

The development of a mathematics student's worksheet based on the context of Al-Qur'an to improve students' generalization skills

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Abstract:

Teaching materials are a medium for achieving teaching goals; one type of teaching material is LKS. LKS is a teaching material that is applied by teachers to transfer information in a more practical and interesting form, especially by making it easier for students to receive information. This LKS was created by incorporating the Islamic context of the Qur'an. Developing worksheets by linking everyday problems is felt to be very necessary to train students' logical, critical, and rational thinking. Madrasas are synonymous with an Islamic background, so there is a need for worksheets that can facilitate the uniqueness of students, accommodate appropriate levels of action and thinking, and accommodate contextualization with their daily lives and religious lives without forgetting the essential needs of their mathematical abilities. This research is called research and development (R&D). Development is carried out using the ADDIE stages: (1) analysis, (2) design, (3) development, (4) implementation, and (5) evaluation. To determine the feasibility of this study using validity, practicality, and effectiveness tests, Validity tests were carried out by math content experts, Al-Qur'an content experts, linguists, and design experts. The results of the validity test obtained 87.33%, so they meet very valid criteria. While the results of the practicality test by students were 86.56%, the results of the practicality test by practical teachers were 94.44%, and based on these results, it met the very practical criteria. And the results of the effectiveness analysis show that the percentage of classical effectiveness is 83.00%, so it can be said to meet the criteria for being effective. Thus, the developed LKS product meets the criteria of validity, practicality, and effectiveness.

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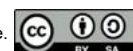
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INTRODUCTION

Teaching materials, in the form of materials that continue to develop dynamically in line with the progress and demands of the times, are a medium for achieving teaching goals used by students (Haryonik, 2018). Teaching materials are an important component that cannot be ignored in learning because teaching materials are the core of the teaching and learning process. Teaching materials are all materials, including information, tools, and texts, that are arranged systematically by displaying competencies that will be mastered by students and used in the process of learning activities. Teaching materials are also known as teaching materials, which are seen as materials provided to meet learning needs and include textbooks, videos, audio tapes, computer software, and visual aids. The previous statement is in accordance with Ernawati (2017). The availability of varied

teaching materials can make learning activities more interesting for students. Students will get more opportunities to learn independently, holistically, and integratively, and can reduce dependence on the presence of the teacher. Strengthening the previous opinion (Friansah and Luthfiana, 2018).

Teachers are the key to the quality of education. Teacher quality is the core business of education. The teacher's ability to design or compile material in the form of teaching materials is one of the things that really plays a role in determining the success of learning (Farihah and Septiadi, 2018). As a facilitator, the teacher must make every effort to ensure that the teaching materials produced make students more active, creative, and capable of training student learning independence (Ramdani, 2018). In an effort to improve the quality of education in Indonesia, the government issued various policies, including those regarding increasing teacher competence. One of these competencies is listed in the regulation of the Minister of Education and Culture number 65 of 2013 concerning process standards for primary and secondary education, which regulates, among other things, lesson planning, which requires teachers in education units to develop lesson plans, including all components therein. One of the components in the learning implementation plan is learning resources or teaching materials (Norsanty and Chairani, 2016). One of the teaching materials that can be made by teachers is the Student Worksheet (Haryonik, 2018).

LKS is a student guide that is used to carry out investigative or problem-solving activities. LKS should be designed by the teacher, considering the determined structure of the LKS (Norsanty and Chairani, 2016). LKS is teaching material that has been packaged in such a way that students can study it independently. The use of LKS is expected to minimize the teacher's role, activate students, make it easier for students to understand the material provided, train students in working on questions, and save time in the learning process (Wahidah, 2018). In addition, the LKS is made with the aim of guiding students regarding the activities that need to be given and considering the thought processes that will be developed in students (Rahmawati and Marsigit, 2017). LKS is arranged according to student development. This is in line with Prastowo in Gritiani, who explained the functions of LKS, among others, as a product that can facilitate the teacher's role, make students more active, understand learning more easily, be useful for practicing, and make it easier for teachers and students to implement learning (Gitriani, 2018).

The LKS that have been circulating so far have been impressive as a media drill and show. LKS seems unattractive and does not contain student activities that develop mathematical abilities (Mauluah and Marsigit, 2014). Worksheets, which are frequently sold in bookstores as learning tools that measure students' understanding of learning, are designed to be less appealing, colorless, and lack images that can motivate and increase student learning interest, so that learning with LKS appears monotonous and boring (Friansah and Luthfiana, 2018). The LKS does not help students construct the material they have learned. Students are emphasized on the skills of working on questions, while concept planting is only given for a short period of time. As a result, students often make mistakes when working on questions. There are no activities or learning steps in the LKS, so there is no opportunity for students, either individually or in groups, to play an active role in constructing the concepts they are learning themselves (Rupaidah and Danaryant, 2013).

Considering that the LKS function is very strategic in guiding the student learning process, So the vehicle for training students to think more critically in teaching and learning activities and to increase interest in learning needs to be improved by developing worksheets that suit the needs of schools or madrasahs. Madrasah needs worksheets that can facilitate the uniqueness of students, accommodate appropriate levels of action and think, and accommodate contextualization with their daily lives and religious lives while not forgetting the essential needs of their mathematical abilities (Mauluah and Marsigit, 2014). So, it is necessary to develop mathematics worksheets that are

integrated with Islamic values. Researchers are interested in designing LKS integrated with Islamic values because madrasas are Islamic-based schools, so it is felt that there is a need for mathematics teaching materials in the form of LKS that contain Islamic values. This LKS is also oriented between the material being taught and situations in the real world that breathe Islam; in this case, students are required to be active in solving problems related to the real world and breathing Islamic values (Desri, 2018).

The integration of Islamic values can be implemented with all mathematics sub-materials, one of which is the Two-Variable Linear Equation System (SPLDV) material. A system of two-variable linear equations is a system or unity of several algebraic equations that have two variables of the same rank and rank one, in the form of a relation equal to; if depicted on a graph, it will form a straight line (Afriyanti, 2008).

The use of SPLDV material in the development of worksheets was because students at MTsN 1 Jember experienced problems when solving problems in the form of word problems. Most students are still confused when making mathematical models of word problems, and they have not mastered SPLDV methods. The teaching materials used by mathematics teachers at MTsN 1 Jember include teaching materials from publishers as well as teaching materials made by teachers. Teaching materials made by teachers are modules, while teaching materials from publishers include textbooks and LKS.

LKS from publishers does not meet the needs of students, so many students struggle to master the learning material, and students appear confused when answering questions in the LKS. This happens because the conditions of students, which vary greatly, make it difficult for all students to be able to fully understand the teaching materials from publishers.

In this regard, the material for a system of linear equations for two variables is considered interesting and suitable as teaching material in the form of student worksheets. By providing unexpected problems, for example, by providing mathematics worksheets that are integrated with Islamic values, this is one way to train students' thinking skills, so they have broader insights. With this, it is hoped that students will be able to adapt to change and get used to digesting new ideas. Mathematics learning is expected to always experience improvements to deal with developments in technological progress and the times. In addition, learning mathematics is also expected to build students' character and values through religious or Islamic values.

The Islamic values chosen by the researcher to be integrated into the LKS teaching materials under development are those found in the Qur'an. Al-Qur'an is the holy book of Muslims, containing guidelines for human life. As a guideline for human life, the Qur'an not only contains guidelines for worship but also includes social, cultural, political, economic, and educational issues, which include education in science, mathematics, and so on (Nu'man, 2016). Mathematical concepts in the Qur'an include algebra, geometry, sets, measurement, estimation, and others. Many of these mathematical concepts have been included in the madrasah curriculum at both the basic and advanced levels (MTs and MA). As a result, the Qur'an is crucial in madrasah education (Nasution, 2017). MTsN 1 Jember is a school that is within the scope of the Tahfidz Al-Qur'an Islamic boarding school, and the majority of MTsN 1 students live in the Tahfidz Al-Qur'an Islamic boarding school, so it is strategic when applying math LKS teaching materials integrated with Islamic values in the context of the Qur'an to MTsN 1 Jember.

There are two main bases for incorporating religious values into education. First, in the 1945 Constitution (amendment version), article 31, paragraph 3, it states, "The government seeks and organizes a national education system, which increases faith and piety and noble character in the context of educating the nation's life, which is regulated by law." Second, article 31, paragraph 5,

which states, "The government advances science and technology by upholding religious values and national unity for the advancement of civilization and the welfare of mankind." The two laws imply the integration of religious values in learning (Muspiroh, 2013). The integration referred to here is related to efforts to integrate general knowledge with Islam without eliminating the uniqueness between the two disciplines (Surur et al., 2018).

The constitutional mandate proves that the purpose of education in Indonesia is not only to develop potential and educate, but also to form people with religious character because religion plays an important role in the formation of people who are faithful, pious, and have noble character. The role of religious values is very important in every educational process that occurs in schools.

One of the goals of education is for students to be able to reason about patterns and properties, use math to generalize, put together evidence, or explain mathematical ideas and statements. Reasoning consists of inductive reasoning and deductive reasoning. One activity that belongs to inductive reasoning and is an important aspect of the thinking process is generalization. According to Lesmana et al. (2018), generalization is an important aspect because it can build a good understanding of mathematical concepts and minimize the concepts in students' mathematical thinking. This is in accordance with the opinion of Hudojo (2012), "Thinking mathematically is a mental activity that uses generalizations in its process." Students' mistakes in using generalizations can cause students difficulties in finding mathematical concepts properly. Therefore, the basic capital of the process of thinking mathematically to understand mathematical concepts is mathematical generalization. According to Mason (2011), indicators of mathematical generalization ability are: 1) perception of generality, 2) expression of generality, 3) symbolic expression of generality, and 4) manipulation of generality.

METHOD

The type of research used is research and development, or research and development; in this research, the development model used is the ADDIE model. ADDIE stands for Analysis, Design, Development or Production, Implementation or Delivery, and Evaluation, which was developed by Dick and Carry (1996) (Hamzah, 2019). The next stage in this research and development is analysis. There are three stages of analysis: analysis of student needs, analysis of the curriculum, and analysis of Islamic values. The 2nd stage is design, namely the design of the LKS preparation and the design of the LKS feasibility instrument; the 3rd stage is development; and the 4th stage is implementation, namely the LKS trial stage in class. Based on this stage, the eligibility of the LKS can be assessed in terms of practicality and effectiveness through filling out questionnaires and taking tests. During the study, the fifth stage of evaluation (evaluation) is carried out. The ADDIE development design can be seen in Figure 1.

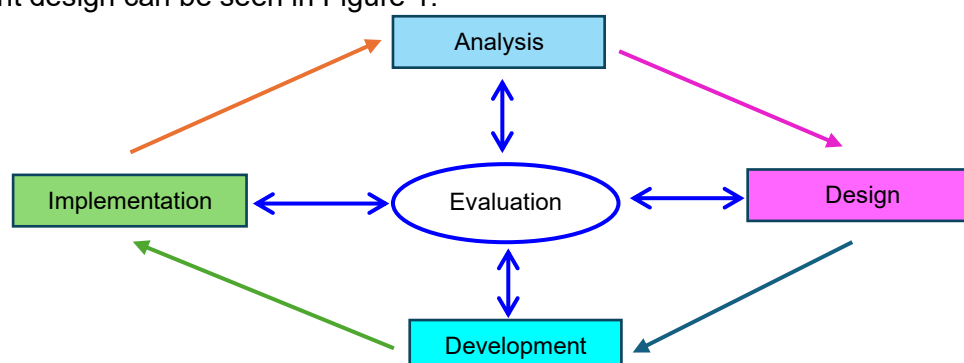


Figure 1. ADDIE Development Design

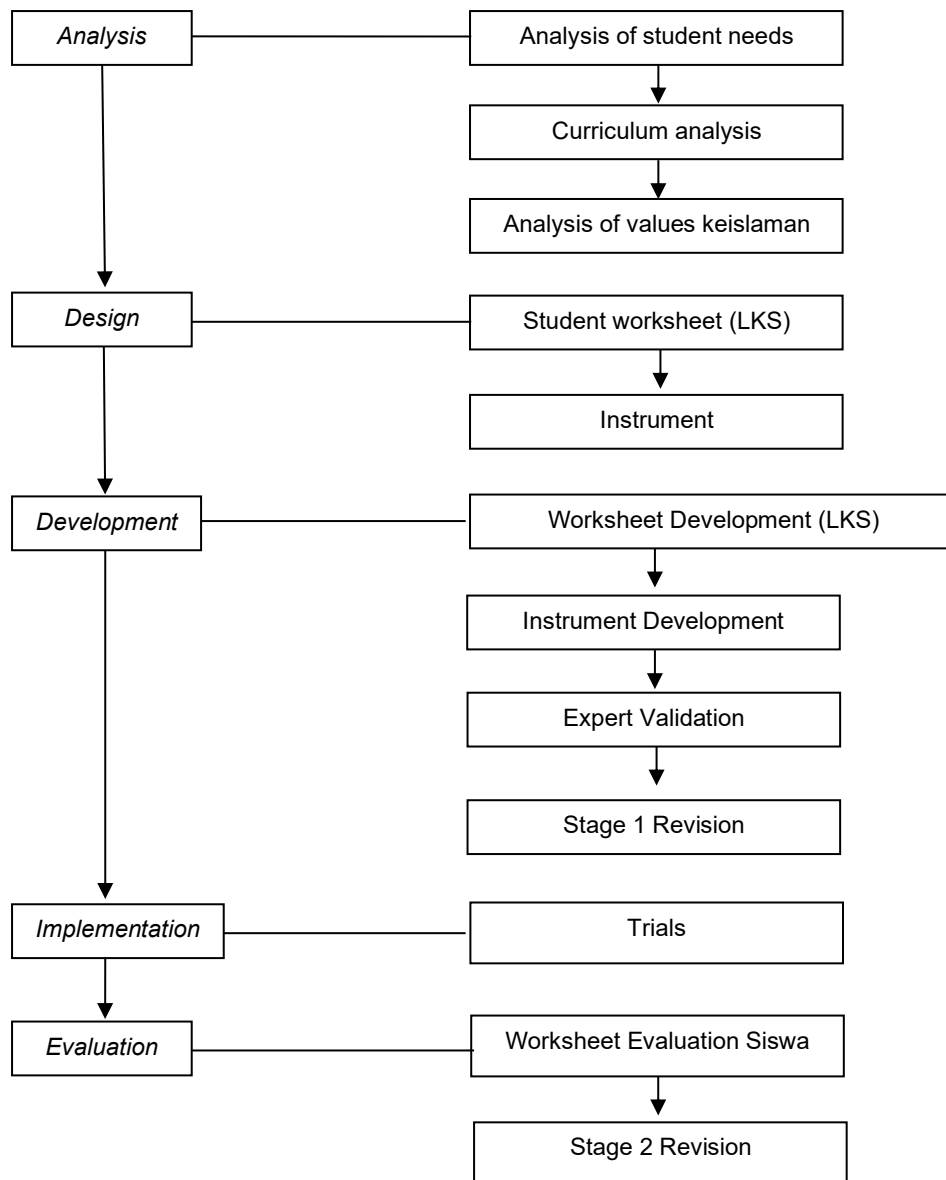


Figure 2. ADDIE Development Design

Validity is a measure that shows the level of validity and accuracy of a measuring instrument in carrying out its measuring function (Solekhah, 2018). The following are the criteria for the validity of the LKS (Irmawati et al., 2017: 606):

Table 1. Conversion of Product Validity Levels

Achievement Criteria	Level of Validity	Description
85,01-100%	Very Valid	It can be used without repair
70,01- 85,00%	Valid	It is usable but needs minor repairs
50,01- 70,00%	Less Valid	It's usable, but it could be a lot better
01,00- 50,00%	Invalid	It cannot be used

Source: adapted from Irmawati et al.

After a team of experts declares the LKS product valid, a practicality and attractiveness analysis are performed. Practicality was obtained from the results of filling out student response

questionnaires and teacher response questionnaires on the use of worksheets. The following are the practical criteria for student worksheets (LKS) teaching materials:

Table 2. Product Practicality Level Conversion

Achievement Criteria	Level of Validity	Description
85,01-100%	Very practical	It can be used without repair
70,01- 85,00%	Practical	It is usable but needs minor repairs
50,01- 70,00%	Less practical	It's usable, but it could be a lot better
01,00- 50,00%	Not practical	It cannot be used

Source: adapted from Irmawati et al.

Effectiveness is obtained from the LKS test results, which have been declared valid and practical. The following are the criteria for the effectiveness of student worksheets (LKS) teaching materials:

Table 3. Product Effectiveness Level Conversion

Achievement Criteria	Level of Validity	Description
85,01-100%	Very effective	It can be used without repair
70,01- 85,00%	Effective	It is usable but needs minor repairs
50,01- 70,00%	Less Effective	It's usable, but it could be a lot better
01,00- 50,00%	Ineffective	It cannot be used

Source: adapted from Irmawati et al.

The validity assessment procedure uses the total value obtained divided by the total maximum value multiplied by 100%. calculated using the following formula (Gitriani, 2018):

$$P = \frac{T}{n} \times 100\%$$

with: P = classical percentage, T denotes the total value obtained, n = the total highest possible score.

The data obtained from observing student activities during the learning process was tested statistically using parametric statistical tests. Statistical tests in this study used the R-Shiny software through learning centers and virtual statistics laboratories, which can be accessed via the web page <http://statslab-rshiny.fmipa.unej.ac.id/RProg/BasicStat/>, which was built by Tirta (2016) laboratories, which can be accessed via the web page <http://statslab-rshiny.fmipa.unej.ac.id/RProg/BasicStat/>, which was built by Tirta (2016). There are two variables in this study, namely the independent variable and the dependent variable. The independent variable being tested is a research-based learning device with a STEM approach, while the dependent variable is students' combinatorial skills. Next, a paired sample t-test was performed on the results of the pre-test and post-test.

RESULT

Analysis Stage

At this stage, the researcher conducted a needs analysis, a curriculum analysis, and an analysis of Islamic values. Based on the interview conducted on October 28, 2020, with the guest speaker Abdul Bari, S.P., M.P., Information was obtained that the teaching materials used by mathematics teachers at MTSN 1 Jember were LKS teaching materials from publishers. Teaching materials from publishers often did not meet the needs of students. so that many students have

difficulty mastering the learning material. Furthermore, an examination of the curriculum applicable to learning at MTSN 1, Jember, specifically the 2013 curriculum, Islamic analysis revealed that the subjects are the Qur'an and Hadith. Al-Qur'an and Hadith are compulsory subjects, and these subjects are available at every grade level, namely grades seven, eight, and nine, so students at MTsN 1 Jember are familiar with contextual issues and Islamic cases.

Design Outcome (Design)

The second stage is design; the researcher prepares the LKS design and the instrument design. The preparation of the LKS design has two stages, including determining the contents of the LKS section and determining an appropriate and attractive design. In preparing the LKS design, consider determining the title of the LKS, its preface, table of contents, basic competencies, reading corners around the Qur'an, Islamic mathematicians who are appropriate to the theme of the material, an introduction to SPLDV material, problems surrounding SPLDV integrated with Islamic values, practice questions integrated with Islamic values, answer keys, a bibliography, and image features. preparation of LKS assessment instrument designs in the form of validation by mathematical content experts, validation by Al-Qur'an content experts, validation by linguists, validation by design experts, student responses, and teacher responses. This math content expert validation sheet is adapted to the 2013 curriculum standards. The cover and work instructions sheet on LKS can be seen in Figure 3.

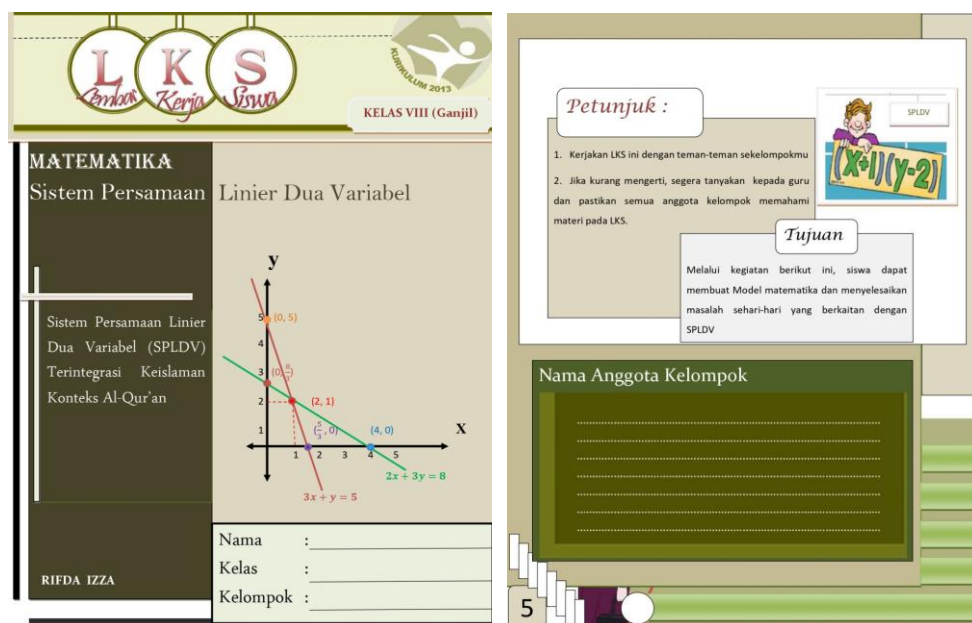


Figure 3. Cover and work instructions sheet on LKS

One of the components in the LKS is the reading corner. The reading corner contains information about Islam, namely information about the Qur'an and Islamic mathematicians. This brief introduction to Islam about the Qur'an includes the meaning of the Qur'an, its position, its global contents, and the mathematics contained in the Qur'an. Information about this reading corner was obtained from the results of a literature study conducted by researchers to find out directly. The purpose of this reading corner is for students to gain insight into knowledge about inheritance, aqiqah, qurban, and determining the Hijri month. Besides that, the concept of cryptography or

cryptology, which is the meeting point of mathematics, is also contained in the Al-Quran. The LKS reading corner can be seen in Figure 4

Student worksheets are equipped with student activities that can be discussed or worked on in groups. These student activities contain understanding the concept of the Two-Variable Linear Equation System (SPLDV), determining the mathematical model, and determining the completion of the Two-Variable Linear Equation System (SPLDV) from word problems that integrate Islamic values in the context of the Qur'an with certain themes, as shown in Table 4.

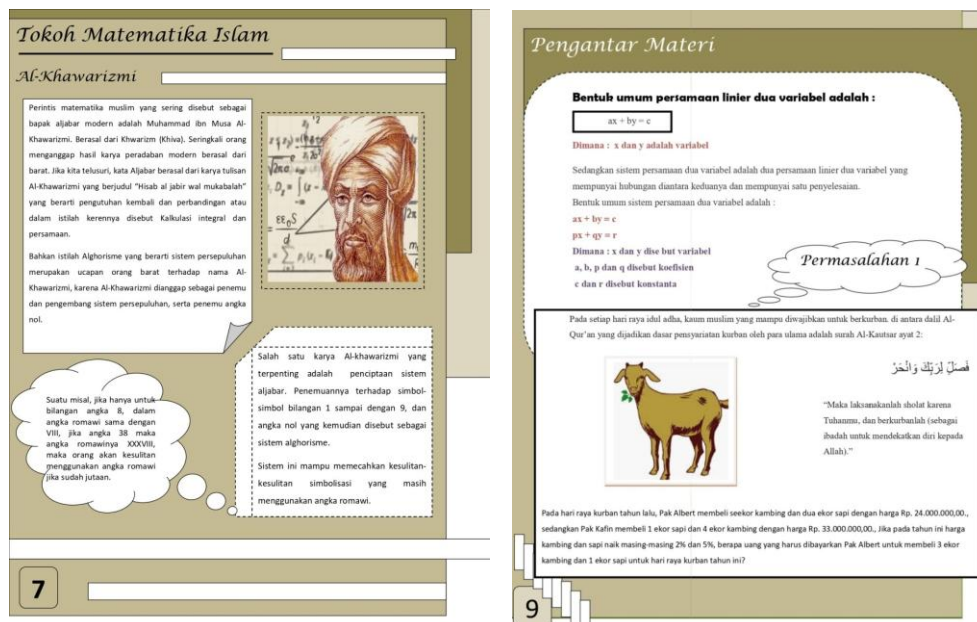


Figure 4. LKS reading corner

Table 4. The SPLDV math questions are integrated with Islamic values in the context of the Qur'an

Question Items	
1	<p>The Al-Qur'an has 20 pages in one juz. If Zainuri ziyadah 2 pages and muroja'ah 5 pages per day, he will finish the ziyadah in p days and muroja'ah 1 juz of the Qur'an in q days. Solve the following two-variable system of equations!</p> $px + 10y = 70$ $5x + qy = 30$ <p>Determine the x and y values!</p>
2	<p>Mr. Keyn has assets of Rp. 1,550,000,000.00. One day Mr. Keyn had a heart attack and spent Rp. 120,000,000.00, but he was still helpless; he died, leaving 4 sons and 3 daughters. Based on the word of God in Suar An-Nisa verse 11,</p> <p style="text-align: right;">يُوصِيكُمُ اللَّهُ فِي أَوْلَادِكُمْ لِلذَّكَرِ مِثْلُ حَظِّ الْأُنثِيَيْنِ ؕ</p> <p>So, how much inheritance did Mr. Keyn's sons and daughters get?</p>
3	<p>The Qur'an consists of 114 surahs and 6236 verses. If a is the number of verses from Sura Al-Maun and b is the number of verses from Sura Al-Lahab, then the values of a and b in the system of linear equations for the following two variables are: $2x + 3y = a$</p> $2x + 3y = a$ $2x + y = b$ <p>Determine the x and y values!</p>
4	<p>There are surahs munjiyat in the Al-Qur'an, one of which is sura Ar-Rahman. In Surah Ar-Rahman, there is a sentence</p>

Question Items

فَبِأَيِّ آلَاءِ رَبِّكُمَا تُكَذِّبَانِ

The sentence is repeated p times in Surah Ar-Rahman.
If:

$$px + 20y = 65$$

$$3x + 10y = 20$$

then determine the value of x and y!

- 5 On every Eid al-Adha, Muslims who can afford it are required to sacrifice. Surah Al-Kautsar verse 2 is one of the Qur'anic arguments that scholars use to justify their choice of sacrifice:

فَصَلِّ لِرَبِّكَ وَانْحَرْ

"So carry out the prayers for your Lord and make sacrifices (as worship to draw closer to Allah)."

Mr. Albert spent Rp. 24,000,000.00 on a goat and two cows for last year's sacrifice, while Mr. Kafin spent Rp. 33,000,000.00 on a cow and four goats. If this year the prices of goats and cows increase by 2% and 5%, respectively, how much money must Mr. Albert pay to buy 3 goats and 1 cow for this year's qurbani?

6

إِنَّ الصَّلَاةَ كَانَتْ عَلَى الْمُؤْمِنِينَ كِتَابًا مَوْقُوتًا

"Indeed, prayer is a fardhu whose time is determined for those who believe." (QS. An-Nisa: 103)
Based on the snippet of the verse above, it can be seen that a sentence is composed of several hijaiyah letters. The number of letters ا in the above verse is a, while the number of و in the above verse is b.

Solve the following two-variable system of equations!

$$ax + y = 9$$

$$bx + 2y = 8$$

Determine the x and y values!

This activity is equipped with image features that match the theme of the question, namely images of sacrificial animals, to make it more attractive and not monotonous. Activity 1 is also equipped with completion steps as a guide and stimulus, and students must fill in the answers in the blanks contained in these steps. The methods used in the steps of this solution are elimination, substitution, and combined methods. More details can be seen in Figure 5.

AYO BERLATIH LAGI!!
Permasalahan 2

Pak Keyn mempunyai harta kekayaan Rp. 1.550.000.000,00. Pada suatu hari Pak Keyn terkena serangan jantung dan sudah menghabiskan biaya pengobatan sebesar Rp. 120.000.000,00, namun Pak Keyn tetap tidak tertolong, beliau wafat dengan meninggalkan 4 putra dan 3 putri. Berdasarkan firman Allah dalam surat An-Nisa ayat 11:

يُوصِيكُمُ اللَّهُ فِي أَوْلَادِكُمْ لِلرَّجُلِ مِثْلُ حَظِّ الْمَرْثَةِ

maka, berapakah harta warisan yang diperoleh masing-masing putra dan putri Pak Keyn?

Langkah 1:

- Kita misalkan perempuan adalah (x) dan laki-laki adalah (y)
- 4y = sisa harta pak Keyn
- Kita cari sisa harta pak Keyn berdasarkan permasalahan di atas
- 1.550.000.000,00 - ... = 1.430.000.000,00

Langkah 2: kita terjemahkan potongan ayat Al-Qur'an diatas

Allah mewariskan kepada kita tentang pembagian warisan untuk anak-anakmu, yaitu bagian seorang anak laki-laki sama dengan dua orang anak perempuan.

Dari terjemahan tersebut dapat diketahui bahwa $y = 2x$

$y = 2x$ → (karena seorang anak laki-laki sama dengan dua orang anak perempuan).

Permasalahan 3

Al-Qur'an terdiri dari 114 surah dan terdiri dari 6236 ayat. Jika a adalah jumlah ayat dari surah Al-Maun dan b adalah jumlah ayat dari surah Al-Lahab, maka nilai a dan b pada sistem persamaan linier dua variabel berikut adalah?

$$2x + 3y = a$$

$$2x + y = b$$

Tentukan nilai x dan y!

Pemecahan

➤ **Langkah 1:** Tentukan nilai a dan b dalam surah Al-Maun terdiri dari 7 ayat, maka nilai a = 7 sedangkan surah Al-Lahab terdiri dari 5 ayat, maka nilai b = 5

➤ **Langkah 2:** lakukan eliminasi x pada persamaan 1 dan persamaan 2, sehingga:

$$2x + y = 7 \quad \text{(persamaan 1)}$$

$$2x + y = 5 \quad \text{(persamaan 2)}$$

$$\quad \quad \quad - \quad \quad \quad = 2$$

$$y = \dots$$

➤ **Langkah 3:** lakukan substitusi pada persamaan 2, sehingga:

$$2x + y = 5$$

$$2x + \dots = 5$$

$$2x = 5 - \dots$$

$$2x = \dots$$

$$x = 2$$

Sehingga nilai x = ... dan y = ...

NEXT

Langkah 3: setelah kita mendapatkan persamaan dari permasalahan diatas, maka dapat kita lakukan langkah ke 3 yaitu mencari hasil x dan y

$$y = 2x \quad \text{(persamaan 1)}$$

$$3x + 4y = 1.430.000.000 \quad \text{(persamaan 2)}$$

Substitusikan persamaan 1 ke persamaan 2!

$$3x + 4(\dots) = 1.430.000.000$$

$$3x + \dots = 1.430.000.000$$

$$x = \dots$$

➤ $y = 2x$

$$y = 2 (130.000.000)$$

$$y = \dots$$

KESIMPULAN

Jadi, 1 anak perempuan mendapatkan
dan 1 anak laki-laki mendapatkan

Figure 5. Activity display on LKS

Results Development (Development)

The development stage was carried out with expert validation by UIN KHAS Jember lecturers; this stage aims to see the feasibility of the designed worksheets. The validators consist of lecturers of mathematics content experts, lecturers of Al-Qur'an content experts, lecturers of language experts, and lecturers of design experts. After getting an assessment from the validator, the LKS was revised according to the validator's criticisms and suggestions. The results of expert validation can be seen in Table 5.

Table 5. Validation results by experts

Assessed aspects	Score	Average score	Presentase
Matematika	55	3,93	
Al-Qur'an	59	4,53	
Language	46	4,6	
Desain	66	4,4	
The average score of all aspects		4,36	87,33%

Implementation Results

The implementation stage is the fourth stage of developing the ADDIE model. The Product Student Worksheet (LKS) is ready to be applied to students when it has been declared feasible by the validator. The experiment was carried out on students at MTSN 1, Jember. The trial was carried out by taking one class, namely VIII-C. The trial in class VIII-C was attended by 30 students.

Evaluation results

Evaluation, or assessment, is the fifth stage of the ADDIE development model. The evaluation of LKS products is currently incomplete. The practicality aspect can be seen from filling in the student response questionnaire instrument and the teacher response questionnaire instrument. While the acquisition of student test scores demonstrates effectiveness, The teacher's response to the LKS product that has been used shows a very good category with an average score of 4.72 and a percentage of 94.44%. while the results of the practicality test by students were 86.56%. Based on this, the LKS product did not need to be revised. The value of this test result was obtained from the assessment of student work on the evaluation questions contained in the LKS; out of 30 students, there were 8 who did not complete and 22 others who met the completion criteria. The total value obtained is 1635, with a total average of 81.75. Based on the results obtained from the calculation of the classical percentage of effectiveness, namely 81.74%, so that the developed math worksheet product can be said to have effective criteria.

Based on this, the developed worksheets are valid, practical, and effective.

Next, a paired sample t-test was performed on the results of the pre-test and post-test. Before that, a normality test was carried out. This statistical test uses the r-shiny online software, namely <http://statslab-rshiny.fmipa.unej.ac.id/RProg/BasicStat/>. The normality test output results are presented in Figure 6.

+	SET DATA ▾	CEK NORMALITAS ▾	STATS DASAR ▾	REGRESI ▾
statistic	p.value	method	data.name	
0.92	0.06	Shapiro-Wilk normality test	datasetInput()[, input\$var.y]	
0.92	0.06	Shapiro-Wilk normality test	datasetInput()[, input\$var.y]	

Figure 6. Normality test results for pre-test and post-test values

Based on Figure 6, the significance value of p-value is $0.06 > 0.05$. This means that the distribution of pre-test and post-test data is normally distributed. Then, the paired 2-group t test was carried out, and the output results of the homogeneity test are presented in Figure 8.

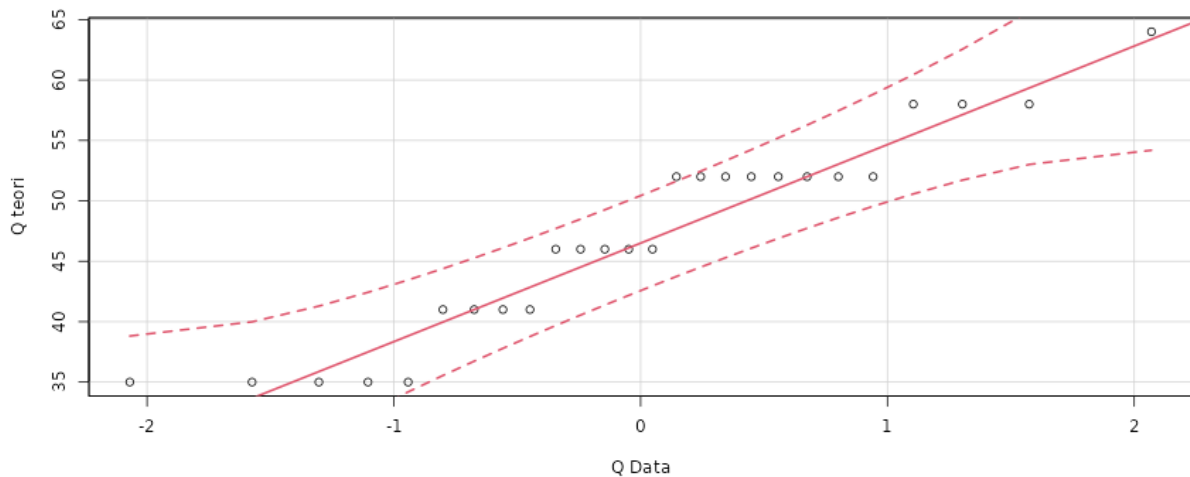


Figure 7. QQ-Norm results for pre-test and post-test

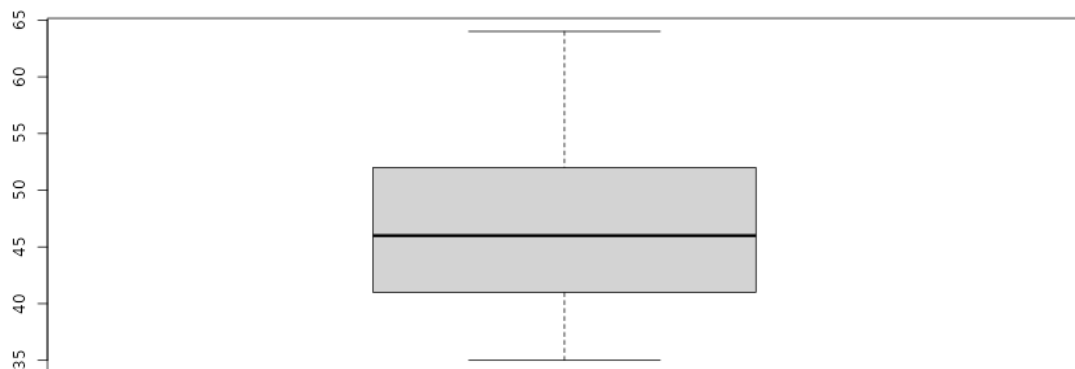


Figure 8. Boxplot results for pre-test and post-test

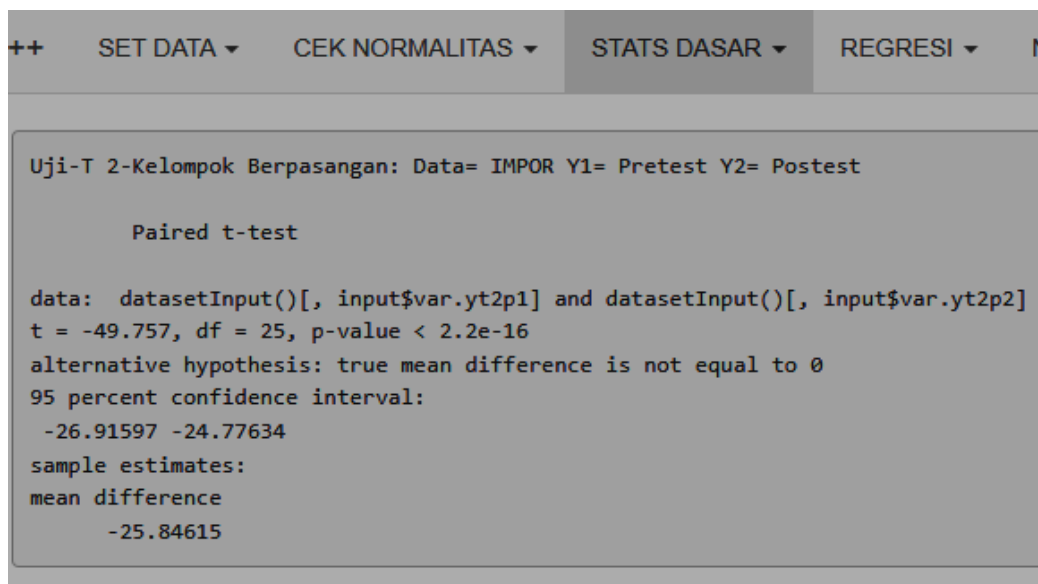


Figure 9. Results of the Paired Two-Group T-Test on Pre-Test and Post-Test Scores

Based on Figure 8, the significance value of the p-value is $2.2 \times 10^{-16} < 0.05$. It can be seen that there is a significant difference between the pre-test scores and the post-test scores. Therefore, it can be concluded that the application of integrated mathematics learning tools to Islamic values in the context of the Qur'an has an influence on the two-variable linear equation system material.

DISCUSSION

Teaching materials, in the form of materials that continue to develop dynamically in line with the progress and demands of the times, are a medium for achieving teaching goals used by students (Haryonik, 2018). LKS is teaching material that has been packaged in such a way that students can study it independently. The use of LKS is expected to minimize the teacher's role, activate students, make it easier for students to understand the material provided, train students in working on questions, and save time in the learning process (Wahidah, 2018). This LKS was created by incorporating the Islamic context of the Qur'an. Developing worksheets by linking everyday problems is felt to be very necessary to train students' logical, critical, and rational thinking. Madrasas are synonymous with an Islamic background, so there is a need for worksheets that can facilitate the uniqueness of students, accommodate appropriate levels of action and think, and accommodate contextualization with their daily lives and religious lives without forgetting the essential needs of their mathematical abilities. The type of research used in this study is research and development with the aim of developing student worksheets (LKS) integrated with Islamic values in the context of the Qur'an to improve students' generalization ability on Class VIII material linear equations systems of two variables (SPLDV). Research and development is a research method used to produce certain products, one of which is educational products, by testing the validity and effectiveness of these products. The products developed are in the form of learning models, teaching materials, and the necessary instruments. Development is carried out using the ADDIE stages: (1) analysis, (2) design, (3) development, (4) implementation, and (5) evaluation. The results of the validity test obtained 87.33%, so they meet very valid criteria. While the results of the practicality test by the students were 86.56%, the results of the practicality test by the teacher were 94.44%, and based on these results,

it met the very practical criteria. And the results of the effectiveness analysis show that the percentage of classical effectiveness is 83%, so it can be said to meet the criteria for being effective. Thus, the developed LKS product meets the criteria of validity, practicality, and effectiveness. The p-value has a significance value of $0.02486 > 0.05$.

CONCLUSION

This research is called research and development (R&D). Development is carried out using the ADDIE stages: (1) analysis, (2) design, (3) development, (4) implementation, and (5) evaluation. To determine the feasibility of this study using validity, practicality, and effectiveness tests, Validity tests were carried out by math content experts, Al-Qur'an content experts, linguists, and design experts. The results of the validity test obtained 87.33%, so they meet very valid criteria. While the results of the practicality test by students were 86.56%, the results of the practicality test by practical teachers were 94.44%, and based on these results, it met the very practical criteria. And the results of the effectiveness analysis show that the percentage of classical effectiveness is 83,000%, so it can be said to meet the criteria for being effective. Thus, the developed LKS product meets the criteria of validity, practicality, and effectiveness. The p-value has a significance value of $0.02486 > 0.05$. It can be seen that there is a significant difference between the pre-test scores and the post-test scores. Therefore, it can be concluded that the application of integrated mathematics learning tools has an influence on Islamic values in the context of the Qur'an in the matter of a two-variable linear equation system.

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CONFLICT OF INTEREST

Many students have understood mathematical concepts, yet they are often unaware that these concepts are also found in the Qur'an. Therefore, this study is essential to provide students with broader knowledge about the connection between mathematics and the Qur'an.

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