EMBRACING SOCIETY 5.0 WITH HUMANITY

Editor: Diah Karmiyati



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Embracing Society 5.0 with Humanity

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Society 5.0 is a concept presented by the Japanese as a core concept of their economic system. They believed that technology should not surpass the intelligent of men. As such, in society 5.0 the Japanese government would like to ensure that all technological things are designed to be a humancentered design. In fact, their ministry of education in 2018 has also been readily prepared the future generation through a change in their education system. For example, the minister explains that in Japan, or many parts of the world, university entrance are divided into two main concentrations, which are science and social science. The minister thought of changing the system, as society 5.0 is about creating a technology that is human centered. For instance, they gave an example on designer babies. If, people from hard science learn about philosophy, ethics, and humanities, they won't face such ethical concern when developing a product. This is what is being envision by the Japanese government for their younger generation. Collaboration between science and social science is necessary to build a better environment for our future children. Another example is the companies in Japan, such as Hitachi and Fujitsu has already been implementing this 5.0 by designing product that relied fully on technology but puts human at its center (Hitachi, 2017).

Likewise, it is currently a hot topic in Indonesia. Indonesia as a country with the 4th largest population in the world has not been implemented this concept. Our country is still on the industry 4.0. Yet, with the rising interest in AI, Blockchain, NFT, number of unicorn start-up. and all recent technological changes, our country are ready to compete with any other countries in Southeast Asia. Society 5.0 is coming, and we need to embrace it. To prepare with the society 5.0, It is not only the technological side. It is necessary for us to have a strong principle at hearts that based on our belief system. We, as an Indonesian have known to be religious that most of us believed in God. We also commonly practice our religion and tend to be kind to people because we know God would love our good deeds. I personally think that this will help us to move forward and live together with advanced technology.

Technology begets a very important leap in human's life journey. It is important to keep valued of the benefit but it's more important to look out for the human itself. As its purpose is smarter than us, to help us, it will be very ideal if we embrace the technology using our ability to be kind.

Malang, 21 Maret 2022

Diah Karmiyati

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Students' Critical Thinking in Solving Hots Problems: A Case Study in Gender Perspective

Ida Riskiana Dewi, Umy Zahroh

Introduction

Critical thinking is a very important thinking ability in solving mathematical problems. Critical thinking skills are needed to analyze, identify, evaluate and make decisions for drawing conclusions. Critical thinking skills are needed in solving math problems in the High Order Thinking Skill (HOTS), because HOTS math problems require more ability to translate them into mathematical form [1]. The thinking ability of each individual is certainly different, so there must be special attention to lead students to achieve success in taking education.

Teaching and learning activities are carried out to achieve certain goals that have been formulated before teaching is carried out. Teaching and learning activities are a condition that is deliberately created, the teacher creates it in order to teach students. Teachers who provide knowledge and students who receive knowledge. The combination of these two main elements creates educational interactions by utilizing learning materials as the medium. There all teaching components are played optimally in order to achieve the teaching objectives that have been set before teaching is carried out [2].

The teacher consciously plans his teaching activities systematically by utilizing all the needs for the benefit of learning activities. The hope that never disappears and the teacher always demands is how the lesson material delivered by the teacher can be understood by the students completely, this is a fairly difficult problem that is felt by the teacher. The difficulty is because students are not only individuals with all their uniqueness, but they are also social beings who have different backgrounds. One of the differences created by students in learning is the ability to think between boys and girls (gender).

According to one mathematics teacher at MTsN 2 Tulungagung, "from experience during teaching between male and female students there is always a difference, on average female students tend to be smarter than male students, although there are also a small proportion of male students. who have an intelligence level above female students. Although students' thinking abilities are different, they still have the same goal. The purpose of learning mathematics in general is to prepare students to be able to face changes in life and an ever-evolving world, on the condition that the changes are made through practice acting on the basis of logical, rational and critical thinking [3].

Psychologists and educationalists recognize that students in schools not only passively remember new information, but that they need to do more and learn how to think critically. Therefore, education in schools must be able to build students' critical thinking awareness [4].

Mathematics learning material of course there are various forms ranging from addition, subtraction, division, multiplication and other forms. In one process of learning mathematics, of course, students are familiar with numbers and even then it is considered a normal thing in learning mathematics, but in learning mathematics it is not only about learning about all numbers but also in the form of words or type questions HOTS. HOTS questions are questions that present learning evaluations that measure the success of the implementation of learning in creating students with high-level In solving the HOTS questions, it requires the thinking skills [5]. ability to analyze, evaluate, and create what is presented in the problem so that a solution can then be found from the answer. In understanding HOTS type questions, students often find it difficult to solve them, therefore critical thinking is needed to be able to solve HOTS type problems.

According to Ennis, critical thinking is reasoned and reflective thinking with an emphasis on making decisions about what to believe or do. While the critical thinking indicators are (1) Elementary clarification, (2) Advance clarification, (3) Strategies and tactics, (4) Inference [6]. The sub-indicators of critical thinking used are analyzing questions, identifying assumptions, determining solutions, writing answers, determining conclusions, and determining other alternatives.

Based on the description, students still have difficulty in solving HOTS type questions related to the Pythagorean Theorem and also there are differences in thinking between male and female students. This makes it necessary to conduct research on the critical abilities of class VIII MTsN 2 Tulungagung students in solving HOTS questions on the Pythagorean Theorem material in terms of gender.

Discussion

The results of research on students' critical thinking in solving HOTS problems on the Pythagorean Theorem material based on gender.

Critical Thinking Ability of Female Students in Solving HOTS Problems

1. Elementary clarification

Ability to analyze questions, S1 students in working on questions number 1 and 2 are able to analyze questions with students being able to explain the meaning of the HOTS questions asked. Masters students in working on questions number 1 and 2 are able to analyze the questions with students being able to explain the meaning of the HOTS questions asked. Doctoral students in working on questions number 1 and 2 are able to analyze questions with students being able to explain the meaning of the HOTS questions asked. From the three female students studied, it can be concluded that female students are able to meet the indicators of ability to analyze questions well.

2. Advance clarification

Ability to identify assumptions, S1 students in working on questions number 1 and 2 are able to analyze questions with students being able to identify assumptions with students being able to explain what is known from the HOTS questions asked. Masters students in working on questions number 1 and 2 are able to analyze questions with students able to identify assumptions with students being able to explain what is known from the HOTS questions asked. Doctoral students in working on questions number 1 and 2 are able to analyze questions with students being able to identify assumptions with students being able to explain what is known from the HOTS questions asked. From the three female students studied, it can be concluded that female students are able to meet the indicators of ability to identify assumptions well.

3. Strategies and tactis

Ability to Determine Solutions, S1 students in working on questions number 1 and 2 are able to determine solutions to problems in HOTS questions with students being able to determine the formula used in the HOTS questions asked. Masters students in working on questions number 1 and 2 are able to determine solutions to problems in the HOTS questions with students being able to determine the formula used in the HOTS questions asked. Doctoral students in working on questions number 1 and 2 are able to determine solutions to problems in HOTS questions with students being able to determine the formula used in the HOTS questions asked. From the three female students studied, it can be concluded that female students are able to meet the indicators of the ability to determine solutions to the HOTS questions correctly.

Ability to write answers, S1 students in working on questions number 1 and 2 are able to write answers in HOTS questions with students being able to calculate the formula correctly in the HOTS questions asked. Masters students in working on questions number 1 and 2 are able to write answers in the HOTS questions with students being able to calculate the formula correctly in the HOTS questions asked. Doctoral students in working on questions number 1 and 2 are able to write answers in HOTS questions number 1 and 2 are able to write answers in HOTS questions with students being able to calculate the formula correctly in the HOTS questions asked. From the three female students studied, it can be concluded that female students are able to meet the indicators of the ability to determine solutions to HOTS questions correctly.

4. Inference

The ability to determine conclusions, S1 students in working on questions number 1 and 2 are able to write conclusions in HOTS questions with students being able to determine conclusions in the HOTS questions asked. S2 students in working on questions number 1 and 2 were unable to determine conclusions in the HOTS questions with students unable to determine conclusions in the HOTS questions asked. Doctoral students in working on questions number 1 and 2 are able to write conclusions on the HOTS questions with students being able to determine conclusions in the HOTS questions asked. From the three female students studied, it can be concluded that female students are able to meet the indicators of Ability to determine conclusions from solutions to HOTS questions correctly.

The ability to determine other alternative ways of solving problems, the three female students studied in working on questions number 1 and 2 were not able to determine alternative ways to solve the problem in question. Based on the research results, the critical thinking skills of undergraduate students in solving HOTS questions meet 4 indicators, namely: (1) Elementary clarification, (2) Advance clarification, (3) Strategies and tactics, (4) Inference. Masters students in solving HOTS questions meet 3 indicators, namely: (1) Elementary clarification, (2) Advance clarification, (3) Strategies and tactics. Doctoral students in solving HOTS questions meet 4 indicators, namely: (1) Elementary clarification, (2) Advance clarification, (3) Strategies and tactics, namely: (1) Elementary clarification, (2) Advance clarification, (3) Strategies and tactics, namely: (1) Elementary clarification, (2) Advance clarification, (3) Strategies and tactics, (4) Inference.

From the description above, it can be concluded that female students in solving HOTS questions on the Pythagorean theorem are able to understand problems, are able to solve problems, are able to conclude and are able to determine conclusions from problem solving. This is in accordance with the opinion of Loviga Denny Pratama and Wahyu Lestari, namely based on the results of analysis and discussion, critical thinking skills of students who have been able to meet the indicators at the classification stage, assessment stage, inference stage, and strategy stage in solving performance task questions are included as a group. above with a value between 66.67%-100% [7]. In line with Budi Cahyono's opinion, female students are able to give simple explanations, make further explanations, strategies and tactics and conclude [8]. In accordance with Safruddin Kaliky's opinion, namely in the completion process based on the stages, it appears that female students tend to be thorough and systematic [9].

Critical Thinking Ability of Male Students in Solving HOTS Problems

1. Elementary clarification

Ability to analyze questions, S4 students in working on questions number 1 and 2 are able to analyze questions with students being able to explain the meaning of the HOTS questions asked. S5 students in working on questions number 1 and 2 are able to analyze the questions with students being able to explain the meaning of the HOTS questions asked. S6 students in working on questions number 1 and 2 are able to analyze questions with students being able to explain the meaning of the HOTS questions asked. From the three male students studied, it can be concluded that male students are able to meet the indicators of ability to analyze questions well.

2. Advance clarification

Ability to identify assumptions, S4 students in working on

questions number 1 and 2 are able to analyze questions with students being able to identify assumptions with students being able to explain what is known from the HOTS questions asked. S5 students in working on questions number 1 and 2 are able to analyze questions with students being able to identify assumptions with students being able to explain what is known from the HOTS questions asked. S6 students in working on questions number 1 and 2 are able to analyze questions with students being able to identify assumptions with students being able to explain what is known from the HOTS questions asked. From the three male students studied, it can be concluded that male students are able to meet the indicators of the ability to identify assumptions well.

3. Strategies and tactics

Ability to Determine Solutions, S4 students in working on problem number 1 are able to determine solutions to problems from HOTS questions while question number 2 is unable to determine solutions to problems in HOTS questions. S5 students in working on questions number 1 and 2 are not able to determine solutions to problems in questions HOTS with students unable to determine the formula used in the HOTS questions asked. RJRA students in working on questions number 1 and 2 were not able to determine the solution to the problem in the HOTS questions with students unable to determine the formula used in the HOTS questions asked. From the three male students studied, it can be concluded that only 1 male student is able to meet the indicators of the ability to determine the solution of the HOTS questions correctly.

Ability to write answers, S4 students in working on questions number 1 and 2 are not able to write answers in HOTS questions with students not being able to calculate the formula correctly in the HOTS questions asked. S5 students in working on questions number 1 and 2 are not able to write answers in the HOTS questions with students not being able to calculate the formula correctly in the HOTS questions asked. S6 students in working on questions number 1 and 2 are not able to write answers in the HOTS questions number 1 and 2 are not able to write answers in the HOTS questions number 1 and 2 are not able to write answers in the HOTS questions with students not being able to calculate the formula correctly in the HOTS questions asked. From the three male students studied, it can be concluded that the male students are not able to meet the indicators of the ability to determine the solution of the HOTS questions correctly.

4. Inference

The ability to determine conclusions, S4 students in working

on questions number 1 and 2 are not able to write conclusions in the HOTS questions with students unable to determine conclusions in the HOTS questions asked. S5 students in working on questions number 1 and 2 were unable to determine conclusions in the HOTS questions with students unable to determine conclusions in the HOTS questions asked. S6 students in working on questions number 1 and 2 are not able to write conclusions in the HOTS questions with students of determine conclusions in the HOTS questions asked. S6 students in working on questions number 1 and 2 are not able to write conclusions in the HOTS questions with students not being able to determine conclusions in the HOTS questions asked. From the three male students studied, it can be concluded that male students are not able to meet the indicators of Ability to determine conclusions from the solution of the HOTS questions correctly.

The ability to determine alternative ways of solving the problem in question, the three male students who were studied in working on questions number 1 and 2 were not able to determine alternative ways of solving the problem in question. Based on the results of the research, the critical thinking skills of S4 students in solving HOTS questions meet 3 indicators, namely: (1) Elementary clarification, (2) Advance clarification, (3) Strategies and tactics. S5 students in solving HOTS questions meet 2 indicators, namely: (1) Elementary clarification, and (2) Advance clarification. S6 students in solving HOTS questions meet 2 indicators, namely: (1) Elementary clarification, and (2) Advance clarification. S6 students in solving HOTS questions meet 2 indicators, namely: (1) Elementary clarification, and (2) Advance clarification.

From the explanation above, it can be concluded that male students in solving HOTS questions on the Pythagorean Theorem material, are only able to understand the problem, do not reach the stage of problem solving and determine other alternatives in solving problems. This is in line with Budi Cahyono's opinion, namely the subject is able to identify the facts given in the matter clearly, logically, concisely, effectively and efficiently, only identifying problems based on elements that are only related to the problem. So as to be able to identify problems and understand the questions in the questions, this can be seen from the ability to write down the elements that are known from the questions and those asked in the questions [8]. And in line with the opinion of Herlina Fahrunisak who said the ability to think critically with problems was not able to determine the solution to the problem in question, was unable to write down the answer to the problem in the problem correctly, the conclusions given were wrong, and were unable to determine other alternative ways, belonging to the ability level. moderate critical thinking [10].

The conclusion from the description is that male and female students have different abilities in critical thinking to solve HOTS questions on the Pythagorean Theorem material. Female students tend to be thorough, careful and precise in understanding math problems, while boys tend to reason as they are without paying attention to accuracy, precision and accuracy in understanding math problems. This is supported by Nafián that the difference between men and women in learning mathematics is that men are superior in reasoning, while women are superior in accuracy, thoroughness, accuracy, and thoroughness in learning [11].

Conclusion

Based on the results of research on students' critical thinking skills in solving HOTS questions on the Pythagorean theorem material in terms of gender, it can be concluded that: first, the critical thinking skills of female students in solving HOTS questions on the Pythagorean theorem material, namely female students are able to meet 4 critical thinking indicators, namely (1) Elementary clarification. (2) Advance clarification. (3) Strategies and tactics. (4) Inference. Because female students in solving problems in the form of HOTS questions are able to understand the meaning of the questions and are able to solve problems properly and correctly. Second, the critical thinking ability of male students in solving HOTS questions on the Pythagorean theorem material, namely male students are able to meet 2 indicators, namely (1) Elementary clarification, and (2) Advance clarification. Because male students in solving problems in the form of HOTS questions, are only able to understand and know the meaning of the questions.

The results of this study can be used as reference material for teachers to help students in the habit of critical thinking in every teaching and learning activity that takes place, especially in solving mathematical problems. This can be done by frequently giving problems related to ongoing mathematical material in the form of story questions or those related to everyday life. So that students will gradually get used to math problems in the form of HOTS questions.

References

- H. N. Dinni, "HOTS (High Order Thinking Skills) dan Kaitannya dengan Kemampuan Literasi Matematika," *Prisma*, vol. 1, pp. 170–176, 2018.
- [2] S. B. Djamarah and A. Zain, Strategi Belajar Mengajar, (Jakarta:

Jakarta: Rineka Cipta, 2010.

- [3] M. Masykur and A. H. Fathani, *Mathematical Intellegence Cara Cerdas Melatih Otak dan Menanggulangi Kesulitan Belajar*. Jogjakarta: Ar-Ruzz Media, 2008.
- [4] Desmita, *Psikologi Perkembangan*. Bandung: Rosda Karya, 2012.
- [5] A. Budiman and J. Jailani, "Pengembangan Instrumen Asesmen Higher Order Thinking Skill (HOTS) Pada Mata Pelajaran Matematika Smp Kelas Viii Semester 1," J. Ris. Pendidik. Mat., vol. 1, no. 2, p. 139, 2014, doi: 10.21831/jrpm.v1i2.2671.
- [6] R. . Ennis, "The Nature Of Critical Thinking:outlines Of General Critical Thinking Dispositions and Abilities, Last Revised September.," 2015.
- [7] L. D. Pratama and W. Lestari, "Kemampuan Berpikir Kritis Siswa dalam Menyelesaikan Soal Performance Task, (Universitas Negeri Yogyakarta, Seminar Matematika dan Pendidikan Matematika UNY)," 2017.
- [8] B. Cahyono, "Analisis Ketrampilan Berfikir Kritis dalam Memecahkan Masalah Ditinjau Perbedaan Gender," *Aksioma*, vol. 8, no. 1, p. 60, 2017.
- [9] S. Kaliky and F. Juhaivah, "Syafruddin Kaliky dan Fahruh Juhaevah, Analisis Kemampuan Berfikir Kritis kelas X SMA dalam menyelesaikan masalah trigonometri," *Mat. dan pembelajaran*, vol. 6, no. 2, 2018.
- [10] H. Fahrunisak, "Analisis Kemampuan Berpikir Kritis Siswa Kelas Vii Dalam Menyelesaikan Soal Matematika Materi Garis Dan Sudut Di MTsN Tunggangri Tulungagung.," 2014.
- [11] M. I. Nafi'an, "Kemampuan Siswa dalam Menyelesaikan Soal Cerita Ditinjau dari Gender di Sekolah Dasar.," 2011.