 1 and 2 have been achieved and have a percentage above 70%, while the other three questions are numbers 3, 4, and 5 with an average percentage below 60% which means that students in the control class are still having difficulty in work on the problem.

To clarify the description of the research results, data analysis was carried out on the results of the pretest experimental class and control class to determine the differences in the initial abilities of students in the experimental class and control class through statistical tests which included Normality Test. Non-Parametric Test, namely the Mann Whitney Test, if the data is normally distributed then it is continued with the Parametric Test which begins with the Homogeneity Test, if the data is not homogeneous then it is continued to do the T' test, if the data is homogeneous then the Independent Samples T Test is then carried out. The first testing stage is the normality test for the pretest scores of the experimental class and control class, which is used to find out which way the next testing stage should be, whether Parametric or Non-Parametric Tests. Normality test was carried out with the help of IBM SPSS Statistics Version 22 program. Test criteria: If the value of Sig. > , then the sample data is normally distributed. The results of the calculation of the pretest normality test for the experimental class and the ability control class.

Table 4

Results Test Normality Mark Pretest Ability Communication Mathematical

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistics	df	Sig.	Statistics	df	Sig.
Pretest_Experiment	.167	27	.071	.920	27	.068
Pretest_Control	.130	27	.129	.933	27	.123

a. Lilliefors Significance Correction

From Table 4, based on the calculation of the Kolmogorov-Smirnov test results, it can be seen that the significance value of the pretest for both classes < is 0.071 and 0.129, which means that the pretest data for both classes is normally distributed. Because one of the classes is not normally distributed, the next step is a Parametric Test, namely the Independent Samples T Test.

Student responses to the learning of one-variable linear equations by using a combination of a scientific approach and a contextual approach. Based on the students' answers to statement 1 in the form of a positive statement, the results showed that almost some students strongly agreed (42.9%), some students agreed (50%) to learn mathematics using new teaching materials with a very happy response. Meanwhile, only a few students disagreed (7.1%) and there were no students who strongly disagreed (0%). The average percentage of student answers for statement item number 1 is 43.89%. This shows that almost half of the students are very happy to learn mathematics with new teaching materials. Analysis of student statements for statement items numbered 2 to 30 is described in the same way as in item number 1. Based on the results of calculations, the average percentage of student answers as a whole is 52.86%.

This shows that the average percentage of student responses after receiving learning using a combined scientific approach and contextual approach is 55.81%. That is, more than half of students have a positive response to learning by using a combination of a scientific approach and a contextual approach. Based on the calculation results, the average percentage of students' answers as a whole is 52.86%. This shows that the average percentage of student responses after receiving learning using a combined scientific approach and contextual approach is 55.81%. That is, more than half of students have a positive response to learning by using a combination of a scientific approach and a contextual approach.

Discussion

This study aims to develop a product of teaching materials so that later it will be found in the field regarding the lack of students' mathematical communication skills as a result of inadequate teaching materials. The stages of developing teaching materials carried out in this research Research and development were modified from the ten steps of research and development from Gall, Borg, & Gall (1996). The ten steps referred to are (1) preliminary research/pre-survey; (2) research planning; (3) Initial model/product development; (4) Expert testing and implementation of initial field trials; (5) Revised initial/limited field test results; (6) Implementation of the main field test; (7) Revised main field test results; (8) Feasibility test/operational field test; (9) Final revision of the results of the due diligence; (10) Dissemination and implementation of the final product.

In learning, it can be said that the approach has an important role in student learning outcomes when applied properly and has a positive impact on learning (Iskandar, 2016). In line with the results of research that has been carried out by the authors where learning that uses a combination of scientific approaches and contextual approaches has an important role in improving mathematical communication skills compared to scientific approaches and has a positive impact on students. In learning activities students learn through LKK which has been developed by the compiler at the stage of implementing the final product. The LKK contains the characteristics of the two approaches that are combined into one so that new characteristics are formed that are able to guide students from facing to solving the given problems. According to Septianti and Afiani (2020) that characteristics are important to understand as the basis for developing teaching strategies. These characteristics include constructivism philosophy, forming a learning community, asking and inquiry, modeling, communicating and reflecting, and authentic assessment. Learning scenarios are part of the lesson plan presented by the teacher, and are very important in creating dynamic didactic situations because they can be used to facilitate students' thinking processes (Suryadi, 2013). The scenario and implementation of student learning carried out in this research is offline with three stages of learning activities, namely preliminary activities, core activities, and closing activities. The preliminary activity includes activities such as greetings, spiritual attitudes, attendance checks, delivery of learning objectives, apperception and motivation. The preliminary activity was carried out for ± 20 minutes. Then after the preliminary activities are completed, then the core activities are carried out where the core activities contain most of the characteristics of the combination of the two approaches that the compilers have developed, the core activities contain characteristics such as constructivism philosophy, learning community, asking and inquiry, modeling, and communicating. The core activity was carried out for ± 50 minutes. Then the last activity stage is the closing activity, the closing activity contains activities such as reflecting, giving/reminding students' assignments, encouraging them not to be lazy to study, praying, and closing greetings. The closing activity was carried out for ± 10 minutes. Meanwhile, for the last characteristic, authentic assessment is carried out by the teacher without being known by the students, such as conducting an assessment from the beginning to the end of learning for cognitive and affective aspects through observing student activities during learning. According

to Nohda (Suherman, 2003) to help develop students' mathematical mindset through a simultaneous approach. In other words, so that students' mathematical communication skills can develop optimally. Learning with a combination of a scientific approach and a contextual approach provides an opportunity for students to investigate the steps that students believe are able to lead to steps to solve a problem and communicate it. So that the combination of a scientific approach and a contextual approach has a close relationship with the development of mathematical communication skills.

Basically there are several factors that are disturbances experienced by students so that they experience difficulties in learning including internal factors and external factors. These factors include self, school environment, family, and society. In addition to these factors, there are also learning activity factors in the classroom (Yeni, 2015). The difficulties described in this study are divided into two, namely the difficulties that occur during learning using teaching materials that the compilers develop and difficulties when working on mathematical communication skills. The level of difficulty experienced by students is divided into three, namely high, medium, and low. The data collection technique was through interviews with students with a sample of two students with high abilities, two students with moderate abilities, and two students with low abilities. The results of the interviews obtained that most students do not experience significant difficulties when learning by using a combination of two approaches, namely the scientific approach and the contextual approach. Then the difficulty when working on the problem of mathematical communication skills, students in the experimental group and the control group tend to have difficulty in solving problem number 5 which is possible because question number 5 has a difficult index of difficulty. Therefore, students must have mathematical communication skills in completing. This will help students in communicating and presenting problems well so that they can be understood and solved.

One of the objectives of this research, apart from developing teaching material products that are capable of being a solution to problems regarding teaching materials in schools, this research also aims to examine the achievement of mathematical communication skills and Self Confidence of junior high school students after teaching materials by using a combination of scientific approaches and approaches. contextual development has been completed compared to those using the existing scientific approach in schools as usual without any development for teaching materials. The research was carried out at the product test/implementation stage of the final product in development research after going through the development stages which were carried out in accordance with the opinion stated by Budiarti and Haryanto (2016) in conducting their development research that if the product is considered good then it is said to be suitable for use and testing. by using two classes as samples to be used as an experimental class and a control class. The average pretest result there is no significant difference between the experimental class and the control class as research conducted by Yanti (2017) with an initial test of the pretest value and got the results that the basic abilities of the two classes were the same before being given treatment. Furthermore, the two groups were given different treatments where the experimental class was treated with teaching materials that had been developed while the control class was treated with a scientific approach that exists in schools in general. Then based on the results of posttest data analysis in the experimental class and control class, the mathematical communication ability in the experimental class is higher than the control class. It can be concluded that the mathematical communication skills of students who learn by using a combination of a scientific approach and a contextual approach are better than students who learn by using a scientific approach. This is in line with research conducted by Mulhamah and Putrawangsa (2016) who conducted research by applying a contextual approach in their learning to junior high school students and the equivalent by getting the results that there was an increase in students' mathematical abilities from cycle 1 to cycle 2, while it was also in line

with research conducted by Nuralam and Eliyana (2018) who use a scientific approach in their learning by getting the results that the mathematical ability of learning using a scientific approach is higher than the realistic approach. Then, based on the results of non-test data analysis in the experimental class and control class, the Self Confidence of students in the experimental class is higher than the control class. It can be concluded that the Self Confidence of junior high school students who receive learning using a combination of a scientific approach and a contextual approach is better than those who receive learning using a scientific approach. This is in line with research conducted by Juliandita (2017) which states that the mathematical affective ability of students who receive synectic learning is significantly better than the mathematical affective ability of students who receive conventional learning.

Based on the results of the analysis, the responses given by students when they received learning with a combination of a scientific approach and a contextual approach that most students gave a positive response to the learning carried out. In accordance with research conducted by Hadijah (2018) by analyzing the responses of students and teachers to learning with innovative media that was created and produced a positive response from students and teachers who received the learning. Student response data in this study were taken using a questionnaire with 15 statement items which consisted of positive statements and negative statements. Each statement item expresses the condition of students when carrying out learning by using a combination of a scientific approach and a contextual approach. Questionnaires are given after the learning is carried out with the aim of getting the maximum response because students have experienced the learning directly. The analysis of the responses above is very important because it is in accordance with the opinion of Suryadi and Turmudi (Ekawati, Junaedi, & Nugroho, 2013) which states that knowledge about student response levels is important to know as an effort to develop students' mathematical thinking processes. This requires the ability of teachers including: (1) the ability of teachers to identify and analyze student responses as a result of the educational process; (2) the ability of teachers to take follow-up actions based on the results of student responses towards achieving the learning objectives.

CONCLUSION

Based on the results of research that has been carried out regarding the development of teaching materials to improve communication skills and Self Confidence of junior high school students using a combination of scientific approaches and contextual approaches, it can be concluded; (1) In the process of developing teaching materials, it has been carried out well which is divided into 6 stages after the teaching materials are made, namely starting from: (a) Initial Validation (Expert Judgment); (b) Limited Trial; (c) Wider Trial; (d) Final Validation (Expert Validation); (e) Product Test (Experiment Class Sample and Control Class); (f) Product socialization to get a statement that the product is suitable for use; (2) Scenario and implementation of learning in accordance with the plan for developing teaching materials that have been prepared using a combination of scientific approach and contextual approach which produces six new characteristics, namely (a) Constructive philosophy; (b) Establishing a Learning Society; (c) Asking and Inquiry; (d) Modeling; (e) Communicating and Reflecting; and (f) Authentic Assessment; (3) The difficulties in learning from the five samples taken did not show that they had a high level of difficulty. Then when working on the problem of mathematical communication skills, both the experimental class and the control class, the difficulty in solving questions number 4 and 5 can be seen from the percentage of achievement of the two classes that are still relatively low on the question, so that for the student problem solving step, the average difficulty in the step of compiling a mathematical model ; (4) The mathematical communication ability of students who learn by using a combination of a scientific approach and a contextual approach is better than students who learn by using a scientific approach; (5) Self Confidence of junior high school students who receive learning

using a combination of scientific approaches and contextual approaches are better than those who receive learning using scientific approaches; (6) Students' responses to learning by using a combination of scientific approaches and contextual approaches are indicated by the percentage of student statements in the questionnaire given the results that more than half of students respond positively to learning.

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