Turnitin Originality Report

Processed on: 13-May-2022 21:48 WIB
ID: 1835517172
Word Count: 5218
Submitted: 1

Artikel Tria By Tria Gustiningsi

Similarity Index	Similarity by Source	
9%	Internet Sources:	9%
	Publications:	8%
	Student Papers:	3%

2% match (Internet from 16-Nov-2020)
https://moam.info/978-602-19877-5-9-south-east-asia-design-_5a0504981723ddd456238210.html

1% match ()
Nabila, Siti, Putri, Ratu Ilma Indra. "Students' mathematical reasoning skills on number pattern using PMRI and collaborative learning approach", 'Universitas Hamzanwadi', 2022

1% match ()
Aulia, Enggar Tri, Prahmana, Rully Charitas Indra. "Developing interactive e-module based on realistic mathematics education approach and mathematical literacy ability", 'Universitas Hamzanwadi', 2022

1% match (publications)
B Santoso, A C Coaline, Scristia, J Araiku. "Development of student worksheets based on problem-based learning in the algebra topics", Journal of Physics: Conference Series, 2020

1% match ()
Gustiningsi, Tria, Somakim, Somakim. "PENGEMBANGAN SOAL MATEMATIKA TIPE PISA LEVEL 5 DENGAN KONTEKS PRIBADI", 'Muhammadiyah Metro University', 2021

1% match (publications)
S Hardianti, Z Zulkardi. "Students mathematical literacy abilities in solving PISA type math problem with LRT context", Journal of Physics: Conference Series, 2019

1% match (publications)
I N Aini, Zulkardi, R I I Putri, Turmudi. "Designing PISA-like mathematics problems using the context of Karawang", Journal of Physics: Conference Series, 2018

1% match (student papers from 18-May-2018)
Submitted to Glendora High School on 2018-05-18

1% match (student papers from 12-Oct-2019)
Submitted to Higher Ed Holdings on 2019-10-12

1% match (publications)
S M Ambarita, Zulkardi. "Designing mathematical problems task through COVID-19 context", Journal of Physics: Conference Series, 2020

Designing Student Worksheet on Relation and Function Material for Mathematics Learning: Jumping Task Tria Gustiningsi1, Ratu Ilma Indra Putri1, Zulkardi1, Diah Kartika Sari1, Leni Marlina1, Dewi Rawani1, Arika

Sari1, Zahara Luthfiya Azmi1, Delia Septimiranti1 1Universitas Sriwijaya, Indonesia triagustiningsi08@gmail.com, ratuilma@unsri.ac.id, zulkardi@unsri.ac.id, diah_kartika_sari@fkip.unsri.ac.id, leni_marlina@fkip.unsri.ac.id, dewirawani@yahoo.com, arikasari1998@gmail.com, septimirantidelia09@gmail.com, Zaharaedhiza20@gmail.com Abstract: Higher Order Thinking Skills (HOTS) are very important for all students. One of the ways to raise students' HOTS is through jumping tasks. This study aims to produce a jumping task in student worksheet form which valid and practical. The research was conducted using a design research type of development studies which consist of a preliminary stage and a prototyping stage. In the preliminary stage, preparations were made in the preparation of the jumping task, then at the prototyping stage a formative evaluation process was carried out which consist of self-evaluation, expert-review, one-to- one, small-group, and field-test. Data were collected by walk through, test, questionnaire, and interview. Data were analyzed qualitatively. Student worksheet is declared valid in terms of content, construct, and language. Valid in content found that student worksheet was in accordance with the HOTS level in the taxonomy bloom and the PISA framework so that it met the jumping task criteria. Student worksheet is valid constructively, it was found that the student worksheet was in accordance with the curriculum and in accordance with the material for eight grade. Student worksheet is valid in language, it was found that the student worksheet was in accordance with the General Guidelines for Indonesian Spelling (PUEBI) and did not cause multiple interpretations. Student worksheets are also stated to be practical, students understand the instructions or questions in the student worksheets and can be used by students. The result in this study show that student worksheet was valid, practical, and can support students' HOTS abilities. Keywords: HOTS, Jumping Task, Student Worksheet INTRODUCTION Creativity, critical thinking, communication, and collaboration (4C) or often referred to as higher order thinking skills (HOTS) are skills that are needed in the 21st century (Kemdikbud, 2017; Putri, 2018; Hwang, et al., 2017). Educators, researchers, and various parties state that HOTS is very important for everyone (Bakry & Bakar, 2015; Abosalem 2016; Tambunan & Naibaho, 2019; Elfeky 2019; Lu, 2021: Gustiningsi & Somakim, 2021: Utari & Gustiningsi, 2021 : Gustiningsi & Utari, 2021). In bloom taxonomy, HOTS is at a high level, namely analyzing, evaluating, and creating (C4, C5, and C6) (Efendi, 2017). In the Program for International Student Assessment (PISA) there are also questions that are at level 4,5,6 (Setiawan, Dafik, & Lestari, 2014), but the PISA results show that Indonesian students' mathematical literacy skills are still low (OECD, 2019). In 2018, in the field of mathematics, Indonesia was ranked 72 out of 78 countries (OECD, 2019). Likewise in Trends in International Mathematics and Science Study (TIMSS), in 2016 Indonesia was ranked 44th out of 49 countries (Utomo, 2021). Previous research analyzed students' HOTS abilities, including students' critical thinking skills (Gustiningsi, 2015), students' ability to solve HOTS problems (Abdullah, et al, 2015), and showed that students' HOTS abilities were still low. HOTS ability can be trained by learning that is accustomed in class. Bakri & Bakar (2015) stated that students' abilities can be developed through activities and learning mathematics. Teachers must pay attention to students so that they can develop students' HOTS abilities (Purnomo, et al., 2021; Pasani & Suryaningsih, 2021). One thing that can be done to develop students' HOTS abilities is to design student worksheets to be applied in class. Based on previous research, the designed student worksheet is able to improve students abilities such as students' concept understanding (Nursyahidah, Putri, & Somakim, 2013), students' problem solving abilities (Fitriati & Novita, 2018) and is also able to develop students' creative thinking skills (Romli, Abdurrahman, & Riyadi, 2018). The developed student worksheet must meet the HOTS criteria. Sato stated that to improve the quality of learning, the quality of the tasks given was very influential, one of the tasks given was in the form of a challenging task or called a jumping task (Saito, 2015). Sato stated that the HOTS task was

related to the jumping task applied in lesson study (Putri, 2018: Putri & Zulkardi, 2019: Hobri, 2020). Jumping task is a challenging task and requires a high level of skill (HOTS) to complete (Saito, 2015; Hobri, 2016). Jumping tasks are effective in supporting students' hots abilities (Putri, 2018), one of which is problem solving skills (Hobri, et al: 2020). Previous research has designed jumping tasks using the PISA framework (Zulkardi & Putri, 2020; Putri & Zulkardi, 2019), with an RME approach (Sa'id, et al: 2021), based on an open ended (Ummah, et al: 2021). Meanwhile, this study designed the jumping task in the form of a student worksheet using the PISA framework and adjusted to the HOTS level in the bloom taxonomy. This study aims to produce a valid and practical jumping task-based student worksheet. RESEARCH METHOD The method in this study is a design research method with the type of development studies (Bakker, 2019). The research subjects were 20 eight graders. The stages carried out are the preliminary stage and the prototyping stage (Tessmer, 1993; Zulkardi, 2002; Akker, et al., 2013) as shown in Figure 1. Figure 1. Prototyping Flow (Tessmer, 1993; Zulkardi, 2002; Akker,dkk., 2013) In the preliminary stage, preparations were made to develop a jumping task in the form of a student worksheet, including analyzing eight graders material, analyzing research subjects, and analyzing HOTS levels in taxonomy blooms, and analyzing levels in the PISA framework. Furthermore, the prototyping stage starts from the first stage, namely self-evaluation. In the self- evaluation stage, student worksheets are created and evaluated by themselves (prototype I). The second stage is the stage of expert review and one-to-one. At the expert-review stage, prototype I was validated by experts to see the validity of the student worksheet in terms of content, construct, and language. In the one-to-one stage, prototype I was tested on 2 students who were not research subjects to see the usability of the student worksheet that was done, seen from student answers and student comments in interviews while working on the student worksheet and in the questionnaire after working on the student worksheet. Then, prototype I was analyzed and revised according to suggestions from experts and according to students' comments and answers. The revised student worksheet is called prototype II. Then, prototype II was tested at the small-group stage on 5 students who were not research subjects. The small-group stage is also to see the practicality of the student worksheet as seen from the answers and comments of students during and after working on the student worksheet. Furthermore, the student worksheet that has been tested is analyzed and revised and hereinafter referred to as prototype III. Furthermore, prototype III was tested at the field-test stage to 20 students who were research subjects. Data were collected with walk-through, questionnaires, and tests. The walk-through is used at the expert-review stage to ask for advice and comments from the expert, while tests, questionnaires, and interviews are used at the one-to-one, small group, and field test stages. The test was used to see the usability of the developed student worksheet (prototype) and to see the students' way of thinking, while the questionnaire and interviews were used to find out comments, constraints, difficulties, and explore students' ways of thinking when working on the student worksheet. The walk-through was analyzed descriptively, comments and suggestions from experts were described and used as material for revising prototype I. The tests were analyzed based on the scoring rubric. Interviews and questionnaires were analyzed descriptively, then used as supporting information in the development process. The student worksheet is said to be valid in terms of content and construct seen at the expert review stage. The student worksheet is said to be valid in terms of content if the developed student worksheet is in accordance with the HOTS level in the bloom taxonomy and PISA framework and is valid in terms of constructs if it is in accordance with the curriculum. Student worksheet is said to be practical if it can be understood by students, can be done, does not cause multiple interpretations, and students are interested in doing it. RESULT AND DISCUSSION Result The student worksheet has been developed in two stages, namely preliminary

and prototyping. The preliminary stage is carried out by analyzing the curriculum, determining the material, analyzing HOTS criteria in taxonomy bloom, and analyzing HOTS criteria in PISA framework. A description of the HOTS levels in the taxonomy bloom and the PISA framework is provided in table 1. Level Taxonomy Bloom PISA Framework Level 4 Level 5 Level 6 Analysis: The ability to break down information into pieces of information and detect the relationship of information to one another and to the overall structure and purpose. (Anderson and Krathwohl, 2001; McNeil, 2011; Widana, 2017) Evaluation: Make judgments or decisions based on criteria and standards (Anderson and Krathwohl, 2001; McNeil, 2011; Widana, 2017) Create: Putting elements together to form a new shape (Anderson and Krathwohl, 2001; McNeil, 2011; Widana, 2017) Students can model concrete situations, make assumptions, can choose and integrate different interpretations, relate information they have and give arguments or communicate them (OECD, 2018). Students can develop models for complex situations, identify constraints and determine assumptions, can select, compare, evaluate appropriate problem solving strategies, can formulate and communicate their interpretations and reasons (OECD, 2018). Students can conceptualize, generalize, and utilize information based on investigation and modeling of complex problem situations, can apply mathematical insights and understanding to develop new approaches and strategies, students can reflect and formulate and communicate appropriately actions and reflections on their findings (OECD, 2018). Table 1. Cognitive level of HOTS category in taxonomy bloom and PISA framework Seen from table 1, there is a match between levels 4,5,6 in the bloom taxonomy and in the PISA framework so that it can be formulated that the HOTS level consists of the ability to analyze, evaluate, and create. Next, the prototyping stage is carried out from the self-evaluation stage. In the self-evaluation stage, student worksheets are compiled and produce prototype I. The prototype I is available in Figure 2. (a) Translate in English: (b) Figure 2. Prototype I Protoype I is designed according to the HOTS level as shown in table 1. For the ability to analyze, the student worksheet provides a table of tariff for calling and non-package packages, which shows the price, registration time and usage time. This table is in the form of information that must be analyzed by students in order to be able to answer the questions in the student worksheet. Then, for the ability to evaluate, the question "whether Ani's choice is right", is a stimulating question so that students can judge or decide on the answer based on the information that has been analyzed previously. For creative skills, the question to draw a graph and the question "is the relationship between time and price a function" stimulates students to make a graph and create an argument in the form of a picture or another to answer the question. The relationship between the student worksheet and the HOTS level can be seen in table 2. Student Worksheet Level Cognitif Student Worksheet Level Cognitif Table 2. Student worksheet relationship with HOTS level Analysis Analysis dan Evaluation Analysis, Evaluation, and Create Analysis dan Evaluation Then, the prototype I was validated to the expert at the expert review stage. The expert gives suggestions and comments which consist of: 1) Please add pictures that can attract students' attention, 2) Non-package data is simplified to 60 seconds, 3) The call package tariff table should be retyped so that it is clear, 4) It is in accordance with the HOTS level based of taxonomy bloom and PISA framework, 5) It is in accordance with curriculum and material for eight graders. In parallel, the prototype I was tested on 2 students at the one to one stage. Student comments at the one to one stage are shown in table 2. Based on students' answers in the one to one stage students are confused about the non-package price and students are confused about changing the price per second on the non-package tariff. Based on expert review and one to one, prototype I was analyzed and revised with the revision decision. The revised decision consist of: 1) Add pictures that can attract students' attention, 2) Non-package data simplified to 60 seconds, 3) Rate table retyped. The revised student worksheet is called prototype II, as shown in Figure 3. (a) Translate in English: (b) Figure

3. Protoype I Prototype II was tested on students at the small group stage to four students. In the small group stage, it can be seen from the students' answers that none of the students were confused about the questions on the student worksheet and students stated that they needed a high level of thought to determine the answers on the student worksheet. This is a consideration for researchers not to revise prototype II because it can practically be done by students and requires high thinking. Then the student worksheet was tested to the field test stage. In the field test stage, there were 20 students who were the subjects for the student worksheet test. Following are the students' answers to the first question regarding Ani's decision to choose the talkmania package. Translate in English: Talkmania Day package: IDR 2.500, while the non-package is IDR 1300 per minute, So 1.300 x 5 = 6.500. So, Ani bought the TM Day package for IDR 2500, while the non-package is IDR 6.500 which more expensive. (a) Translate in English: Talkmania package rates 200 minutes = 2.500 (Monday – Friday with usage time are 01.00 – 18.00 local time) Non-package rates Known: non-package rates for 60 seconds is 1300, the time which Ani needed to call is 5 minutes or 300 seconds. Solusion: 1.300 x 5 = 6.500 (non-package rates for 5 minutes or 300 seconds). So it's better if Ani call with the talkamnia package because the talkmania package can be used for 200 minutes and the price is cheaper than the non-package price. (b) Figure 4. Students' answers to questions about Ani's decision Seen from Figure 4, students analyze package and non-package prices and then compare them. Students evaluate it by calculating the non-package price for 5 minutes and it can be seen that the non-package price is more expensive than the price for calling with a talkmania package. Then students can decide that Ani's choice is right. In addition, there were students who answered differently from the answers in Figure 4, as shown in Figure 5 below. Translate in English: Ani just called directly using a non-package call rate because Ani had important business with her friend and didn't register for the talkmania package even though Ani spent a lot of money for 5 minutes (1 minute IDR 1.300) so 5 minutes was IDR 6.500. If Ani registers in the talkmania package first, it will take a longer time to carry out that very important business. Figure 5. Different Students' Answers to the First Question Based on Figure 5, students answered that Ani should call at a non-package rate because it would save time. In Figure 5, it can be seen that students analyze the price of package and non-package so that students know the cheaper price for calling is if calling with a talkmania package, it is also seen that students evaluate Ani's decision by calculating the cost of calling for 5 minutes, but students focus on the sentence "There is an important business right away" which according to the student in Figure 5 that the matter should not be postponed, so students answered the call directly with non-package only with the risk of being more expensive but saving time. Then, for the second question regarding graphics. Students' answers can be seen in Figure 6. Translate in English: Ani call at Monday afternoon at 16.00 West Indonesian Time, non-package call rates from 00.00 – 16.59 is IDR 1.300 every 60 seconds. Figure 6. Student Answers for the Second Question Based on Figure 6, it can be seen that students can draw and describe the graph that shows the relationship between the costs incurred when calling with non-package rates and with the length of time calling. Next is the question of whether the relationship between time and the price of non-packaged calls is a function. The students' answers are shown in Figure 7. Translate in English: Yes, the relationship between time and non-package prices is a function because each time member pairs one at a time to a non-packaged price member, the time member gets one pair to a non-packaged price member. (a) Translate in English: This is a function because each member of the domain (set A) has one pair. If the domains are forked or have no pairs then it's not a function (b) Figure 7. Student Answer for Third Question Based on Figure 7, students can determine that the relationship between call time and price is a function, in Figure 7 (b) students explain the comparison between functions and non-functions. From Figure 7 (b) it can be seen that students can analyze and evaluate to decide the right

answer. Discussion Akker, et al. (2013) stated that a product is said to be valid if the product developed is based on knowledge or science (content validity) and if the product is consistent with each other or is logical to design (construct validity). Based on the research results, the expert stated that the student worksheet was in accordance with the HOTS level based on the bloom taxonomy and the PISA framework. It can be seen in table 2 that the information and questions in the student worksheet are adjusted to the HOTS level. This shows that the student worksheet is valid in terms of content. Then, the expert stated that the student worksheet was in accordance with the 2013 curriculum and the material chosen was in accordance with the material in class VIII. This shows that the student worksheet is valid in terms of constructs. Student worksheets are said to be practical if they can be used and are easy to use (Akker, et al., 2013). Based on the development of the prototyping stage from one-to-one to field tests, it can be seen that students' answers in Figures 4 to 7 show that students can work on the given student worksheet and are not confused by the questions or information in the student worksheet. This shows that the designed student worksheet is practical. Based on Figures 4(a) and 4(b), students can relate the information in the table and compare the price of calling with talkmania packages and non-package prices, then students make decisions about which package should be chosen. Figures 4(a) and 4(b) students choose the talkmania package on the grounds that calling with the talkmania package is cheaper than the non-packaged one. However, the student's answer in Figure 5 shows that students prefer to call with non- package with the reason that the process is faster, students pay attention to the sentence "there is an important business right away". Students' answers in Figure 3 and Figure 4 correspond to the description of their ability to analyze and evaluate (Anderson and Krathwohl, 2001; McNeil, 2011; Widana, 2017). Judging from the level in the PISA framework, students' answers in Figure 4 and Figure 5 show that students can make models from real situations, make assumptions, are able to interpret tables or available information and relate the information provided in tables and questions in the student worksheet to determine answers. right. This includes capabilities at level 4 in the PISA framework (OECD, 2018). Then, in Figure 4 and Figure 5 students are also able to determine which calling package decision should be chosen by including their respective arguments. This includes capabilities at level 5 of the PISA framework. Based on Figure 6, students can draw a graph that shows the relationship between calling time and costs incurred. To draw a graph, students have analyzed the available information about prices, calling times consisting of days and hours, and evaluating the relationship between calling time and the costs incurred for calling with non-package, then students create a new graph. The student's answer in Figure 6 corresponds to the description of the ability to analyze, evaluate, and create (Anderson and Krathwohl, 2001; McNeil, 2011; Widana, 2017). Based on the level in the PISA framework, students' ability to analyze to draw graphs is included in level 6 because it is seen that students can create concepts between the x-axis and y-axis, utilize information, and apply insights to develop new strategies (OECD, 2018). It can be seen in Figure 6 that students present graphs and can read clear information from the displayed graphs. In Figures 7 (a) and 7 (b) students analyze answers by paying attention to the definition of a function and relating it to the condition of the relationship between non-packet calling time and the cost, then students also evaluate it by comparing it with the definition of a non-function (shown in Figure 7(b)) . The students' answers in Figure 7 correspond to the description of the ability to analyze and evaluate (Anderson and Krathwohl, 2001; McNeil, 2011; Widana, 2017). Based on the PISA framework, students meet ability levels 4 and 5, because it appears that students can model real situations, determine assumptions, interpret the relationship between calling time and cost, relate existing information, and to decide that the relationship between calling time and non-package calling costs is a function with the correct arguments. Based on students' answers, it can be seen that the

designed student worksheet is able to bring out students' HOTS abilities. This is in accordance with the jumping task criteria, namely the task given is challenging and requires the HOTS ability to complete it (Saito, 2015; Hobri, 2016). CONCLUSION Based on the student worksheet development process, a valid and practical student worksheet has been produced. The student worksheet is declared content valid because it is in accordance with level HOTS in taxonomy bloom and PISA framework, the student worksheet is valid in terms of constructs because it is in accordance with the material contained in the 2013 curriculum in eight graders. The student worksheet is also practical which shows that it can be used by students, students understand the purpose of activities or problems in the student worksheet, and support student ability namely HOTS. AKNOWLEDGEMENTS This article is part of a research project funded by a professional research grant from the Universitas Sriwijaya with the letter number of the Chancellor's letter number 0014/ UN9/SK.LP2M.PT/2021 with the research contract number 0127/UN9/SB3.LP2M.PT/2021. REFERENCES [1] Abdullah, A.H., Abidin, N.L.Z., & Ali, M. (2015). Analysis of Students' Errors in Solving Higher Order Thinking Skills (HOTS) Problems for the Topic of Fraction. Asian Social Science, 11 (21), 133-142. http://dx.doi.org/10.5539/ass.v11n21p133. [2] Abosalem, Y. (2016). Assessment techniques and students' higher-order thinking skills. International Journal of Secondary Education, 4(1), 1–11. https://doi.org/10.11648/j.ijsedu.20160401.11. [3] Anderson, L. & Krathwohl, D. (eds.) (2001). A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives. New York: Longman. [4] Bakker, A. (2019). Design Research in Education: A Practical Guide for Early Career Researhers. London: Routledge. [5] Bakry & Bakar, M. N. B. (2015). The Process of Thinking among Junior High School Students in Solving HOTS Question. International Journal of Evaluation and Research in Education, 4 (3), 138-145. https://eric.ed.gov/?id=EJ1091703. [6] Effendi, R. (2017). Konsep Revisi Taksonomi bloom dan Implementasinya pada Pelajaran Matematika SMP. [Bloom's Taxonomy Revision Concept and Its Implementation in Middle School Mathematics Lessons.]. JIPMat. https://doi.org/10.26877/jipmat.v2i1.1483. [7] Elfeky, A. I. M. (2019). The Efect of Personal Learning Environments on Participants' Higher Order Thinking Skills and Satisfaction. Innovations in Education and Teaching International, 56(4), 505–516. https://doi.org/10.1080/14703297.2018.1534601. [8] Fitriati, F. & Novita, R. (2018, 27-28 June). Designing Student Worksheet for Rich Mathematical Tasks. Paper presented at The 6th South East Asia Design Research International Conference (6th SEA-DR IC), Banda Aceh, Indonesia. https://iopscience.iop.org/article/10.1088/1742-6596/1088/1/012029/meta. [9] Gustiningsi, T. (2015). Pengembangan Soal Pengayaan Model PISA Level 4 Kelas VII SMP. [Developing of Enrichment PISA-Like Problem Level 4 for Seventh Graders]. Jurnal Pendidikan Matematika JPM RAFA, 2(2), 198–213. http://jurnal.radenfatah.ac.id/index.php/jpmrafa/article/view/1248. [10] Gustiningsi, T., & Utari, R. S. (2020). Developing of Higher Order Thinking Skill (HOTS) Mathematical Problems With Cartesian Coordinate Material. Paper presented at The 4th Sriwijaya University Learning and Education, 513, 561–566. https://doi.org/10.2991/assehr.k.201230.163. [11] Gustiningsi, T. & Somakim. (2021). Pengembangan Soal Matematika Tipe PISA Level 5 Dengan Konteks Pribadi. [Developing of PISA-Like Mathematics Problem of Level 5 and Personal Context]. AKSIOMA, 10 (2), 915-926. https://doi.org/10.24127/ajpm.v10i2.3535. [12] Hobri. (2016). Lesson Study for Learning Community: Review of Short Term on Lesson Study V in Japan. Proceedings of National Seminar of Mathematics Education, Madura, 28 May 2016, p.12-21. [13] Hobri, Ummah, I. K., Yuliati, N., & Dafik. (2020). The Effect of Jumping Task Based on Creative Problem Solving on Students' Problem Solving Ability. International Journal of Instruction, 13 (1), 387 - 406. https://eric.ed.gov/?id=EJ1239202. [14] Hwang, G., Lai, C., Liang, J., Chu, H., & Tsai, C. (2017). A long-term experiment to investigate the relationships between high school students' perceptions of mobile

learning and peer interaction and higher-order thinking tendencies. Educational Technology Research and Development, 66(1), 75–93. https://doi.org/10.1007/s11423-017-9540-3 [15] Kemendikbud. (2017). Modul Penyusunan Soal Higher Order Thinking Skill (HOTS). [Preparation Module of Higher Order Thinking Skills Problem]. Direktorat Pembinaan SMA, Direktorat Jenderal Pendidikan Dasar dan Menengah, Departemen Pendidikan dan Kebudayaan. https://doi.org/10.1017/CBO9781107415324.004. [16] Lu, K., Yang, H.H., Shi, Y., Wang, X. (2021). Examining the key influencing factors on college students' higher-order thinking skills in the smart classroom environment. International Journal of Educational Technology in Higher Education, 18 (1), 1 - 13. https://doi.org/10.1186/s41239-020-00238-7 [17] McNeil, R. (2011). A Program Evaluation Model: Using Bloom's Taxonomy to Identify Outcome Indicators in Outcomes Based Program Evaluations. Journal of Adult Education, 40 (2), 24 – 29. https://eric.ed.gov/?id=EJ991438 [18] Nursyahidah, F., Putri, R.I.I., & Somakim. (2013). Supporting First Grade Students' Understanding of Addition up to 20 Using Traditional Game. Journal on Mathematics Education, 4 (2), 212 – 223. https://doi.org/10.22342/jme.4.2.557.212-223 [19] OECD. (2018). PISA for Development Assessment and Analytical Framework: Reading, Mathematics and Science. Paris: OECD Publishing. http://dx.doi.org/10.1787/9789264305274-en. [20] OECD. (2019). PISA 2018 insights and interpretations. OECD Publishing. [21] Pasani, C. F. & Suryaningsih, Y. (2021, 31 October). Analysis of Students' Higher Order Thinking Skills (HOTS) Ability in Matrix Subjects. Paper presented at National Seminar of Physics Education, Banjarmasin, South Kalimantan, Indonesia. https://iopscience.iop.org/article/10.1088/1742-6596/1760/1/012039/pdf. [22] Purnomo, H., Sa'dijah, C., Cahyowati, E.T.D., Nurhakiki, R., Anwar, L., Hidayanto, E., & Sisworo. (2020). Gifted Student in Solving HOTS Mathematics Problem. Paper presented at The 4th International Conference on Mathematics and Science Education (ICoMSE) 2020 AIP Conf. Proc. 2330, 040008-1–040008-8. https://doi.org/10.1063/5.0043728. [23] Putri, R. I. I. (2018, 21 April). Soal HOTS dalam Jumping Task. [HOTS Problem in Jumping Task]. Paper presented at Seminar Nasional dan Workshop Matematika dan Pendidikan Matematika, STKIP PGRI Sumatera Barat, Indonesia. http://semnas-matematika.stkip-pgri- sumbar.ac.id/wp-content/uploads/2019/11/HOT-Skill-in-Mathematics-Education.pdf [24] Putri, R. I. I. & Zulkardi. (2019). Designing Jumping Task on Percent using PMRI and Collaborative Learning. International Journal on Emerging Mathematics Education, 3 (1), 105 – 116. http://dx.doi.org/10.12928/ijeme.v3i1.12208 [25] Romli, S., Abdurrahman, & Riyadi, B. (2017, 17-19 October). Designing Students' Worksheet Based on Open Ended Approach to Foster Students' Creative Thinking Skills. Paper presented at The 1st International Conference of Education on Sciences, Technology, Engineering, and Mathematics (ICE-STEM) 17–19 October 2017, Jakarta, Indonesia. https://iopscience.Iop.org/article/10.1088/1742-6596/948/1/012050/meta. [26] Saito, E., Murase, M., Tsukui, A., & Yeo, J. (2015). Lesson Study for Learning Community : a guide to sustainable school reform. London: Routledge. [27] Saito, E., Watanabe, M., Gillies, R., Someya, I., Nagasima, T, Sato, M., & Murase, M. (2015). School Reform for Positive Behaviour Support Through Collaborative Learning: Utilising Lesson Study for a Learning Community. Cambridge Journal of Education, 45(4), 489-518. [28] Sa'id, A., Pambudi, D.S., Hobri, Safik, M., & Insani, K. (2021). Development of Mathematics Learning Tools with Realistic Mathematics Education-Jumping Task (RME- JT) and its Effect on The Mathematics Communication Skills. Paper presented at The 2nd International Conference on Lesson Study of Science Technology Engineering and Mathematics (2nd ICOLSSTEM), East Java, Indonesia. https://iopscience.iop.org/article/10.1088/1742-6596/1839/1/012018/meta [29] Setiawan, H., Dafik, Lestari, N.D.S. (2014). Soal Matematika dalam PISA Kaitannya dengan Literasi Matematika dan Kemampuan Berpikir Tingkat Tinggi. Paper presented at Seminar Matematika dan Pendidikan

Matematik. https://jurnal.unej.ac.id/index.php/psmp/article/view/955 [30] Tambunan, H. & Naibaho, T. (2019). Performance of Mathematics Teachers to Build Students' High Order Thinking Skills (HOTS). Journal of Education and Learning (EduLearn), 13(1), 111-117. https://www.researchgate.net/publication/332613649_Performance_of_mathematics_teachers_to_build_students'_high_order_thinking_skills_HOTS [31] Tessmer, M. (1993). Planning and Conducting Formative Evaluations: Improving The Quality of Education and Training. In Planning and Conducting Formative Evaluations. Kogan Page. [32] Ummah, B.I., Susanto, Hobri, & Solehah A. (2021). Development of Mathematics Learning Tool Based on Openended with Jumping Task and the Effects on Creative Thinking Ability of Junior High School Students. Paper presented at The 2nd International Conference on Lesson Study of Science Technology Engineering and Mathematics (2nd ICOLSSTEM), East Java, Indonesia. https://iopscience.iop.org/article/10.1088/1742-6596/1839/1/012016/meta [33] Utari, R. S., & Gustiningsi, T. (2021). Developing of Higher Order Thinking Skill in Relation and Function to Support Student's Creative Thinking. Jurnal Pendidikan Matematika, 15(1), 49-60. https://doi.org/10.22342/jpm.15.1.12876.49-60. [34] Utomo, D.P. (2021). An Analysis of the Statistical Literacy of Middle School Students in Solving TIMSS Problems. International Journal of Education in Mathematics, Science, and Technology (IJEMST), 9(2), 181-197. https://ijemst.net/index.php/ijemst/article/view/1552. [35] Van den Akker, J., Bannan, B., Kelly, A.E., Nieveen, N., & Plomp, T. (2013). Educational Design Research. The Netherlands: Enschede. [36] Widana, I. W. (2017). Higher Order Thinking Skills Assessment (HOTS). Journal of Indonesian Student Assessment and Evaluation, 3 (1), 32 – 44. https://core.ac.uk/download/pdf/226298448.pdf [37] Zulkardi. (2002). Developing a Learning Envorinment on Realistic Mathematics Education for Indonesian Students Teachers. Thesis. University of Twente. Enschede:Printpartners Ipskamp [38] Zulkardi & Putri, R.I.I. (2020). Supporting Mathematics Teachers to Develop Jumping Task Using PISA Framework (JUMPISA). Jurnal Pendidikan Matematika, 14 (2), 199-210. https://ejournal.unsri.ac.id/index.php/jpm/article/view/12115