

Developing PISA like

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Developing PISA-Like Math Tasks on Algebra Using Arabian Context

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Abstract

This development research that aims to develop PISA-like math tasks on algebra using Arabian context that are valid, practical and have a potential effect on mathematical literacy skills. This research used two stages, namely: preliminary and formative evaluation. This research also used Lesson Study Learning Community (LSLC) system in the process of development and implementation. This research involved eighth grade students of Junior High School 19 Palembang, aged 13-15 years. Data collection and analysis techniques used were walkthrough, observations, interviews, and tests. In this research, 6 units and 9 items of PISA-like-math problems were produced with the characteristic content that using Algebra topic, Arabian context which included personal and social context, levels that were in accordance with the framework of PISA 2018, namely level 2, 3, 5 and 6, process competencies, namely mathematical literacy skills, use of language in accordance with standard, can be applied and well interpreted by students. Therefore, it can be concluded that PISA-like math tasks which developed were valid, practical and have a potential effect on mathematical literacy skills and learning to live on facing Arabian culture in the South Sumatera.

Keywords: Development Research; PISA-Like Math Tasks; Algebra; Arabian Context

Abstrak

Penelitian ini merupakan penelitian pengembangan yang bertujuan untuk mengembangkan soal tipe PISA pada Aljabar menggunakan *Arabian context* yang valid, praktis serta memiliki efek potensial terhadap kemampuan literasi matematika. Penelitian ini menggunakan dua tahapan yaitu: *preliminary* dan *formative evaluation*. Dalam penelitian ini juga menggunakan sistem *Lesson Study Learning Community* (LSLC) dalam proses pengembangan maupun implementasinya. Penilitain ini melibatkan siswa kelas VIII SMP Negeri 19 Palembang yang berusia 13-15 tahun. Teknik pengumpulan dan analisis data yang digunakan yaitu *walkthrough*, observasi, wawancara, dan tes. Pada penelitian ini dihasilkan 6 unit dan 9 pertanyaan soal matematika tipe PISA dengan karaktesitik konten yang menggunakan Aljabar, konteks Arabian yang meliputi konteks pribadi dan sosial, level yang sesuai dengan *framework* PISA 2018 yaitu level 2, 3, 5 dan 6, kompetensi proses yaitu kemampuan literasi matematika, penggunaan bahasa yang sesuai dengan standar bahasa, dapat diterapkan serta diinterpretasikan dengan baik oleh siswa. Sehingga, dapat disimpulkan bahwa soal matematika tipe PISA yang dikembangkan valid dan praktis serta memiliki efek potensial terhadap kemampuan literasi matematika dan kecakapan hidup dalam menghadapi keberadaan budaya Arab di wilayah Sumatera Selatan.

Kata kunci: Penelitian Pengembangan; Soal Matematika Tipe PISA; Aljabar; *Arabian Context*

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INTRODUCTION

Mathematical literacy is a very important ability possessed by students, especially in the current era of globalization. This is because mathematical literacy skills can make a person aware of the role of mathematics and able to solve real problems (OECD, 2019a; Jannah, Putri & Zulkardi, 2019, Saputri & Zulkardi, 2020). However, in fact the results of Indonesian students' mathematical literacy in the 2018 PISA (Program for International Student Assessment) are still relatively low because they

only got a score of 379 which is very far from the international average score of 489 (OECD, 2019b). One of content in mathematical literacy that is considered difficult for students is Change and relationship where students were often mistaken in identifying problems, transforming real problems into mathematical structures and interpreting mathematical solutions into the real world. Change and relationship content in PISA is the same as Algebra topic in the 2013 curriculum.

This is because there are very few PISA-like math tasks presented in textbooks (Ahyan, Zulkardi & Darmawijoyo, 2014; Murtiyasa, Rejeki & Setyaningsih, 2018). Thus, students are less accustomed to solving PISA-like-math problems (Nizar, Putri & Zulkardi, 2018). Maharani, Putri & Hartono (2019) stated that designing and implementing PISA-like-math tasks in learning activities is very necessary where problems are designed using contexts that are familiar to students to make them easier to understand the problems. This shows the need for PISA-like math tasks by using contexts that are familiar to students to familiarize students in solving PISA-like math tasks.

PISA-like math tasks are in line with the PMRI (Pendidikan Matematika Realistik Indonesia) approach which is based on context (van den Heuval-Panhuizen & Drijvers, 2014; Jannah, Putri & Zulkardi, 2019; Zulkardi, Putri & Wijaya, 2020). One of characteristics of PMRI is students' contribution where students can use their own ideas in solving the problem (Gravemeijer, 1994; Zulkardi, 2002; Zulkardi & Putri, 2010; Dewi, Putri & Hartono, 2018) where the application of these characteristics is very relevant to collaborative strategy that can be applied through the LSLC (Lesson Study Learning Communiy) system (Sato, 2014; Octriana, Putri & Nurjannah, 2019).

In this research, using a distance learning mode based on government policies in the Circular of the Minister of Education and Culture (MoEC) Number 4 of 2020 in dealing with the COVID-19 pandemic situation. The right strategy to use in the distance learning mode is blended learning because it is able to integrate the use of ICT effectively into a learning that is very suitable for use in distance learning which consists of synchronous and asynchronous learning (Bath & Bourke, 2010).

Thus, researchers are interested in developing PISA-like math tasks where previously there have been many researches regarding the development of PISA-like-math tasks, namely by using the context of Bangka (Dasaprawira, Zulkardi & Susanti, 2019), Asian Games (Putri & Zulkardi, 2020), Sailing (Efriani, Putri & Hapizah, 2019), COVID-19 (Nusantara, Zulkardi & Putri, 2020a; Nusantara, Zulkardi & Putri, 2021) and Physical Social Distancing (Nusantara, Zulkardi & Putri, 2020b). However, there had been no research that had developed PISA-like math tasks using Arabian context. So that, Arabian context will be used in this research where there are many Arab tribes living in South Sumatra and their culture is well known and even some of these cultures have been used as cultural heritage by the South Sumatera government such as al-Munawwar village, Kubro Pilgrimage and so on. So, this research aims to develop PISA-like math tasks on Algebra using Arabian context that are valid, practical and have a potential effect on mathematical literacy skills.

METHODS

This research aims to develop PISA-like math tasks on Algebra using Arabian context that are valid, practical and have a potential effect on mathematical literacy skills. The students involved in this research were class VIII of Junior High School 19 Palembang aged 13-15 years. This is development research which consists of 2 stages, namely preliminary and formative evaluation (Tessmer, 1993; Zulkardi, 2006).

This research also used the LSLC system in the development and implementation process where the plan stage includes preliminary, self-evaluation, expert review and one-to-one, the do stage includes the small group stage and field test, the see/reflection stage is an evaluation activity was carried out after the learning process takes place, and the re-design stage is the process of revising the prototype in each stage.

In the preliminary stage, the researchers conducted a literature review, designed PISA-like math tasks on Algebra using Arabian context and other instruments needed in the research, discussed PISA-like math tasks designed with 2 peers collaboratively through groups in the WhatsApp. In addition, validity and reliability tests were also carried out with the aim of reviewing the validity of the problems from an empirical perspective and the consistency or reliability of PISA-like math tasks developed. The validity and reliability test involved 26 students in class VIII.1-VIII.4.

The formative evaluation stage consists of self-evaluation, expert-review and one-to-one stages, small group and field tests. In the self-evaluation stage, the researchers evaluated the PISA-like math tasks have been developed based on the results of peer discussions and further evaluations by the researcher then revised the problems so that a prototype 1 was formed. At the expert review and one to one were carried out simultaneously where in the expert review prototype 1 was validated in terms of content, construct and language by 3 experts, namely Mathematics Education lecturers at UPI, Singaperbangsa Karawang University and Unsri while in one to one, prototype 1 was given, completed and then commented on by 3 students of class VIII.7 with high, medium and low abilities where the results from these two stages were combined and used to revise prototype 1 to prototype 2. At the small group, it involved 8 students of class VIII.6 with the aim of reviewing the practicality of PISA-like math tasks developed and revising prototype 2 into prototype 3. At field test, it involved 27 students of class VIII.9 with the aim of looking at the potential effects of PISA-like math tasks developed on mathematical literacy skills.

The data collection techniques used in this study were walkthroughs, observations, interviews and tests where the data collected were analyzed qualitatively except the data obtained from validity and reliability tests. Validity and reliability results were analyzed using SPSS where the PISA-like math tasks were said to be empirically valid if the calculated correlation value > the correlation value in the table and reliable if the Cronbach alpha value > 0.6 (Ghozali, 2011).

1 RESULTS AND DISCUSSION

This research produced PISA-like-math tasks on Algebra using Arabian context which valid, practical and has a potential effect on mathematical literacy skills which consists of 6 units, namely a trip to two Arabian villages (1 items), Al-Munawwar tourist village (2 items), tambourine (1 item), kubro pilgrimage (1 item), arabic robe (2 items) mandhi rice dish (2 items). However, the researchers made the tambourine and mandhi rice dish units as representations of the development process carried out.

Preliminary

At the preliminary stage, literature review, curriculum analysis and the framework of PISA 2018 were carried out and designing PISA-like-math tasks on Algebra using Arabian context based on the characteristics of PISA problem in the framework of PISA 2018 and other instruments needed in research. Then, the researchers discussed the PISA-like math tasks with 2 peers collaboratively in accordance with the LSLC principle (Octriana, Putri & Nurjannah, 2019) through a chat group on the WhatsApp. Besides that, validity and reliability tests were carried out on 26 students of class VIII.1-4 of Junior High School 19 Palembang where the validity test aimed to review the validity of PISA-like-math problem developed from an empirical perspective and the reliability test aimed to review the consistency or reliability of PISA-like-math problem developed. Validity and reliability tests were analyzed using SPSS. This following figure show the correlation value of 10 items in the validity test which were analyzed by SPSS:

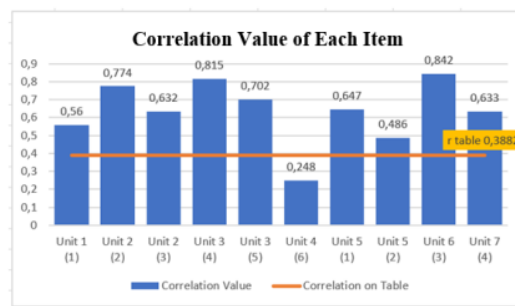


Figure 1. The Analyze of Validity Test Result

In figure 1, unit 1 is a trip to two Arabian villages context, unit 2 is Al-Munawwar tourist village context, unit 3 is mandhi rice dish context, unit 4 is Arabic woe context, unit 5 is Arabic robe context, unit 6 is kubro pilgrimage context and unit 7 is tambourine context. Based on figure 1, we know that only Arabic woe item 4 was invalid empirically because the correlation value is less than the correlation value on the table (0.3882). So, that problems can't be used for students. In addition, the reliability test which was also analyzed with SPSS a Cronbach alpha value obtained was 0.83 where the value was greater than 0.6 so it can be said that the PISA-like math task developed were

reliable/consistent.

Self-Evaluation

In this stage, the researchers revised the PISA-like-math task which were developed according to the results of collaborative discussions with 2 peers. After that, the researchers re-evaluated the PISA-like-math problem and revised again if there were still shortcomings so that prototype 1 was formed which consisted of 6 units and 9 items. The following figure is prototype 1 of PISA-like-math problem for the tambourine and mandhi rice dish units developed by researchers:

UNIT 7: TAMBOURINE



Figure 7. Tambourine

A shop sells tambourines consisting of six different sizes, among others:

nth size	Size name	Diameter (cm)
1	S	16
2	M	18
3	L	20
4	XL	22
5	XXL	24
6	XXXL	26

Source: Shopee.co.id

The form of the equation of the area of the tambourine is as follows:
 $L = \pi n^2 + 14\pi n + 49\pi$, for $n \in \mathbb{Z}$ and $0 < n < 7$
 Where $L = \text{Area of the tambourine}$ and $n = \text{nth size}$

Item 4
 Is the equation form correct? Give reasons that support your answer and if it is wrong then determine the appropriate form of the equation.

(a)

UNIT 3: MANDHI RICE DISH



1 dish tray for 4 people

Figure 3. Mandhi Rice

Mandhi rice is an Arabic dish made from basmati rice. Usually at weddings, Arabian will serve the rice on a tray and in 1 tray it will be served for 4 people.

The following is an equation for the number of trays that need to be provided:
 $x = 4n$

The meal portion for 1 person is usually around 0.1 kg and the following form of an equation for the amount of rice that needs to be provided in kg:
 $y = 0,1 x$

Where
 x : Number of trays provided
 n : Number of invited guests
 y : Amount of basmati rice provided

Item 4
 Are the form of the equations correct and if they are false what are the correct form of the equations? Give reasons that support your answer.

(b)

Figure 2. Prototype 1 of PISA-like-math tasks developed

In figure 2 (a), The prototype 1 of PISA-like math task using tambourine unit is presented, where students were asked to determine and provide their arguments regarding the correctness of the form of the area equation for the tambourine presented on the problem. In figure 2 (b), the prototype 1 of PISA-like math task using mandhi rice dish unit is presented, where students were asked to determine provide their arguments regarding the correctness of the equation form of the number of trays that need to be provided and the amount of rice that needs to be provided which were presented on the problem.

1 Expert review and One-to-one

This stage aims to see the validity PISA-like-math tasks were developed based on the content, construct and language aspects where the two stages were carried out concurrently. In the expert-review, prototype 1 validation was carried out by 3 experts based on content, construct and language aspects, while at the one-to-one stage prototype 1 was given, completed and then commented on by 3 students of class VIII.7 Junior High School 19 Palembang with high, medium ability and low abilities. Here are some comments from experts and students on PISA-like-math tasks using tambourine and

mandhi rice dish unit:

Table 1. Comments from experts and students of tambourine and mandhi rice units

Validation	Comments	Revision
Experts	<ul style="list-style-type: none"> On the tambourine unit, item 4 presented contains 2 questions and the questions should be separated On the mandhi rice dish unit, the reading information need to be rearranged because it is feared that it will trap students and it is better if the information portion of meal 0,1 kg of rice is delated 	<ul style="list-style-type: none"> On the tambourine unit, in item 4, changing were made so that it does not contain 2 questions and the use of the Z symbol is replaced with the word "integer"
Students	<ul style="list-style-type: none"> On the tambourine unit, I don't understand the use of symbols, especially the Z symbol in the equations presented On the mandhi rice dish unit, I don't understand item 4 	<ul style="list-style-type: none"> On the mandhi rice dish unit, the reading information and item 4 were rearranged and the formula for the portion of basmati rice provided was deleted so that students are not confused

Then, based on table 1 where represented comments of expert from the content, construct and language aspects and the results of understanding, completion and comments of students at the one-to-one stage, they were used as material to revised prototype 1 to prototype 2. There was an omission in one of the item because of validity test result (on the figure 1), so that the number of questions becomes 6 units and 9 items that can be said to be valid based on content aspects (with the characteristics of change and relationship content using Algebra topics and Arabian context which include personal and social contexts), construct aspects (with the characteristics of the level suitability of framework of PISA 2018 consisting of from levels 2, 3, 5 and 6 as well as the competence processes of mathematical literacy skill which include communication, mathematization, representation, argumentation and reasoning skill, the use of strategies in problem solving and then the use of symbolic, formal and technical language and operations) and language aspects (with the characteristics of suitability language with standard of language and does not conclude a double meaning) (Zulkardi, 2002).

Small Group

Small group conducted on 8 students of class VII Junior High School 19 Palembang which was divided into 2 groups where in 1 group consists of 1 high ability student, 2 medium ability students and 1 low abilities student. The small group consists of synchronous, asynchronous learning and written tests. The learning process is carried out using the PMRI approach, the LSLC system and blended learning strategies. In synchronous learning, virtual face-to-face learning is carried out

through a zoom meeting room where students discussed collaboratively the 3 items of PISA-like math tasks that were developed, namely the trip of two Arabian villages unit (1 item) and the Al-Munawwar tourist village unit (2 items). In asynchronous, independent learning is carried out where each group is placed in a different WhatsApp group to discuss collaboratively the 2 items of PISA-like math tasks that were developed, namely tambourine unit (1 item) and kubro pilgrimage (1 item). Then an individual written test was conducted through the Google Form where the items tested consisted of 4 items, namely the Arabic robe unit (2 items) and mandhi rice dish (2 items).

Based on the results of the small group at the synchronous, asynchronous and written tests, PISA-like math tasks developed can be applied as seen from students' understanding of PISA-like math tasks and can be well integrated by students as seen from the students' strategies in answering PISA-like math tasks, so that PISA-like math tasks developed which consists of 6 units and 9 items can be said to be practical (Akker 1999, Zulkardi, 2006). The results from the small group were also used to revise prototype 2 to prototype 3. Here is prototype 3 of the PISA-like math tasks that were developed for the tambourine unit and mandhi rice dish unit:

UNIT 3: TAMBOURINE



Figure 2. Tambourine

A shop sells tambourines consisting of six different sizes, among others:

nth size	Size name	Diameter (cm)
1	S	16
2	M	18
3	L	20
4	XL	22
5	XXL	24
6	XXXL	26

Source: Shopee.co.id

The formula for the area of the tambourine is as follows:
 $L = \pi n^2 + 14\pi n + 49\pi$, for $n \in \text{integer and } 0 < n < 7$
 Where $L = \text{Area of the tambourine}$ and $n = \text{nth size}$

Item 4
 Is the formula true or false? Prove your answer

(a)

UNIT 6: MANDHI RICE DISH



1 dish tray for 4 people
 Figure 5. Mandhi Rice

Mandhi rice is an Arabian food made from basmati rice. Usually at weddings, Arabian will serve the rice on a tray and in 1 tray it will be served for 4 people

The following formula for the number of trays that need to be provided:

$$x = 4n$$

Where
 x : Number of trays provided
 n : Number of invited guests

Item 3
 Is the formula true or false? Give reasons that support your answer.

(b)

Figure 3. Prototype 3 of PISA-like-math tasks developed

In figure 3 (a), The prototype 3 of PISA-like math task using tambourine unit is presented, where there is a difference between prototype 1 (in figure 2 (a)) and prototype 3, namely the difference in the use of symbols in the formula for tambourine area and the sentence of item 4. In figure 3 (b), the prototype 1 of PISA-like math task using mandhi rice dish unit is presented, where there is a difference between prototype 1 (in figure 2 (b)) and prototype 3, namely the abolition of the formula for amount of rice that needs to be provided and change sentence of item 3.

Field Test

At this stage involved 27 students of class VIII.9 Junior High School 19 Palembang which were divided into 4 groups where on average 1 group consisted of 4 people, namely 1 high ability student,

2 medium ability students and 1 low ability student. This stage aims to see the potential effect of PISA-like math tasks on mathematical literacy skills. 6 units and 9 items from PISA-like math tasks that have been declared valid and practical to be applied in synchronous, asynchronous learning and written tests where the mechanism of application is the same as in the implementation of small groups. The model teacher for learning in the field test stage is Mery Johan, S.Si., M.Si.

At the synchronous learning, face-to-face meetings were held via a zoom meeting room where students discussed the trip of two Arabian villages unit (1 item) and the Al-Munawwar tourist village unit (2 items). The following is a summary of the results of one group's discussion using the collaborative strategy:

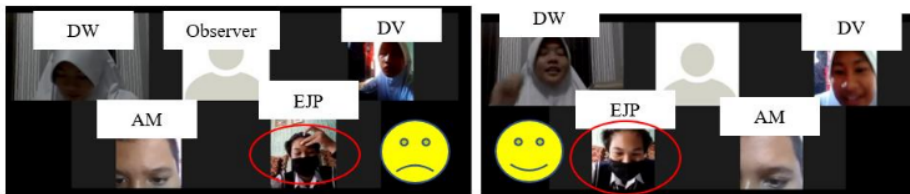


Figure 4. Collaborative discussion at the synchronous learning on field test stage

Based on Figure 4, can be seen "please teach me" culture (Sato, 2014; Putri & Zulkardi, 2020) where at first, EJP seemed to have difficulties in understanding and solving the problems of Al-Munawwar tourist village unit. This can be seen from his expression which scratched his forehead several times and showed restless movements. However, when he asked his friend, DW to "teach him" about the problems, DV taught EJP by gave an explanation to EJP and DV also gave an explanation about solving the problem. So, EJP began to understand the explanation from his group of friends by showing a smile expression that was seen from the corner of his eyes which became sharper (Octriana, Putri, Nurjannah, 2019). AM was not very actively involved in discussions and he was always too close to the camera screen but when his friend asks if he understands, he replies that he understands his friend's explanation.

At the asynchronous learning students did collaborative discussions independently through the WhatsApp where each group has been separated into a WhatsApp group. In a group consisting of model teachers, one of researcher, observers and members of the group itself. In this activity, students work on tambourine unit (1 item) and kubro pilgrimage unit (1 item). The following is a discussion from one of the groups:

DV: "Assalamu'alaikum, I want to ask how to solve item 4 (tambourine unit)?"
 DW: "We have to prove the formula on the tambourine unit is true or false"
 DV: "How to do it?"
 DW: "we have to find the pattern first, and then Change each diameter to radius, which means half of diameter. After that, looking for pattern of that radius"
 DV: "Ok"

Figure 5. Collaborative Discussion at the asynchronous learning via WhatsApp Chat

5 Based on figure 5 above, it can be seen that there was a collaborative discussion seen from the communication and interaction (Stoerger, 2008) between DV and DW which showed the existence of a "please teach me" culture (Sato, 2014; Putri & Zulkardi, 2020). It appears that DV did not understand how to solve the tambourine unit item 4 and she asks her group members. DW also explained to DV. DV also showed that she understood DW's explanation.

Then, the written test was carried out through a google form which was done by students individually. The PISA-like-math tasks that were tested on the students were Arabic robe unit (2 items) and mandhi rice dish (2 items).

Collaborative learning build students' confidence to use their abilities in solving mathematical problems (Laal & Ghosdi, 2012) including mathematical literacy skills. The following is an example of a students' answer in solving PISA-like math tasks for tambourine unit item 4 (figure 5) and mandhi rice dish unit item 3 (figure 6):

Translate of the Answer:
 Answer: Correct, because the formula is the same as the formula for the circle area.
 For Example on first size tambourine:
 If using formula of the circle area:
 $L = \pi r^2$ $r = ?$
 $L = 3,14 \cdot 8^2$ $r = \text{dimater} : 2$
 $L = 200,96$ $r = 16 : 2 = 8$

If using formula on the problems:
 $L = \pi n^2 + 14n\pi + 49\pi$
 $L = \pi(1)^2 + 14(1)\pi + 49\pi$
 $L = 3,14 (1)^2 + 14(1)(3,14) + 49(3,14)$
 $L = 3,14 + 43,96 + 153,86$

(a)

Translate of the Answer:
 $d = 16, 18, 20, 22, 24, 26 \rightarrow r = 8, 9, 10, 11, 12, 13$
 $r = (7 + n)$

Prove:
 $L = \pi r^2$
 $L = \pi(7 + n)^2$
 $L = \pi(49 + 7n + 7n + n^2)$
 $L = \pi(49 + 14n + n^2)$
 $L = \pi n^2 + 14n\pi + 49\pi$
 So, the formula is correct

(b)

Figure 6. Students' answer of PISA-like-math problem for tambourine unit

5
Based on Figure 6, it can be seen that there were differences in the formulation of strategies in solving problems (S1) carried out by students. The formulation of these strategies is based on information or problems that can be identified in PISA-like math tasks where each student can use different strategies in solving the PISA-like math tasks (Dasaprawira, Zulkardi & Susanti, 2019; Nusantara, Zulkardi & Putri, 2020b).

In Figure 6 (a), students communicated (C1) his answer by using their representation skill (R1), namely by representing the pattern of the tambourine's size and using it to represent the formula for tambourine area. In making these representations, it can be seen that students' ability to do mathematization was by identifying the variables r (radius) and n (tambourine size-th), using symbolic and formal language (F1) by using the variables r and n in making representations of tambourine radius' pattern and make an assumption that by substituting the tambourine radius' pattern into the formula for the circle area and student will find the truth of the formula for tambourine area presented in the problem. This showed that students had carried out the mathematization process, namely by understanding real problems, changing real problems in mathematical problems and solving mathematical problems (Nusantara, Zulkardi & Putri, 2020b). After that, the student used his argumentation and reasoning skills (A1) by making a justification stating that the formula for tambourine area presented in the problem is correct, as evidenced by the calculation process it does. This is in line with Nusantara, Zulkardi & Putri (2020a) which stated that students who have good argumentation and reasoning skills will be able to understand, formulate and solve PISA-like math tasks.

14
Meanwhile, in Figure 6 (b), students communicated (C1) his answer without making representations. The student calculated the area of the first size tambourine using the formula for the circle area because the tambourine has a shape like a circle. Then, the student calculated the area of the first size tambourine using the formula presented in the problem where in calculating the area it was seen that students could do mathematization (M1) by identifying the n variable (size-th tambourine). Then using symbolic, formal and technical language and operations (F1), it can be seen from the way student used the variable n by substituting the value of n ($n = 1$) to got the result of the area of the first size tambourine. After that, student used their argumentation and reasoning skills (A1) to justified that the formula for the tambourine area presented in the problem was correct by comparing the results of the calculation of the area of the 1st tambourine using the formula for the circle area with the formula for the tambourine area presented in the problem. This was because students were able to used mathematical logical relationships (Nusantara, Zulkardi & Putri, 2021).

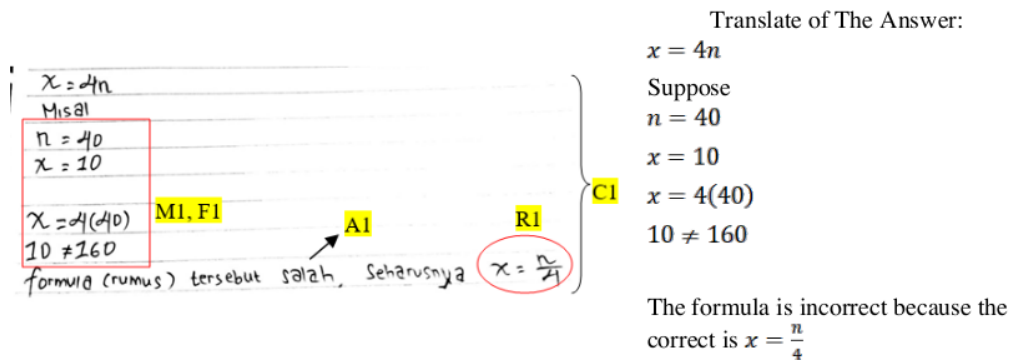


Figure 7. Students' answer of PISA-like-math problem for mandhi rice dish unit

5 Based on Figure 7, it can be seen that student communicated (C1) his answer by using their mathematization skill (M1), namely making assumptions by supposed that the number of guests invited was 40 people and the number of trays that must be provided was 10 people. The supposed was made based on information in the matter that he understood, namely 1 tray of mandhi rice served for 4 invited guests. In this supposed, it can be seen that students can use symbolic, formal and technical language as well as operations (F1) by substituting the variables n (number of invited guests) and x (number of trays that must be provided) from the supposed and student made to prove the correctness of the formula for the number of trays that must be provided. Then, the student used his argumentation and reasoning skills (A1) to justified that the formula for the number of trays that must be provided is incorrect based on the proof he had done. In addition, this student also used his representation skill (R1) in representing the correct formula for the number of trays that must be provided. This is in line with Efriani, Putri & Hapizah (2019) which stated that students translated problems into mathematical statements through representations.

6 Based on the results of the analysis of all student answers, it showed that the used of the Arabian context in PISA-like math tasks had a potential effect on mathematical literacy skills, namely communication, mathematization, representation, argumentation and reasoning skills, using strategy on the problem solving and using symbolic, formal and technique languages. and operations. This is in line with Putri & Zulkardi (2020) which stated that the selection of the right context and the used of collaborative strategies in learning were able to make students used their abilities in solving the problems. In the use of the Arabian context, it had an effect on students, namely the ability of life skills in dealing with the existence of Arab culture in the South Sumatra region. For example, in understanding the difference in size of one of the typical Arabic musical instruments (tambourine) that can be used by a group of people to sing religious songs and providing a tray of rice dishes for mandhi rice in organizing an event with an Arabian theme.

CONCLUSION

This research was produced 6 units and 9 items PISA-like math task ¹ that were valid and practical and had potential effect on mathematical literacy skills. Criteria PISA-like math tasks that developed were focus on change and relationship content using algebra topic, levels 2, 3, 5 and 6 of Arabian context problems. Learning Arabian culture through PISA-like math tasks make students used their mathematical literacy skills for solving the problems, namely communication, mathematization, representation, argumentation and reasoning skill, using strategy on the problem. Besides that, students used their knowledge and logical thinking about Arabian culture for example understanding of the various sizes of tambourine and the provision of mandhi rice dishes in organizing an event with an Arabian theme. So, students can learn ¹ how to deal with the increasingly widespread presence of Arab culture in South Sumatra while using their mathematical literacy skills

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