PISA

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PISA-LIKE MATHEMATICS PROBLEMS USING AQUATIC CONTEXT IN ASIAN GAMES

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Abstract

This study aims to create mathematical problems of uncertainty and data content in PISA using context aquatic which were valid, practical, and have the potential effect. This research was the design research of the development study. Subject in this study were 10th grade Indo Global Mandiri senior high school Palembang was consisting of 20 students. Data were collected using interviews, observation and tests. From the results were obtained 8 item PISA type of uncertainty and data content using bicycles and aquatic context in Asian Games are valid and practical, it can be concluded that eleven of twenty students showed reasoning skills and good arguments and nine of twenty students showed reasoning skills and arguments but were incomplete, this was because students were not used to PISA type problems in learning.

Keywords: Task design, PISA, Aquatic Context

Abstrak

Tujuan dari penelitian ini adalah menghasilkan soal matematika tipe PISA dengan konteks cabang olahraga akuatik yang valid, praktis, serta memiliki efek potensial. Penelitian ini merupakan penelitian pengembangan *design research* tipe *development study*. Subjek dalam penelitian ini adalah siswa kelas X IPA 1 SMA LTI-IGM Palembang yang berjumlah 20 siswa. Pengambilan data dilakukan dengan cara wawancara, observasi dan tes. Dari hasil analisis data penelitian ini menghasilkan 8 soal tipe PISA konten *uncertainty and* data menggunakan konteks sepedan dan akuatik yang valid dan praktis dan dapat disimpulkan bahwa 11 dari 20 siswa menunjukkan kemampuan penalaran dan argumen yang baik dan 9 dari 20 siswa menunjukkan kemampuan penalaran dan argumen tetapi kurang lengkap, hal ini dikarenakan tidak terbiasanya siswa dengan soal-soal tipe PISA dalam pembelajaran.

Kata kunci: *Task design*, Soal matematika tipe PISA, Konteks cabang olahraga akuatik

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Statistics is part of the mathematical material consisting of the ways of data collection, processing and drawing conclusions based on the data set and data analysis were performed (Sudjana, 1975). Statistics are very important to learn as much applied in various disciplines, both natural sciences, business, and industry, where almost every decision made in the field using statistical reasons (Bakker, 2004).

In fact, there are many students who are facing difficulties in solving mathematical problems that result in lowachievement, mathematics this occurs because students have not been accustomed to solve problems with the characteristics of a real context, and only do question exemplified by the teacher without knowing its usefulness in life daily (Wati, 2016). This is in line with the results of PISA for the content of uncertainty and data on which the results of PISA 2003, Indonesia was

ranked 38 out of 40 countries with the acquisition of a score of 385 (OECD, 2004). While the results of PISA 2012, Indonesia was ranked 63 out of 65 countries for the acquisition of Indonesian student score so far below the OECD average score is 384 while the OECD average score for the content of uncertainty and data at 493. In addition, the Indonesian students only able to resolve the matter of uncertainty and data up to level 5 which is as much as 0.3% of students were far below the OECD average of 9.2% where students are able to solve problems even 3.2% level 5 students were able to complete up to level 6 (OECD, 2014). It is confirmed that Indonesian students' mathematical literacy is still very low in resolving problems of the type of PISA.

Low ability of Indonesian students in PISA because the Indonesian students are used yet with the problems of contextual as in the matter of PISA, especially about the high level of both in the process of learning and evaluation (Novita, Zulkardi, and Hartono, 2012; Ahyan, Zulkardi, Darmawijoyo, 2014). In addition, it is difficult to find issues contextual designed to hone student problem-solving ability and having the characteristics and framework about PISA in mathematics textbooks that student is used Indonesia, even in mathematics textbooks already qualified BSNP (Ward & Rumiati, 2011; Fatmawati & Ekawati, 2016). This the basis for curriculum development in 2013 who want to adjust the learning in Indonesia with questions being tested on PISA so the questions used must be adapted to the characteristics about PISA (Kemendikbud, 2014). Therefore, it takes matters of non-routine with the characteristicsmatter PISA to familiarize students learn the procedures needed to solve the PISA.

At thecontent uncertainty and the data here researchers are more centered on the content of this data, where the data content is a material of statistical. Education statistics in Indonesia are generally centered on the teacher(teachercenter)without any attempt to develop students' mathematical ideas through interaction or discussion (Widjaja, Julie, and Suryandari, 2010). In addition, Groth (2006) also revealed that the learning is done by giving the formula directly without first learning about basic concepts and procedures are meaningful (meaningful) for students. Shi, He, and Tao (2009) added one cause students less interested in statistics, because statistics are taught theoretically and less connected to the real world. Thus, student does not know application on each the material. This hs impact on the decreasing motivation and students' achievement in studying the statistics. Therefore it is needed the problems of non-routine with PISA type characteristics to make the students accustomed to solving problems PISA type.

Statistics are very important in the field of sport. According to Jim Albert from Bowling State University and Ruud H. Sembing of the University of Groningen, between sports and statistics has a close relationship. Not only measure performance, in fact, the statistics can also be used create a simulation game(fantasygames)(Kompasiana, 2013). Asian Games is an interstate competition among Asian countries organized by the Olympic Council of Asia every 4 years (OCA, 2016). This competition was first held first in 1951 in New Delhi, India and is followed by the state - a country in

Asia, including Indonesia. Asian Games 18thwill be held in 2018 in Palembang and Jakarta, Indonesia.

METHOD

This research was the design research of the development study (Akker, 2006) which aimed to produce a valid and practical x class and to see potential effects of the problems that developed towards the student's literacy ability math senior high. This research was also designed question of type PISA taught at the senior high school X grade and developing questions are made it became a valid and practical matter. This research was conducted in two stages: the first stage Preliminary evaluation and Formativeevaluation (Zulkardi, 2006).

Phase preliminary evaluation consists of the preparation of which at this stage is the first step in researches developing questions of PISA type. At this stage, the researchers conducted an analysis of the characteristics of PISA matter analyze basic competency questions that will be developed based on the framework of PISA. Then designingg which at this stage researcher design question devise include question grilles and card about the accordance with the characteristics of PISA problem.

Formative evaluation stage consists of self evaluation where in this stage the assessment of the designing problems of type PISA by the researchers themselves then repaired and obtained a matter of prototype 1. Then proceed to stage expert review where at this stage about prototype 1 made by researchers will be consulted to experts for validation is evaluated based on validation criteria ie content, constructs, and language. Simultaneously the researcher performs stage one to one. At this stage the researcher utilizes three students who are not the subject of research as a tester and are asked to work on, observe, comment and respond freely to the question of prototype 1. After the one to one stage, the researcher entered the small group stage where at this stage the researchers tested a matter of protorype 2 which is a matter of prototype 1 which has been revised to a group of students who are not the subject of research so that it is obtained about prototype 3.

Then the researchers enter the final stage of the field test where in the last stage of this experiment researchers tested the problem of prototype 3 to the field that the situation is realistic where the testing done on the subject of research. Subject in this study were 10^{th} grade Indo Global Mandiri senior high school Palembang was consisting of 20 students which were 15 year old students at field test stage. Data collection techniques used in each stage were walkthrough, observation, and interview. Data analysis technique is done qualitatively.

RESULT AND DISCUSSION

Analysis Stage

Activities conducted at the stage of student analysis is to visit the place of research implementation at SMA LTI Indo Global Mandiri (IGM) Palembang. Furthermore, researchers discussed with classroom teachers who will be the subject of research, Siti Marfuah, S.Pd. The purpose of this discussion is to explain the research procedure, to determine the subject of research on stage one to one, small group, and field test with 20 students of 10^{th} grade sciense 1 LTI-IGM senior high school Palembang.

The subject matter is identified based on the curriculum used in the school where the research is conducted. The curriculum used in LTI-IGM senior high school Palembang is the 2013 curriculum. In this curriculum the standard content of mathematics learning includes numbers, algebra, geometry and data management.

Then after analyzing the students and the curriculum, the researcher analyzed the PISA problem based on the PISA framework, then the researcher also studied various things about the Asian Games which can be used as context in developing the math problem of PISA type so that there are 3 contexts bicycle, swimming and synchronized swimming.

Dsign Stage

At this stage, researchers began designing and compiling the PISA math problems using the cycling road and aquatic context. These questions are designed for 10^{th} grade senior high school students. Below is the result obtained from designing in the form of instrument instrument consisting of:

a. PISA type mathematics matrix using the bicycle and aquatic context.
b. PISA type cards use bicycle and aquatic context for senior high school level.
c. Rubric assessment of PISA mathematics problems using bike and akuaik context for senior high school level
d. Lesson plan

In this designing stage produce 5 items, namely bicycle (2 items), Swimming (1 item), and synchronized swimming (2 items).

Evaluation Stage

a. Self Evaluation

At this stage the PISA mathematical problems using a bicycle and aquatic context have been designed, re-examined by the researcher. It aims to find and correct errors or

deficiencies in the design process. Supervisors also assist in the examination of questions that researchers have designed during the consultation ahead of the research.

b. Expert Riviews

The validity of a PISA mathematical problem using a bicycle and aquatic context is seen in terms of content, constructs, and language. Prior to giving to the expert, these questions have been discussed previously with the supervisor. The experts who review the device this problem is: 1) Dr. Hongki Julie, M.Si., professor of mathematics education Sanata Darma University Yogyakarta;2) Pof. Dr. Zulkardi, M.I.Komp., M,Sc., professor of mathematics education Sriwijaya University Palembang;3) Dr. Somakim, M.Pd., professor of mathematics education Sriwijaya University Palembang; 4) Rani Permatasari, S.Pd., Mahasiswa magister pendidikan matematika Universitas Sriwijaya Palembang ; 5) Siti Marfuah, S.Pd., high school math teacher in LTI-IGM Senior High School Palembang

The validation process by bapak Dr. Hongki Julie, M.Si. done via email. While the process of validation by Dr. Zulkardi, M.I.Komp., M.Sc., Dr Somakim, M.Pd., dan Ranni Permatasari, S.Pd. was executed through the item panelthen validation with the model teacher was done by face to face in the library LTI-IGM Senior High School Palembang. Here is a recapitulation of expert suggestions and comments.

Tabel 1. Rekapitulasi Saran dan Komentar Expert

Unit Item	Suggestions and Comments
1	**Dr. Honki Julie, M.Si.** Item 1 1: Clarify again the words “grafik” Item 2: Is the answer only on the track only?.
	Ranni Permatasari, S.Pd. Item 1: the picture is clarified. Because the description in the image does not exist so make the students difficult to draw the possibility of the graph. Soal 2: The meaning of the question is still unclear. Can be slightly changed to “Berdasarkan gambar diatas, kapan pemain akan melaju dengan kecepatan tinggi? Berikan alasanmu.”
	Siti Marfuah, S.Pd. Generally: Provide a description of the boundary on the picture, so that students can be more clear about the meaning of the problem. Soal 1: correct the word "litasan" to "lintasan"
2	**Ranni Permatasari, S.Pd.** Generally: if it can be made into two problems. Completing the table is about 3 and the question is about 4.

3	**Prof. Dr. Zulkardi,M.I.Komp., M.Sc.** Generally: If you can find the original data do not camouflage. Then disoal avoid the command line that uses the "!"(exclamation mark). Soal 4: jury in a big game is never unable to attend. Although unable to attend, certainly replace people. So tadak maybe there is no value at all.
4	**Ranni Permatasari, S.Pd.** Generally: Add captions when scoring is viewed from the highest point, and if there are similar points, then scoring is seen from goal difference. Then it's Asean Games data. If possible, because we use the Asian Games context so the data used is the Asian Games data
5	**Prof. Dr. Zulkardi,M.I.Komp., M.Sc.** Generally: The numbers and letters in the picture must be the same as the letters in the question, because they are illustrations, so it should be clear.
	Dr. Somakim, M.Pd. Generally: Later there must be students who are fooled and think that the high bar diagram that wins.
	Ranni Permatasari,S.Pd. Secara umum: The true 4 x 100 m or 4 x 10 m, because in the title of relay swimming 4 x 100m but in explanation 4x10m relay swimming. Item 8: can be added in question "Berdasarkan grafik di atas….." Item 9: questions can be changed to "berdasarkan grafik di atas, pemain manakah yang mempunyai pengaruh lebih besar agar negaranya menjadi emenang dalam perlombaan?"
	Siti Marfuah, S.Pd Item 8: correct the word "berdasarkna" to be word "berdasarkan"

c. One-to-One

The one to one stage is done in parallel with the expert review stage. Here students also function as a validator for prototype 1. This stage was held on November 6, 2017 where the researchers tested the questions on prototype 1 to 3 students of 10th grade Science 1 LTI-IGM Senior Hugh School Palembang.

In this one to one stage, the researcher used 3 high-ability students (S.R), medium-skilled students (O.V.W) and low-ability students (J.C.T). The students are then asked to read the questions on prototype 1 which are 10 items and solve the problems. It aims to observe students' responses and difficulties while working on each question, whether the student has been clear and understands the intent of each item developed. Researchers here only act as facilitators who oversee and assist students if they have difficulty in answering questions.

d. Small Group

At this stage tested the revision of prototype 1 called prototype to 6 students of 10th grade Science 1 LTI-IGM Senior Hugh School Palembang consisting of 2 high-ability students (IF and RH), 2 medium-skilled students (TW and DR), and 2 students low-performing (NF and APW).

At this stage, researchers begin learning by providing an apperception of the Asian Games, sports at the Asian Games, statistical materials and links to sports at the Asian Games. hen the researchers distributed the activities of prototype 2 units 1 and 2 to students and students are required to understand in advance the activities that have been distributed. Then the students do the questions on the individual activities for 5 minutes, then discussed in groups where one group consists of 3 high-ability students, moderate, and low. After the discussion, the researchers asked representatives of each group to present their work.

e. Field Test

Field test was conducted on November 20, 2018. At this stage, the prototype 3 questions were tested to the research subjects, ie students of class X IPA 1 SMA LTI-IGM which in 1 class consisted of 20 students.

Figure 1. Teacher guides student discussion during field test

At the first meeting, model teachers began learning by giving apperception on the Asian Games, sports at the Asian Games, statistical materials and links to sports at the Asian Games. Then the teacher distributed the activity in the form of prototype 3 unit 1 and 2 to the students and the students were asked to understand first the activities that have been distributed. Then the teacher asks students to do the questions on the individual activities for

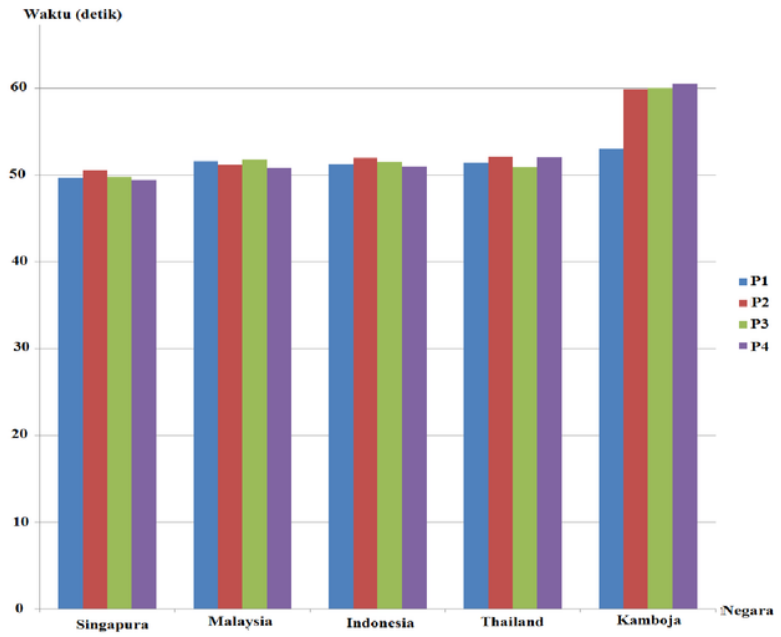
5 minutes, then discussed in groups where one group consists of 3-4 students. In this class there are 4 groups. After the discussion, the teacher asked representatives from each group to present their work. Here is one of the students work on the activities of prototype 3 units 1 and 2. At the second meeting on November 21, 2017 the teacher held a test, where the test questions are prototype 3 units 3 and 4. Here is a description of the students when conducting the test.

When the implementation of the IPA 1 class X test is monitored by the model teacher so no students are allowed discussion. Students are given 90 minutes. Here is one of the student answers.

Here is one of the problems that have kembangnkan researchers

Renang Estafet 4 x 100 m

Diagram di bawah ini menunjukkan hasil perlombaan renang estafet 4 × 100 m untuk 5 besar Negara pemenang. Negara dengan pencetak waktu tercepat itulah yang mendapatkan medali emas.



Soal 7

Berdasarkan grafik di atas negara manakah yang menjadi pemenang dalam perlombaan? Berikan alasanmu.

Soal 8

Berdasarkan grafik di atas, pemain manakah yang mempunyai pengaruh lebih besar agar negaranya menjadi pemenang dalam perlombaan? Berikan alasanmu.

Based on field test results, from 20 students only one student answered correctly and completely, 13 students answered incompletely and 6 students answered wrongly. Here are some student answers on 1 unit about running relay.

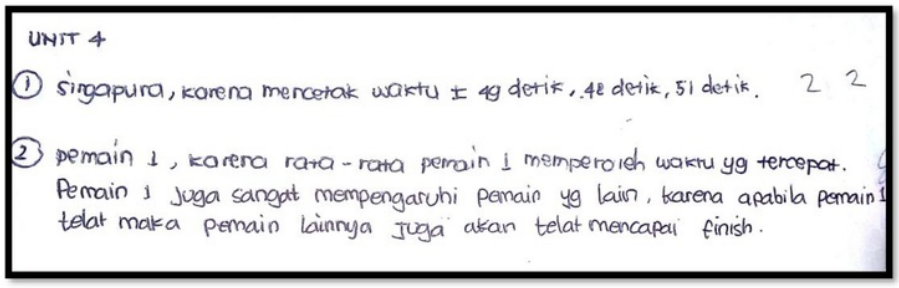


Figure 2. Student's Answer (H.A.)

Pada gambar 2 terlihat bahwa siswa menjawab pemain yang sangat berpengaruh terhadap kemenangan perlombaan renang estafet adalah pemain 1. Hal tersebut dikarenakan pemain 1 merupakan pemain yang memulai start jadi pemain harus memulai perlombaan dengan kecepatan tinggi untuk memenankan perlombaan renang estafet.

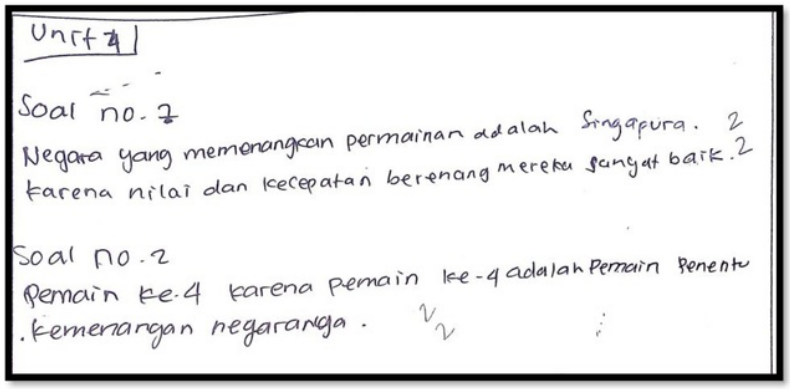
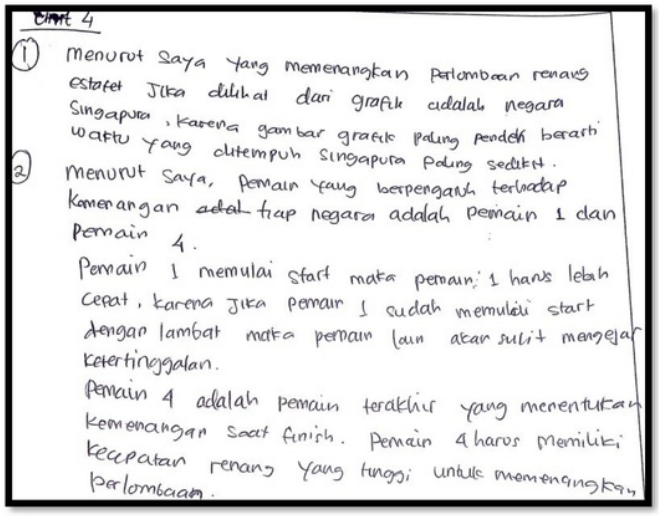


Figure 3. Student's Answer (S.A.D)

In Figure 3, it is seen that S.A.D replied that the player that most determines the victory is a player 4. This is because the 4th player is the last player to reach the finish. Then the 4th player is the winner of every country.


Draft 4

1. Menurut Saya Yang memenangkan Perlombaan renang estafet Jika dilihat dari grafik adalah negara Singapura, karena gambar grafik paling pendek berarti waktu yang ditempuh Singapura Paling sedikit.
2. Menurut Saya, Pemain yang berpengaruh terhadap kemenangan adalah tiap negara adalah Pemain 1 dan Pemain 4.

Pemain 1 memulai start maka pemain 1 harus lebih cepat, karena jika pemain 1 sudah memulai start dengan lambat maka pemain lain akan sulit mengejar ketertinggalan.

Pemain 4 adalah pemain terakhir yang menentukan kemenangan saat finish. Pemain 4 harus memiliki kecepatan renang yang tinggi untuk memenangkan perlombaan.

Figure 4. Student's Answer (B.P)

In figure 4, it appears that B.P responds that the influential are player 1 and player 4. This is because player 1 is a player who started the start while player 4 is a player who reached the finish line. Then the speed of player 1 should be superior so that other players especially 4 players do not have difficulty to reach the finish. If player 1 starts to start slowly, then player 4 will be difficult to catch up. In addition 4 players must also be faster, it is because 4 players is the winner of each country.

CONCLUSION

From the results were obtained 8 item PISA type of uncertainty and data content using bicycles and aquatic context in Asian Games are valid and practical. Characteristics built into the development of this problem is that the developed questionnaire has the characteristics of the PISA problem and uses the context within the scope of Asean Games which is a personal context consisting of 1 problem of application ability, and 7 problems of interpretation. the validity of the questionnaire can be seen in terms of the content, whether the question is compatible with the dominant PISA literacy for context, content and process capability; construct, whether the question is in line with the characteristics of PISA and the ability of the students of class X; and language, is it a matter of using a language that is compatible with EYD and can be understood by students. This is done during expert reviews and one to one. Then, the practicality criteria of the matter seen from the results of small group where this type of PISA math problems using a context that is known to students and can be understood students and can be applied in learning. The potential effect on the PISA

math problem can be seen from the result of the student's answer analysis in the field test stage. In order to see the ability of mathematical literacy that appears in the student's answer. Judging from the issues discussed demonstrates students' reasoning and argumentation abilities, where 11 out of 20 students demonstrate reasoning skills and good arguments and 9 out of 20 students show reasoning skills and arguments but are incomplete.

REFERENCES

Akker, J.V.D. (1999). *Principles and Methods of Development Research dalam (Eds). Design Approches and Tools in Education and Training.* Dordrecht: Klower Academic Publisher.

Bakker. (2004). *Design research in statistics education on symbolizing and computer tools.* Utrecht: Wilco, Amersfoorts/Freudenthal Institute.

Fatmawati, D. & Ekawati, R. (2016). Pengembangan soal matematika PISA like pada konten change and relationship untuk siswa sekolah menengah pertama. *Jurnal Ilmiah Pendidikan Matematika, 2*(5), 29-38.

Groth. (2006). An exploration of students' statistica thinking. *Mathematics Education Research Journal, 28*(1), 17-21.

Herdiansyah, *Wawancara, Observasi, dan Focus Group,* Jakarta : Grafindo, 2013.

Kemendikbud. (2014). *Permendikbud No. 58 tahun 2014 tentang Kurikulum 2013 Sekolah Menengah Pertama/Madrasah Aliyah*. Jakarta : Kemendikbud.

Kemendikbud. (2014). *Permendikbud No. 59 tahun 2014 tentang Kurikulum 2013 Sekolah Menengah Atas/Madrasah Tsanawiyah Negeri*. Jakarta : Kemendikbud.

Mardhiyanti, D., Putri, R.I.I., & Kesumawati, N. (2011). Pengembangan Soal Matematika Model Pisa untuk Mengukur Kemampuan Komunikasi Matematis Siswa Sekolah Dasar. *Jurnal Pendidikan Matematika, 5*(1).

Mertler, Craig. A. (2011). *Action Research*. Jakarta: Pusat Pelajar

Novita, R., Zulkardi, Hartono, Y. (2012). Exploring primary student's problem solving ability by doing tasks like PISA's question. *IndoMS. J.M.E, 3*(2), 133-150.

OECD. (2009). *PISA 2009 Assessment Framework*. Paris: OECD

OECD. (2014). *PISA 2012 Results in Focus: What 15-year-old know and what they can do with what they know*. Paris: OECD.

OECD. (2014). *PISA 2012 Results: What Students Know and Can Do, Student Performance in Mathematics, Reading and Science Volume 1*. Paris: OECD.

OECD. (2016). *PISA 2015 Assessment And Analytical Framework: Science, Reading, Mathematic And Financial Literacy*. Paris: OECD.

OECD. (2016). *PISA 2015 Result (Volume 1): Excellence and Equity in Education.* Paris: OECD.6

Shi, N.-Z., He, X., & Tao, J. (2009). Understanding statistics and statistics education: A chinese perspective. *Journal of Statistics Education, 17*(3), 1-8.

Sudjana, N. (1975). *Metode statistika.* Bandung: Tarsito.

Sulastri. (2017). Kemampuan Representasi Matematis Siswa SMP Melalui Pendekatan Pendidikan Matematika Realistik. *Beta 10*(1)

Tessmer, M. (1999). Planning and conducting formative evaluation:improving the quality of education and training. London, Philadelphia: Kogan Page.

Widjaja, W., Julie, H., & Suryandari, H. D. (2009). The nature of discourse in PMRI classroom: Exploring the notion of average. *Prosiding IndoMS International Conference on Mathematics and Its Applications* (hal. 765-772). Yogyakarta: IndoMs.

Wijaya, Hauvel-Panhuize, Doorman dan Robitzsch. (2014). Difculties in solving context-based PISA mathematics tasks: An analysis of students' errors. *Te Mathematics Enthusiast 11*(3).

Wati, E.H. (2016). Kesalahan Siswa Smp Dalam Menyelesaikan Soal Matematika Berbasis Pisa Pada Konten *Change And Relationshi.*

Zulkardi. (2006). *Formative Evaluation : What, why, when, and how.* *http://www.oocities.org/zulkardi/books.html*. Diakses tanggal 13 Januari 2016.

Zulkardi, & Putri, R.I.I. (2006). Mendesain Sendiri Soal Kontekstual Matematika. Prosiding KNM13. Semarang. Diambil dari http://eprints.unsri.ac.id/610/

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