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The Importance of Honing the Mathematical Talents of Elementary School Students from an Early Age

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Abstract

Mathematical talent serves as a supporting competency in the achievement of student goals, especially in mathematics achievements. This relates to the potential competencies possessed by students which can be improved by first detecting them, guiding, and training the students, and assessing the performance. This research is a phenomenology study which examines the experience of teachers in the habituation process of honing students' mathematical talents, especially fifth graders. Eleven participants, all teachers, were selected using a purposive sampling technique based on certain criteria and agreed to be interviewed virtually in a Zoom meeting. Data analysis using the Bodgan and Biklen model was conducted in several important stages, including data collection, data reduction with Nvivo 12 Plus, verification, and decision-making in the form of drawing conclusions as well as the essence of the teachers' experience. The results of the study showed that the efforts made by teachers to condition themselves to hone the students' mathematical talents were not yet optimal. Detection of mathematical talent was limited by selecting students with the highest test scores, whereas assessment and evaluation were carried out only based on the completion of the mathematical olympiad questions given by the teacher. Therefore, there is a need for further research to detect mathematical aptitude accurately and to develop a valid assessment model that is adapted to the cognitive level of elementary school students.

Keywords: Phenomenology, talented, mathematics, elementary school

Introduction

The strategy of selecting the right life goal will affect how an individual's life is formed in the future. There are various views on the strategy of choosing a life goal which consider that one must have a certain level of education to make it easier to achieve the goal, especially based on job security and attractive salaries (Bakhtiari et al., 2020; Haim, 2021; Masykur et al., 2020). In fact, this is often the case without considering the extent of suitability and depth of potential competencies of the individuals. One of the efforts to minimize such cases is to increase the awareness of each individual about their own competencies in regard to their aspirations. It is important to guide students so that their goals match their expectations (Sukatin et al., 2021; Zainuddin et al., 2018). Therefore, it is necessary to study what factors can realize students' goals according to their potential competencies.

The direction of a student's goal cannot be separated from the integration between the field of education and psychology. Education and psychology are two interrelated fields which go hand in hand (Riley, 2020; Stewart & Valian, 2018). Psychological tests are often carried out in the implementation of new student admissions to determine the interests, talents, abilities and maturity of prospective students in elementary school (Damayanti & Rachmawati, 2019; Firat & Bozkurt, 2020; Torun, 2019; Umar et al., 2021). This is done as a benchmark for prospective elementary school students to direct potential competencies in themselves so that it is easy to continue higher education. Psychological tests in education are considered very essential for educators, counselors, and parents (Misirli & Ergulec, 2021; Özer, 2020; Warne, 2019). They are used as

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a way to detect the level of development in the abilities and performance of the students, as well as the challenges that they face. In the field of education, psychological tests are typically aimed to help schools, and especially teachers, provide optimal services to students and identify what factors may negatively affect the students' competencies (Prenger & Schildkamp, 2018; Reynolds et al., 2021; Zenger & Bitzenbauer, 2022). Therefore, it is important to examine the extent of the teacher's role in detecting and identifying potential competencies in students.

In the learning process, there are various influencing factors in identifying potential competencies in students (Hammond & Harvey, 2018). The external factors include natural conditions, time, atmosphere, and support system in the form of facilities, as well as the environments of school, family, and community (Oren et al., 2021). Another external factor is the education system in the form of curriculum, programs, and educators (Hammond & Harvey, 2018). On the other hand, the internal factors consist of the physical condition, interest, intelligence, and talent (Fauzana & Ahmad, 2022). This study focuses on one of the factors that influence student learning from within, namely talent. Talent is the special potential and ability possessed by a student which allows part of innate and honed abilities and conveys an above-normal level (Adri et al., 2020; Cross & Cross, 2019; Kalobo & Mhlolo, 2021; Pandita & Ray, 2018). Talent is also used to label students with above-average abilities in certain fields, high creativity and self-commitment in completing a task (Cross & Cross, 2019; Muskat et al., 2019).

According to Renzulli (2011), a student with gifts is defined as a student who has general superiority, is capable of task completion, and has a high level of creativity. When these three aspects are combined, the result is a student who are truly gifted and showing extraordinary performance. If one of the three components is not met, the student cannot be deemed as 'gifted'. Talent is the superior ability that a person possesses, which include an above-average ability, high creativity (Keles, 2022), and commitment to completing a task. This cannot be separated from the power of self-motivation in realizing self-capacity. With genuine commitment within the individual, the developed potential will lead to maximum performance (Cross, T. L. & Coleman, 2021). Commitment is the completing factor to internal motivation that pushes a gifted student to be persistent and smart in choosing the strategies to finish a task well, allowing them to overcome the challenges and obstacles better than other students.

Decision making that determines the future of students must consider the talents they have and what fields they excel at. The result of decision making of talents that are honed is significantly and closely related to student learning outcomes (Pandita & Ray, 2018; Peng & Chen, 2019; Wiblen & McDonnell, 2020). This will further serve as a follow-up in helping the formation, habituation, and consistency of self-honing according to the direction of their goals (Cross & Cross, 2019; Muskat et al., 2019). Students with talents that are honed appropriately will have outstanding learning outcomes, and vice versa (Till & Baker, 2020; Wiblen & McDonnell, 2020). Therefore, talent is very important for a student, especially mathematical talent; however, this does not mean that all aspects of mathematical ability have to be mastered (Johnston & Baker, 2020). This research focuses on the mathematical talents of elementary school students because the learning outcomes direct students' self-preparation according to their potential.

An assessment is necessary to determine the extent of students' mathematical talent. The development of assessment instruments at the higher education level has been widely carried out in the forms of paper-and-pencil tests, computer-assisted tests, computer-based tests, and computer adaptive tests for detecting one's abilities (Bahari, 2021; Bahari et al., 2021; Garas & Hassan, 2018; Zeng, 2020). However, studies on computer-based assessments for basic education levels are still relatively rare, especially for the elementary school level. This study focuses more about the teachers' experience in conditioning students in order to detect mathematical talents in a way that is specifically developed by the teacher . This is urgent and the most fundamental matter to be applied in the learning process as the right way to treat students according to their potential abilities.

This study aims to examine the teachers' experience in training mathematical talents in order to bring forth a generation of mathematically gifted students. Based on the scope of tfhe study, the sub-problems raised in the research are as follows:

a) To what extent is the teachers' understanding in honing mathematical talents?
b) What efforts have been made by teachers in honing the students' mathematical talents?
c) What form of assessment of mathematical aptitude is carried out by the teachers?
d) What are the difficulties faced by teachers and the solutions they find in the process of honing the mathematical talents?

Method

Research Design

This study examined teachers' experience in the habit of honing the mathematical talents of Grade 5 elementary school students by extracting in-depth information. Phenomenological research is appropriate because it considers the extent of understanding in interpreting daily life, and is therefore able to reveal social problems that occur around us (Taş, 2022). Collecting information about a person's experience leads to one of the advantages of a qualitative research approach. Teachers' experience is the main factor in appropriately

identifying the extent of their understanding in detecting the potential competencies possessed by students, especially the mathematical talent.

Sample and Data Collection

Alignment of goals with strategy is very important to do. The phenomenological research design guides the researchers in selecting the appropriate type of sampling technique that can be adapted to the objectives, namely the experience of teachers. Purposive sampling technique was used by considering several things. The criteria were homeroom teachers with elementary school teacher education background with a minimum service period of 10-15 years who are aware of students' talents, especially in mathematics. The criteria generated eleven selected teachers with a longer experience in the field of education who were able to represent the extent of mathematical talent detection in the Special Region of Yogyakarta. In-depth personal interviews were conducted virtually with eleven teachers using Zoom Meeting considering it was not possible to arrange a face-to-face meeting with others in order to maintain and comply with the health protocols during the COVID-19 outbreak.

In qualitative research, the research instrument is the researcher himself assisted by an interview program that is developed according to the theme that aims to be explored. All information from the participants is certainly highly confidential, including identity and self-credibility. The privacy of the participants is guaranteed by the researchers. In maintaining the guarantee and confidentiality of participants, the researchers disguised the participants' real identities with codes. The interview topics involved the preparation and implementation of habituation in honing mathematical talents in students, as well as the process of mentoring and evaluating the results of parenting for mathematically talented students.

Analyzing of Data

The data analysis procedure was chosen by considering the significance of the phenomenon. The Bogdan and Biklen's (2007) model is the analytical procedure used to facilitate the achievement of the meaningfulness of this study. For this reason, it is important to take several steps according to the Bogdan and Biklen's model. In the first stage, the collected data must be reduced to ensure that they are dense with information. Data reduction was done with NVivo 12 Plus, and the results were then presented in tables that were compiled and adjusted to the themes of the findings, in addition to a word cloud as a visual reinforcement. The NVivo 12 Plus was chosen because it makes it easier to perform data reduction by minimizing researchers' subjectivity. The next stage was connecting the themes in the findings which were then synthesized to obtain systematic, detailed, and mutually sustainable information. Finally, the last stage was compiling the results of overall data verification obtained from various themes categorized in the same cluster. The results of the verification will decide what can be presented in this study.

Trustworthiness

For qualitative research, the way to provide confidence, trust, accuracy, and consistency of the results, and to ensure that the research is reasonable is different from quantitative research (Flick, 2018). There are four elements that must be met in guaranteeing research results, namely credibility, transferability, dependability, and confirmability (Privitera Ahlgrim-Delzell, Lynn, 2019). In this study, credibility was met through repeated interviews with participants to ensure confirmation and density of data following the analysis, as well as to ensure that the data truly represented the participants' experiences. Transferability was obtained by studying the characteristics of students, teachers, and the school culture in honing mathematical talents in students.

Dependability was obtained from the consistency of participant responses in the interview process which was carried out repeatedly at different times with the same participants in non-structured interview activities. Interviews were conducted with elementary school teachers for Grade 5, which took an average of 50-80 minutes per meeting. Each participant was interviewed four to five times over 10 to 12 days. Confirmability was obtained from the results of consultations with expert lecturers in the field of Mathematics Education and Educational Psychology, supported by the results of confirmation of information at the school in the form of audio recordings, videos, or field notes to collect input in case of discrepancies.

Findings

The interview started with a small talk about the learning process in each school. Then, the discussion went deeper about the extent of students' mathematics learning outcomes in Grade 5. There were four main findings related to the form of activities carried out to prepare for habituation in honing the students' mathematical talents, the implementation of mentoring for students with mathematical talents to hone their abilities, the form of activities which reflect the habituation in honing students' mathematical talents, and the final results of the implementation of habituation in honing students' mathematical talents. Once completed, the interview process was then followed by preparing interview transcripts, performing data reduction with NVivo 12 Plus, verifying data on important themes, and decision making to address the research objectives, namely the teachers' experience. The presented research results only focus on the experience of teachers in the habit of honing the mathematical talents during

classroom learning, especially for fifth grade elementary school students.

Theme 1: Preparation for and Implementation of the Habituation of Honing Mathematical Talents

Related findings and preparations for honing mathematical talents include 1) teachers' understanding of detection and mathematical talent, 2) tools for honing mathematical talents, 3) a target to develop mathematical talents in learning that impacts student achievement, and 4) strategies used to hone mathematical talents in the learning process. The results of data reduction are presented in Table 1 with the description of each theme

The majority of respondents stated that the implementation of honing mathematical talents at school was by providing training activities to students who were selected based on the results of daily tests, the mid-term and the final assessments followed by mentoring students with special teachers about problem-solving strategies and enriching the material about the reasoning of the type questions of the mathematics olympiad. In the habituation used by teachers as a way to detect and hone students' mathematical potential, fifth-grade students were considered more suitable than the fourth-grade or sixth-grade students. Enthusiasm and maturity in understanding the material are one of the considerations used by teachers in selecting students.

"Grade 5 students has a more mature understanding than Grade 4 students because it is still too early for fourth graders to understand the material for Grade 5 and Grade 6, whereas Grade 5 students already have prior knowledge from when they were in Grade 4. They are ready to receive the next material from Grade 6, so yes... It is easier if you take samples from the fifth graders, Ma'am, to study students who have potential." (Sus-A01-008)

"… it's wrong to detect students' potential based on the scores of the daily tests, and the mid-term and final assessments,. For learning, there are still many students who struggle. Perhaps models of detecting potential such as the IQ test might be much more appropriate, Miss, because it doesn't depend on school materials that are standardized based on the curriculum, right? But it's more about how students can solve problems according to their own strategies, ideas, and creativity, Miss. (Rat-B02-011)

"If you want to know the true math talent, you can use the IQ test model, but it's just a matter of dealing with psychologists, in addition to the school. We as teachers are also mistaken

Table 1. Preparation and Planning for Sharpening Mathematical Talents

Response	*Sub-Theme*	*Result Verification*
Detection of mathematical talent is carried out due to the school's routine participation in the national science competition and mathematics olympiad . Students are selected based on the highest mathematics achievements in the daily tests, and the mid-term and final assessments, followed with mentoring by special mentoring teachers, because the homeroom teachers do not possess the readiness and the competence to detect students' potential and hone their mathematical talents.	Teachers' knowledge and understanding of detecting and honing mathematical talents	Activities of the teachers' habituation in detecting students' mathematical talents begin with selecting students based on the results of the daily tests, and the mid-term and final assessments, which are then followed by mentoring by special math olympiad teachers, with the provision of math olympiad question drills which aim to guide the attitudes and interests of students, thus leading to an increase in student achievement, and resulting in the ideal detection of student potential.
Provision of regularly scheduled facilities from schools in the form of special mathematics mentoring teachers Providing guidance and training to teachers in detecting and assisting students with mathematical talents Providing opportunities for students to explore their self-potential to bring out attitudes and real potential competencies which lead to mathematical talent	Target supporting tools to hone math talent	
There is a provision of drilling math olympiad questions for students, so that students are trained in solving problems in daily life, and can reason to take the moral values.	The target of achieving mathematical talent that has an impact on student achievement	
The selection of regularly scheduled mentoring for selected students is a way to facilitate the sharpening of mathematical talents through solving olympiad-type problems and reasoning.	The design of the strategy used to achieve the target of honing mathematical talent	

if we only consider the highest scores, whereas there might be students with average grades who turn out to have even higher potential than their friends. I am also aware that we should not be arbitrary in detecting and how to implement this…" (Rid- J02-011)

The interview excerpts above show the teachers' experience in detecting students' mathematical talent which they continue to use as a way to involve students as school representatives in activities such as the national science competition. The detection method is not appropriate because it does not address what will be measured in students. The teachers are aware of the errors in the detection method as well as their lack of competence in detecting mathematical talent in children appropriately.

The word cloud illustrates that honing mathematical talent requires careful preparation of mathematical material through the curriculum, proper assessment, and strong support from the school, teachers, parents, and the students themselves. This clearly shows that stakeholders need to cooperate to achieve the expected targets in student mentoring. This is indicated by the findings about student competencies that are superior but not detected properly, and the interest of students in participating in the mentoring of selected students.

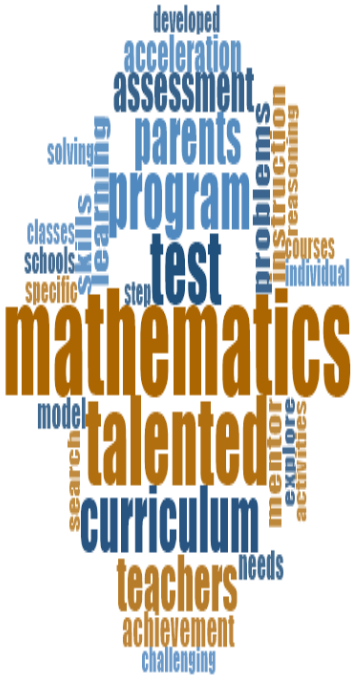

Fig. 1: Word Cloud: Preparation and Planning for Honing Mathematical Talents

Table 2: The Mentoring Process and Evaluation of the Results of Honing the Mathematics Talented Students

Response	*Sub-Theme*	*Result Verification*
It has become a habit for teachers to act fairly when detecting students' lack of mathematical competence. This leads to mathematical talent that is not detected properly, in addition to students' lack of interest in the mentoring, as well as the culture of honing with olympiad question drills which do not address the goal of detecting students' mathematical talents. The sharpening of students who are detected to have mathematical talents is by requiring them to solve mathematics olympiad problems in a limited time, which is routinely done every week.	Implementation of habituation in the ideal and appropriate honing of mathematical talents	The habit of honing mathematical talents is carried out by teachers by providing drill questions for the math olympiad. Students who have the potential to excel are then included to participate in the mathematics olympiad competition. However, teachers still ignore the essence of the assessment of mathematical aptitude for which no rubric matches the version of Mathematics Education and has valid and reliable credibility.
The results of exercise using olympiad questions are used by teachers to formulate strategies in proposing student candidates to take part in competitions, not as a basis for detecting mathematical talents.	Efforts on habituation in honing mathematical talents	
The assessment system does not have clear details, both in the preparation of indicators and the assessment rubric. Consequently, the results of the assessment on the completion of olympiad questions are not directed towards the fulfillment of detection and honing of students' mathematical talents. Special monitoring is not carried out by teachers in seeing the extent of changes and developments in students in receiving coaching and honing mathematical talents. It becomes a challenge for teachers to develop an appropriate assessment model to measure students' mathematical aptitude in the field of Mathematics Education	Implementation of assessment and evaluation of habituation in honing mathematical talents	

As a result, some selected students have difficulty understanding math olympiad questions. Therefore, the meaningfulness and the teachers' understanding of students' mathematical talents are still far from expectations and have an impact on students' development opportunities.

Theme 2: The Mentoring Process and Evaluation of the Results of Honing Students' Mathematics Talented

Information on the implementation of honing students' mathematical talents was obtained from eleven respondents who described all activities that occurred during the honing and detection of mathematical talents, including three sub-themes identified. The sub-themes consist of 1) the implementation of ideal mentoring to hone mathematical talents, 2) the efforts in organizing the honing of mathematical talents, and 3) the implementation of assessments and evaluations on the honing of mathematical talents

Based on the information in Table 2, which is based on early detection that was not properly carried out, there is no real impact of the habituation of honing mathematical talents. According to the teachers, the habit of honing the mathematical talent has been carried out with the approval of the school in selecting the students, mentoring from special supervisors, providing drills with math olympiad questions, and selecting students as school representatives in competitions. However, this study finds an important point in supporting the implementation of the habituation of honing mathematical talents in students. The habit evidently inspires teachers to improve their quality in preparing practice questions for honing mathematical talents independently and rubrics for assessment, scoring and categorizing students.

"I think children are capable and have the competency to solve this, it's just that they are still not strong enough, maybe because school has to be online during the pandemic, so coaching is temporarily suspended, ... It also makes teachers learn to adapt to online learning media, it's not easy if you have to make your own questions." (Hus-J03-008)

"It's very rare, not because I don't want to, Miss. I am still not sure if what I make has a good quality or if I measure it correctly. Therefore, I prefer to use math olympiad questions for the habit of honing the talents of selected students who have high grades in Grade 5. Besides, it seems that at school, there is no special math aptitude test, usually only IQ test in general, Miss. Also, there is not much use for such a test at the moment, Miss."(Mar-J03-016)

"I'm sorry, Miss, I don't seem to understand very well the correct and appropriate process of detecting, honing, and assessing mathematical talent in elementary school students, because so far it has only been limited to students working on olympiad questions. Sometimes in the discussion, if students have difficulty and ask questions, I will try to help…" (Tin-J03-012)

The implementation of evaluation on the habituation of honing students' mathematical talents did not show the appropriate steps or strategies due to the limited knowledge of teachers on assessment rubrics. However, teachers always try to assist students in attaining particular achievements in mathematics. One easy way done by teachers is by providing drilling olympiad questions with a discussion. However, there is something unfortunate about the quality of the special rubric for assessing mathematical talent as it should be standard, valid, and can be continued to be developed by teachers. In addition, teachers still have not found the usefulness of the mathematical talent assessment results because they are not able to support learning.

Moreover, it is not enough to examine the readiness of teachers and students in the process of assessing mathematical talent just through olympiad questions. It is better to show the extent of quality of the items in measuring students' mathematical talents appropriately and accurately. This is important especially at the evaluation stage which is developed in a series and monitors the results of the mathematical talent assessment only from the academic point of view. However, there are non-academic elements in the problem-solving process which are shown through dexterity, creativity, and responsibility for the commitments that have been made.

Fig. 2: Word Cloud: The Mentoring Process and Evaluation of the Results of the Training of Mathematically Talented Students

Through the word cloud in Figure 2, the process of mentoring and evaluating the implementation of habituation of honing the mathematical talent shows that the entire process of evaluation must be conducted within a well-structured system, as indicated by a special curriculum for mathematical talent. In addition, it is important to assess mathematical aptitude in detail according to the school of psychology. The more appealing choice of evaluation in the entire series is a standard mathematical aptitude assessment model that can assist teachers in detecting students' mathematical talents to evaluate the results

Discussion

Talent may serve as one of the supporting factors for the student learning process in improving student achievement (Abuhassna et al., 2020). Before honing the students' talents, proper steps must first be conducted to detect students' potential (Assouline & Lupkowski-Shoplik, 2011). A proper detection will generate valid results and lead to students whose competencies and talents truly have the potential to be improved (Singh & Sriraman, 2022). This study finds that the preparation for the implementation of the honing of mathematical talent has not been appropriately conducted as it was only applied in the selection of high-achieving students during the semester assessment.

Meanwhile, ideally, the concept of talent, especially mathematical talent, should refer to the potential competence possessed by an individual in a particular and unique field that others do not necessarily have, which will lead to an achievement when it is properly honed. In line with this, Renzulli (2011) suggests that mathematical talent can be detected through three things, namely high capabilities, commitment to responsibility in completing high-level tasks, and a high-level of creativity. If a person does not have either one of them, they cannot be considered as talented as the three elements are mutually binding and complementary (MacIntyre, 2008).

Consciously, research findings on the implementation of honing mathematical talents are certainly not included in the ideal criteria for talented students. The honing of mathematical talent must be fully supported and agreed upon by various teachers, special mentoring teachers, the school, the parents, and the students themselves (Gardner, 2021). The provision of school facilities from the school, which is realized through the provision of special mentoring teachers for talented students, is proof of their full support in honing the students' mathematical talents (Paschal, 2022). This becomes one of the opportunities in guiding the students' future by motivating them to be more confident in their goals, and by providing an overview or profile of their potential competencies, especially mathematical talents, which in this case belongs in the academic field.

The detection of mathematical talent has been carried out and has been conditioned as a habit by the school. However, teachers' low awareness in understanding talent screening to support the improvement of student achievement through competency categorization has resulted in the lack of equal opportunity for students to show their potential competencies through testing or aptitude tests. Ideally, the detection of mathematical talent must be sufficient for all students. There are various appropriate ways to hone mathematical talent, such as through the habit of providing learning treatments with a problem-based learning method in the form of a project. Various learning methods have proven significant in creating effective and quality learning (Garrison & Kanuka, 2004). Practical solutions to increase the students' in-depth understanding include the implementation of learning using the cooperative problem-solving model, problem-based learning, and project-based learning (Fink, 2013; Ting et al., 2021). Collaborative learning, literacy, guided discovery learning, and problem-posing can also inspire students to show their critical, creative, and agile thinking skills in responding to a problem with the right solution (Abidin et al., 2021).

Questions that can help trigger students to bring out self-improvement in critical thinking skills, creativity, and commitment to responsibility in completing a task are questions that require higher-order thinking skills (HOTS) (Hillman & Baydoun, 2019). Through these questions, students will practice in stages to understand and get conditioned to formulating the problems raised in the questions, from

modeling mathematics to providing solutions to the problems. HOTS questions are often presented as multiple-choice questions to assess the students' line of thought (Erfianti et al., 2019). This leads to the decision of whether a student can be labeled as talented or less talented in mathematics. However, while these questions can serve as a means to help teachers detect the students' talents, HOTS questions are rarely narrowed down by teachers in the honing process. Moreover, HOTS questions are closely linked to helping students prepare themselves to be ready to face the challenges of the industrial revolution 4.0 towards 5.0 by applying their skills in the 21st century (Rumpak et al., 2022).

Therefore, in this case, the teachers' experience in honing mathematical talent should not rely on merely giving routine questions in the form of mathematics olympiad questions, but rather on strategies or early detection methods which allow them to identify students with the right potential. In addition, it is essential to have an appropriate assessment model for mathematically talented students which involves mathematical aptitude testing instruments, clear assessment rubrics, and reports on mathematical aptitude test results to facilitate teachers in openly providing information on the assessment results, including recommendations for students.

Conclusion

Based on the research objectives, research results, and discussion, it is concluded that the detection of mathematical talent is only done by selecting students with the highest test scores from the semester assessment. The honing of students' mathematical talents is realized through the habituation of teachers by giving HOTS-level questions in the form of mathematics olympiad questions. It has become the habit of teachers to observe and train students to have more critical and creative thinking skills. Thus, if the detection of mathematical talent is conducted appropriately and accurately from the beginning, it is possible for students to have maximum achievements because the potential competencies, especially mathematical talent, support them. Finally, further research is needed to clarify the appropriate detection method and determine the appropriate assessment model for students with valid testing instruments and assessment rubrics that are adapted to the cognitive level of elementary school students

Recommendation

Communication with stakeholders such as teachers, the school, parents, and students is necessary in order to trace and conduct a more optimal assessment of mathematical talent, and so that mentoring for students with mathematical talent can be carried out more precisely and fairly. In addition, teachers' mastery and understanding of giftedness in general and in detail are also essential to increase the potential competence and skills of students according to their interests. Thus, teachers can quickly develop detection strategies that are adapted to school conditions, student conditions, and support from various parties to produce valid assessment rubrics.

A rubric can describe the extent of student competence in terms of creativity, commitment to responsibility, and skills, leading to mathematically gifted students. Based on the findings in our research, we hope and expect that further research develop a valid mathematical aptitude assessment model, which can be used to evaluate the implementation of detecting and honing students' mathematical talents. Future researchers can formulate an assessment model in detail that makes it easier for teachers to use the model to detect and hone students' mathematical talents in detail with a set of test instruments, assessment rubrics, labeling students in the form of short reports, as well as guidelines for using the model.

Limitations of Study

There is no such thing as a perfect work, and this study is no exception. The limitation of this study is that the results of the study are only in the form of qualitative data collection, without the support of quantitative data. This gap can serve as an opportunity to measure the extent to which teachers understand mathematical talent. Teachers can also measure students' mathematical talents and illustrate their activities in providing recommendations or special enrichment for students in quantitative measurement. Both of these aspects can be used later in research with exploratory sequential or embedded designs to generate solid results which can explain in detail the importance of the entire process of detecting and honing students' mathematical talents.

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