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Readiness of High School Mathematics Teachers in Implementing the 2013 Curriculum in Online Learning

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ABSTRACT

The Covid-19 outbreak that hit Indonesia required teachers to carry out online learning while still prioritizing the quality of education. This study aims to describe the readiness of Mathematics teachers to implement the 2013 curriculum in online learning to create quality learning. This readiness consists of several indicators, namely (1) understanding of the structure and material of the 2013 curriculum mathematics, (2) readiness to use teachers' mathematics books, (3) readiness to use students' mathematics books, (4) readiness to plan mathematics learning, (5) management readiness mathematics learning, (6) the readiness of the mathematics learning process, (7) the readiness of the assessment process. The data collection technique used a questionnaire. The research subjects were all high school mathematics teachers in Tualang District. The data analysis technique used descriptive qualitative. The results showed that the readiness of mathematics teachers at Se- Spectacular Tualang High School to implement the 2013 curriculum in online learning was in the "very unprepared" category of 10% (2 teachers), 25% "unprepared" category (5 teachers), "ready enough" category by 15% (3 teachers), the "ready" category by 40% (8 teachers), and the "very ready" category by 10% (2 teachers). Curriculum 2013 on online learning is included in the "ready" category.

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INTRODUCTION

The coronavirus disease 19 (Covid-19) outbreak, which has hit 215 countries globally, presents challenges for educational institutions, especially high schools. To fight Covid-19, the Government has prohibited crowds, social distancing, physical distancing, wearing masks, and always washing hands. As a result, the Government has closed schools to suppress the spread of Covid-19. School closures are action against the Covid-19 pandemic that affects access to education. More than 370 million children and youth do not study due to temporary closures [1].

The form of learning that can be used as a solution during the COVID-19 pandemic is online learning. Online learning is learning that uses the internet network with accessibility, connectivity, flexibility, and the ability to bring up various types of learning interactions [2]. Online learning is learning that can bring together students and teachers to carry out learning interactions with the help of the internet [3]. The use of digital technology can enable students and teachers to carry out the learning process even though they are in different places.

Through the Ministry of Education and Culture, the Government has prohibited schools from conducting face-to-face (conventional) learning and ordered online learning (Kemendikbud Dikti Circular Letter No. 1 of 2020). Schools are led to be able to organize online learning [4]. Not a few schools quickly respond to government instructions. Online learning has its strengths, challenges, and obstacles [5].

Research by [6] stated that online learning is becoming a trending learning for the future. The difference between online learning and offline learning can make very significant changes in learning [7]. Other studies reveal weaknesses in online learning, such as difficulty socializing between students. The intensity of meetings between students and teachers is minimal, so students find it more difficult to understand learning [8]. Research by [9] states that the barriers to online learning start from network instability, teacher voices and teaching materials are not in sync, the inability of students to learn when the internet network is not connected, and reduced concentration in learning.

Learning must be carried out with scenarios that can prevent physical contact between students and teachers and students [4]. How to optimize online lectures is to involve students in learning activities, use different learning models in each meeting, carry out reflections at the end of learning, present lecture materials that can be accessed both synchronously and asynchronously [10]. In its implementation, online learning requires some careful preparation. Teacher readiness can be interpreted as an attitude of willingness to be involved in the teacher's duties in educating, teaching, guiding, directing, training, assessing, and evaluating students [11]. Teaching readiness is one part of the teaching program that contains units of discussion to be presented in several meetings [12]. So, teaching readiness can be used as a basis for preparing lesson plans and at the same time as a teacher reference in carrying out learning activities so that they are more focused and run efficiently and effectively. Even though in an online learning situation, the teacher must continue to carry out his duties, the teacher must master the teaching materials according to the level/class of the students. Mastery of methods and scope of lessons is a requirement for transferring student knowledge and supporting administrative and curriculum foundations.

The 2013 curriculum is a competency-based curriculum designed to anticipate 21st-century competency needs [13]. Teachers are required to master and develop methods for the learning process that are adapted to the characteristics of the subjects so that learning objectives can be achieved effectively. One way to maintain the material is to develop a learning plan in accordance with the rules of the 2013 curriculum because currently, the curriculum that is being used is the 2013 curriculum. As the front line in implementing the curriculum, teachers must be an important concern. The teacher is someone who deals directly with students in learning so that it has a direct influence on the success of students in completing learning tasks

The 2013 curriculum brings a fundamental change in the teacher's role in learning. Administratively, the central Government has prepared to learn implementation tools that no longer need to be prepared by teachers. However, teachers must play an active role as motivators and facilitators of learning so that students will become the center of learning. This is a separate obstacle for teachers because not all teachers have these competencies. In addition, teachers must be prepared to implement the curriculum in a relatively short time while the equipment has not been prepared carefully. It is not an easy matter to prepare ideal teachers like the expectations of the 2013 curriculum in a short time, especially to change the mindset of teachers from those originally only tasked with teaching while in the 2013 curriculum, teachers must be able to direct students to be active, productive, creative, and think critically.

In the research of [14], a more specific problem for mathematics teachers is the ability of mathematics teachers to maintain the substance of the material through the learning process. Mathematics learning is an activity of learning science using reason and a structured plan involving thoughts and activities in developing problem-solving abilities and conveying information or ideas [15]. There are three principles of learning mathematics. First, namely attention and motivation a driver of student learning activities. Second, activeness is a positive attitude and driving force for

students to take the initiative to carry out learning activities. Third, it is necessary to be directly involved and experienced so that students can build their knowledge through existing activities.

Mathematics learning is related to abstract ideas and the use of symbols arranged hierarchically and deductive reasoning [16]. In learning mathematics, a relatively high mental activity is required. Therefore, students must always actively participate in learning, and the teacher as the holder of an important role and position in carrying out the learning process.

METHODS

The type of research used is descriptive qualitative research. This study aims to see how teachers are prepared to implement the 2013 curriculum in online learning to suppress the chain of the spread of Covid-19. The online learning in this study is learning that uses learning media that can be accessed using internet services.

The research subjects were high school mathematics teachers in the Tualang sub-district who conducted online learning with 20 teachers. The data analysis technique in this study used descriptive quantitative data analysis techniques. The method of calculation for compiling learning plans for learning activities to be more directed and running efficiently and effectively and at the same time as a teacher's reference in carrying out data analysis is to find the relative frequency of the percentage. The categorization uses a standard score. Determine the score criteria using the following formula [17].

Table 1. Scoring Criteria

Interval	Category
$M + 1{,}5\ SD < X$	Very ready
$M + 0{,}5\ SD < X \leq M + 1{,}5\ SD$	Ready
$M - 0{,}5\ SD < X \leq M + 0{,}5\ SD$	Pretty Ready
$M - 1{,}5\ SD < X \leq M - 0{,}5\ SD$	Not ready
$X \leq M - 1{,}5\ SD$	Very Unprepared

Information:

M : average value (mean)

X : score

S : standard deviation

The instrument in this study used a questionnaire. The questionnaire used is a standard questionnaire taken from the article and modified according to the needs of this study. The items of the questionnaire can be seen in Table 2 below.

Table 2. Questionnaire Item

Variable	Indicator	Item Number
Teacher readiness	Understanding of 2013 Curriculum Mathematics Structure and Materials	1, 2, 3, 4
	Readiness to Use Mathematics Teacher Books	5, 6, 7, 8
	Readiness to Use Math Student's Book	9, 10, 11, 12
	Online Learning Planning Readiness	13, 14, 15, 16
	Online Learning Management Readiness	17, 18, 19, 20, 21
	Readiness of the Online Learning Process	22, 23, 24, 25, 26, 27, 28
	Readiness of the Online Learning Assessment Process	29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42
Amount		

The scoring is used using a modified Likert scale with four alternative answers, namely: Very Appropriate (SS), Appropriate (S), Not Appropriate (TS), and Very Disagree (STS). The data

collection technique will be used by giving a questionnaire to the teacher who is the research subject. The mechanism is as follows:

1. Researchers searched for data on Mathematics subject teachers in SMA in Tualang District.
2. The researcher determines the number of teachers who are the research subjects.
3. Researchers distribute questionnaires to respondents.
4. The researcher then collected the questionnaire and did a transcript of the results of filling out the questionnaire.
5. Next, the researcher performs coding.
6. After obtaining research data, the researcher draws conclusions

The data collected through teacher questionnaires were then analyzed descriptively. Data analysis through the category/grouping of each component. The data are grouped and described to answer the formulation in this study. After all the data has been collected, the next step is to analyze the data to conclude. The data analysis technique in this study used descriptive quantitative data analysis techniques. The calculation method of data analysis is to find the relative frequency of the percentage. The categorization uses a standard score.

RESULTS AND DISCUSSION

The data from this research is intended to describe the data collection results, namely respondents' answers to the questionnaire given to measure the readiness of mathematics teachers in SMA in Tualang District to implement the 2013 curriculum in online learning. The data obtained with the questionnaire instrument were analyzed by descriptive qualitative research. The discussion of the research results will be carried out based on the results of the questionnaire filled out by the teacher.

Data to identify the readiness of mathematics teachers in SMA in Tualang District in implementing the 2013 curriculum in online learning was disclosed by a questionnaire consisting of 44 statements and divided into 7 indicators, namely; (1) understanding of the structure and material of the 2013 curriculum mathematics, (2) readiness to use teacher mathematics books, (3) readiness to use student mathematics books, (4) readiness for online learning planning, (5) readiness for online learning management, (6) readiness online learning process, (7) readiness of the assessment process. The data graph of the readiness of high school mathematics teachers to implement the 2013 curriculum in online learning is shown in Figure 1 below.

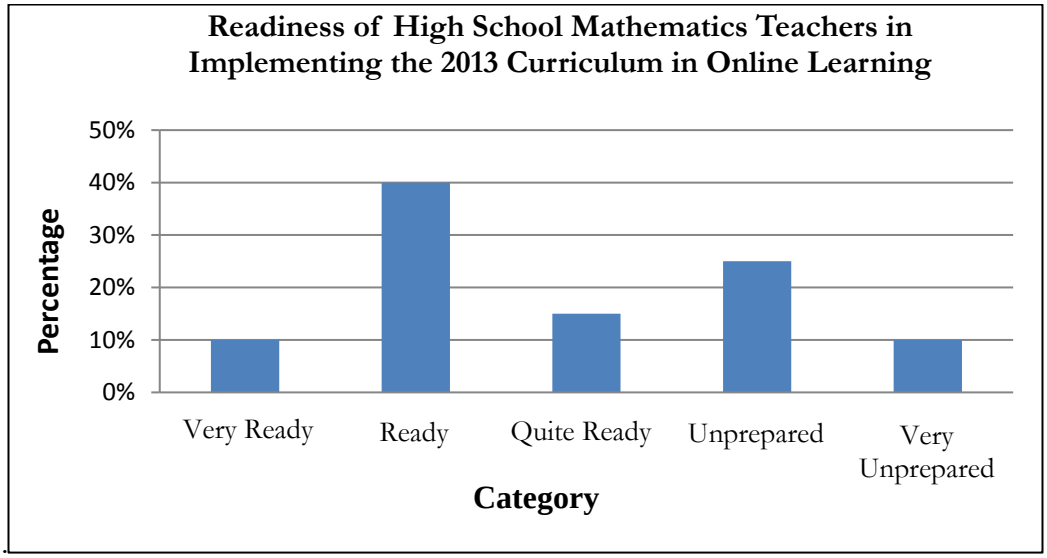

Figure 1. Bar Graph of High School Mathematics Teacher Readiness in Implementing the 2013 Curriculum in Online Learning.

Based on Figure 1 shows that the readiness of mathematics subject teachers in the Tualang District to implement the 2013 curriculum in online learning is in the "very unprepared" category of 10% (2 teachers), the "unprepared" category of 25% (5 teachers). The "quite ready" category is 15% (3 teachers), the "ready" category is 40% (8 teachers), and the "very ready" category is 10% (2 teachers). Based on the results above, the readiness of mathematics teachers in SMA in Tualang District to implement the 2013 curriculum in online learning is, on average, in the "Quite Ready" category.

Based on the results of the analysis of 20 high school mathematics teachers in the Tualang District, it shows that the readiness of high school mathematics teachers to implement the 2013 curriculum is in the Quite Ready category. Quite Ready means that some teachers are ready, and some teachers are not ready to implement the 2013 curriculum. Of the 20 high school mathematics teachers in Tualang District, almost all have attended the 2013 curriculum training but have implemented the 2013 curriculum in online learning. are required to be creative so that the learning that occurs is of high quality

The facilities and infrastructure available to support the implementation of the 2013 curriculum in online learning from each high school in the Tualang District have ready schools, and some are not. Ready here means that the school has available facilities and infrastructure that can support the implementation of the 2013 curriculum, including the existence of a stable internet network that can support and assist the implementation of online learning activities, the existence of sufficient computers/laptops to make it easier for teachers who do not have laptop or computer can be used to study

Details regarding the readiness of high school mathematics teachers to implement the 2013 curriculum in online learning in implementing the 2013 curriculum are divided into 7 indicators, namely; (1) understanding of the structure and material of the 2013 curriculum Mathematics, (2) readiness for the use of teachers' Mathematics books, (3) readiness for the use of students' mathematics books, (4) readiness for online learning planning, (5) readiness for online learning management, (6) readiness online learning process, (7) the readiness of the assessment process is as follows:

(1) Understanding of 2013 Curriculum Mathematics Structure and Materials

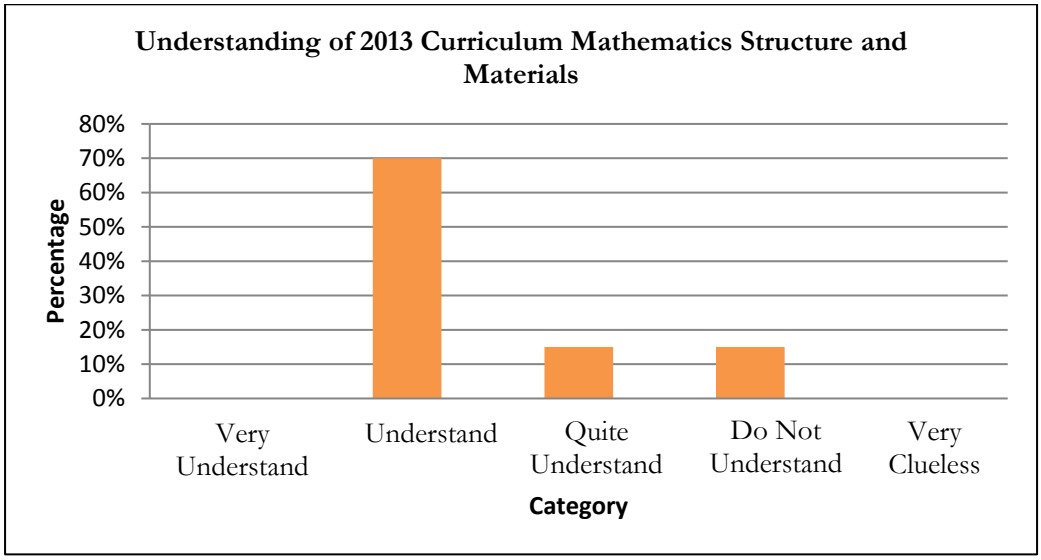

Figure 2. Bar Graph of Understanding of 2013 Curriculum Mathematics Structure and Materials

Based on Figure 2 shows that the readiness of high school mathematics teachers to implement the 2013 curriculum in online learning is based on indicators of understanding of the structure and material of the 2013 curriculum in the category of "very clueless" 0% (0 teachers) , the category "do not understand" 15% (3 teachers), 15% "quite understand" category (3 teachers), 70% "understand" category (14 teachers), and 0% "very understand" category (0 teachers). Based on the results above, the understanding of the structure and material of the 2013 curriculum in Mathematics is in the "very clueless" and "don't understand" categories by 30%, while the "understanding" category is 70%. These results indicate a tendency to understand the structure and material of the 2013 curriculum in the category of "understand".

(2) Readiness to Use Mathematics Teacher Books

Data on the Readiness of High School Mathematics Teachers in Implementing the 2013 Curriculum in Online Learning based on indicators of readiness to use teacher books can be seen in Figure 3 below.

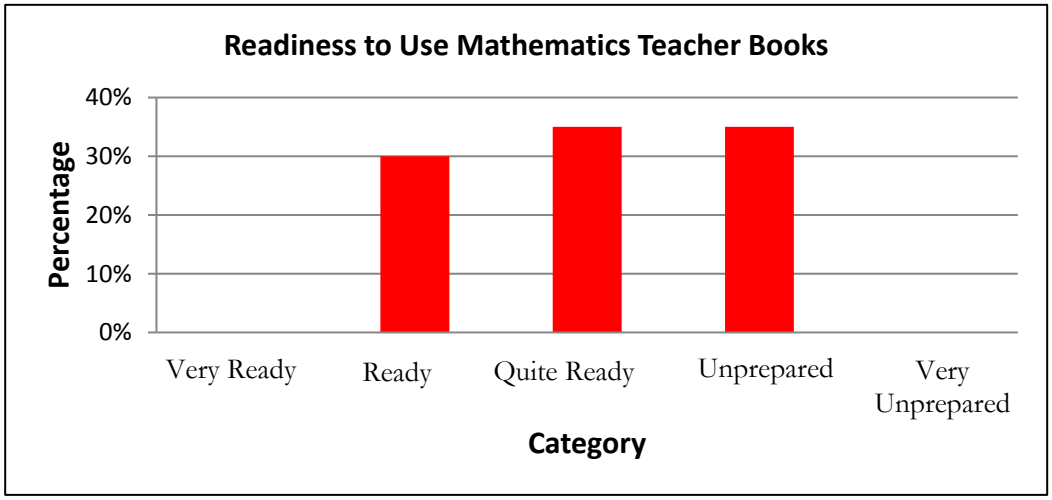

Figure 3. Bar Graph of Readiness to Use Mathematics Teacher Books

Figure 3 shows the readiness of high school mathematics teachers to implement the 2013 curriculum in online learning based on indicators of readiness to use mathematics books. Teachers are in the "very unprepared" category of 0% (0 teachers) "not ready" category of 35% (7 teachers).), the "Quite Ready" category is 35% (7 teachers), the "ready" category is 30% (6 teachers), and the "very ready" category is 0% (0 teachers). Based on the results ab ove, the indicator of readiness for the use of teachers' mathematics books in the "not ready" category is 35%, while the "quite ready" and "ready" categories are 65%. These results indicate teachers' readiness to use mathematics books in the "quite ready" and "ready" categories.

(3) Readiness to Use Mathematics Student's Book

Data on the Readiness of High School Mathematics Teachers in Implementing the 2013 Curriculum in Online Learning based on the indicators of Readiness for Using Students' Mathematics Books can be seen in the image below.

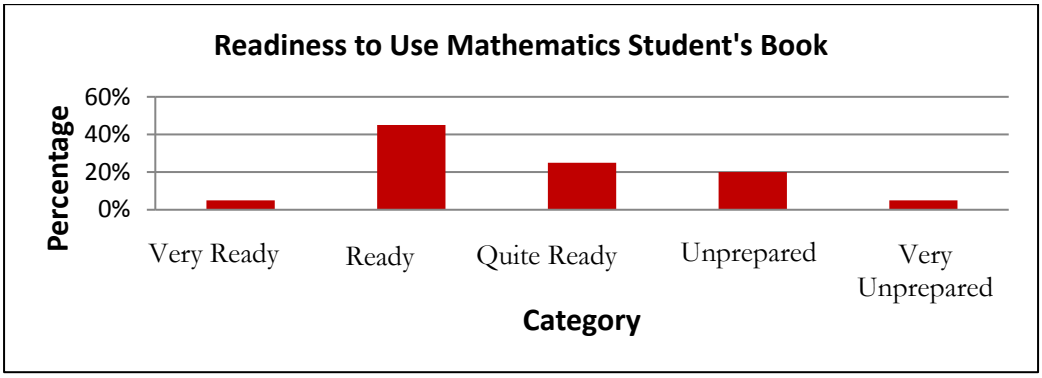

Figure 4. Bar Graph of Readiness to Use Mathematics Student's Book

Based on Figure 4 shows that the readiness of high school mathematics teachers to implement the 2013 curriculum in online learning based on indicators of readiness to use mathematics books is in the "very unprepared" category of 5% (1 teacher), the "not ready" category of 20% (4 teachers).), the "Quite Ready" category is 25% (5 teachers), the "ready" category is 45% (9 teachers), and the "very ready" category is 5% (1 teacher). Based on the results above, the indicators of readiness to use mathematics books by students in the "very unprepared" and "not ready" categories are 25%. The "ready" and "very ready" categories are 50%. These results indicate the tendency of students' readiness to use mathematics books in the "ready" and "very ready" categories.

(4) Online Learning Planning Readiness

Data on the Readiness of High School Mathematics Teachers in Implementing the 2013 Curriculum in Online Learning based on the indicators of Online Learning Management Readiness can be seen in the picture below.

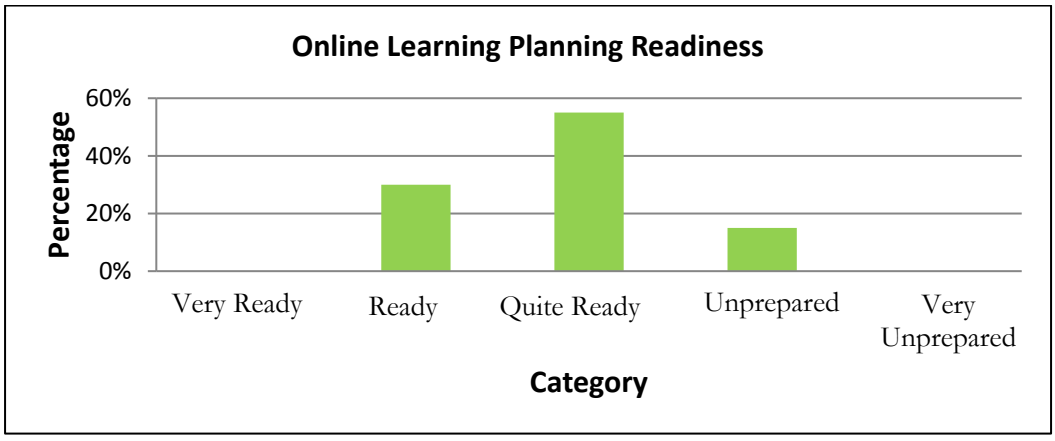

Figure 5. Bar Graph of Online Learning Planning Readiness

Based on Figure 5 shows the readiness of high school mathematics teachers in implementing the 2013 curriculum in online learning based on the online learning planning readiness indicator in the "very unprepared" category of 0% (0 teachers), the "unprepared" category of 15% (3 teachers), the "Quite Ready" category is 55% (11 teachers), the "ready" category is 30% (6 teachers), and the "very ready" category is 0% (0 teachers). Based on the results above, the Online Learning Planning Readiness indicator in the "very unprepared" and "not ready" categories is 15%, while the "quite ready" and "ready" categories are 85%. These results indicate the tendency of Online Learning Planning Readiness to fall into the "quite ready" and "ready" categories.

(5) Online Learning Management Readiness

Data on the readiness of high school mathematics teachers in implementing the 2013 curriculum in online learning based on the online learning process readiness indicators are shown in the image below.

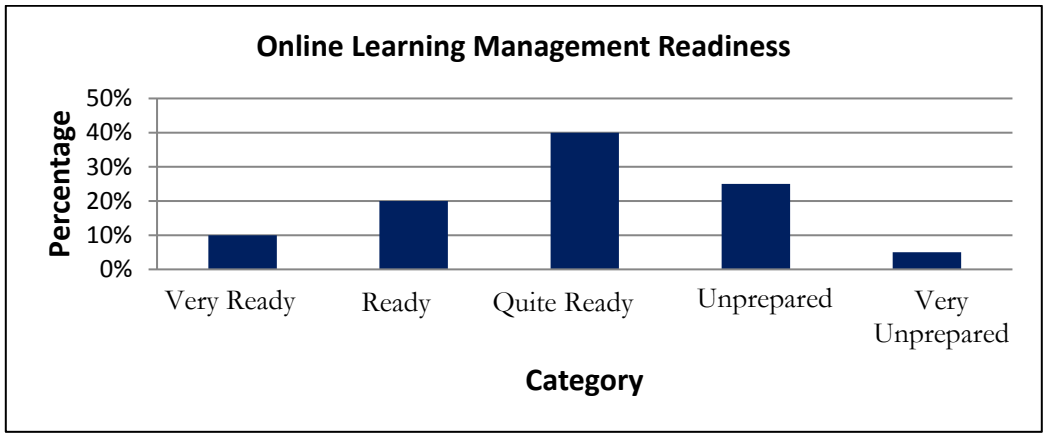

Figure 6. Bar Graph of Online Learning Management Readiness

Based on Figure 6 shows that the readiness of high school mathematics teachers to implement the 2013 curriculum in online learning based on the online learning management readiness indicator is in the "very unprepared" category of 5% (1 teacher), the "not ready" category of 25% (5 teachers). The "Quite Ready" category is 40% (8 teachers), the "ready" category is 20% (4 teachers), and the "very ready" category is 10% (2 teachers). Based on the results above, the Online Learning Management Readiness indicator is in the "very unprepared" and "not ready" categories by 30%. In comparison, the "ready" and "very ready" categories are 30%, and the "quite ready" category is 40%. Readiness of Online Learning Management is categorized as "quite ready".

(6) Readiness of the Online Learning Process

Data on the Readiness of High School Mathematics Teachers in Implementing the 2013 Curriculum in Online Learning based on the indicators of Readiness of the Assessment Process are shown in the image below.

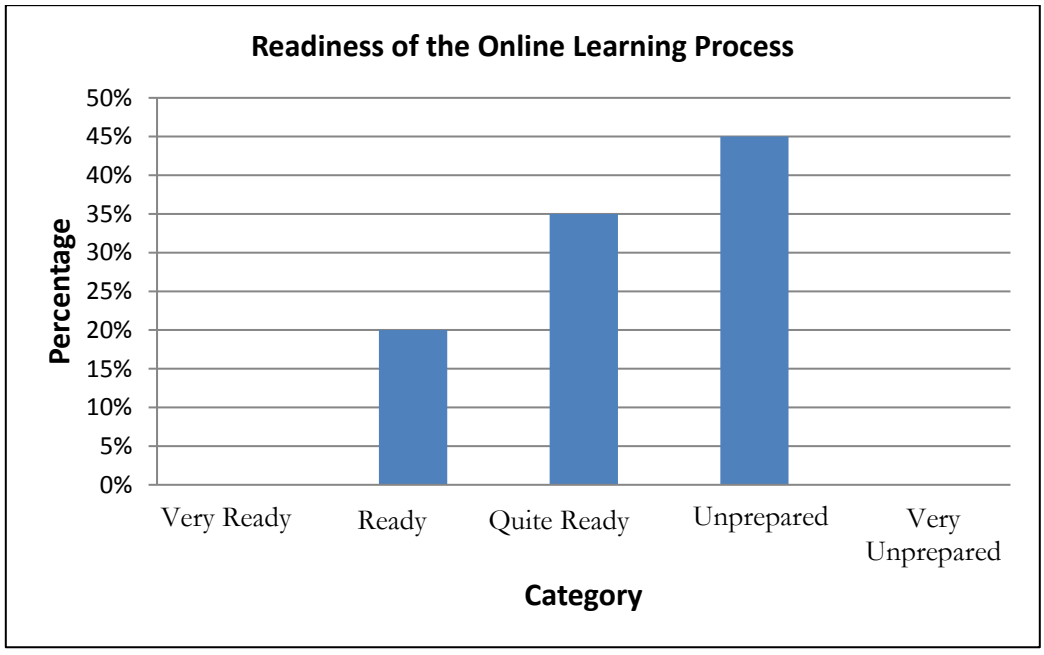

Figure 7. Bar Graph of Readiness of the Online Learning Process

Based on Figure 7 shows that the readiness of high school mathematics teachers to implement the 2013 curriculum in online learning based on the online learning process readiness indicator is in the "very unprepared" category of 0% (0 teachers), the "not ready" category is 45% (9 teachers). The "Quite Ready" category is 35% (7 teachers), the "ready" category is 20% (4 teachers), and the "very ready" category is 0% (0 teachers). Based on the results above, the online learning process readiness indicators are in the "very unprepared" and "not ready" categories of 45%. In comparison, the "ready" and "very ready" categories are 20% and "quite ready" 35%. The use of teacher books is categorized as "not ready" and "very unprepared".

(7) Readiness of the Online Learning Assessment Process

Data on the Readiness of High School Mathematics Teachers in Implementing the 2013 Curriculum in Online Learning based on the Assessment Process Readiness indicators are shown in the image below.

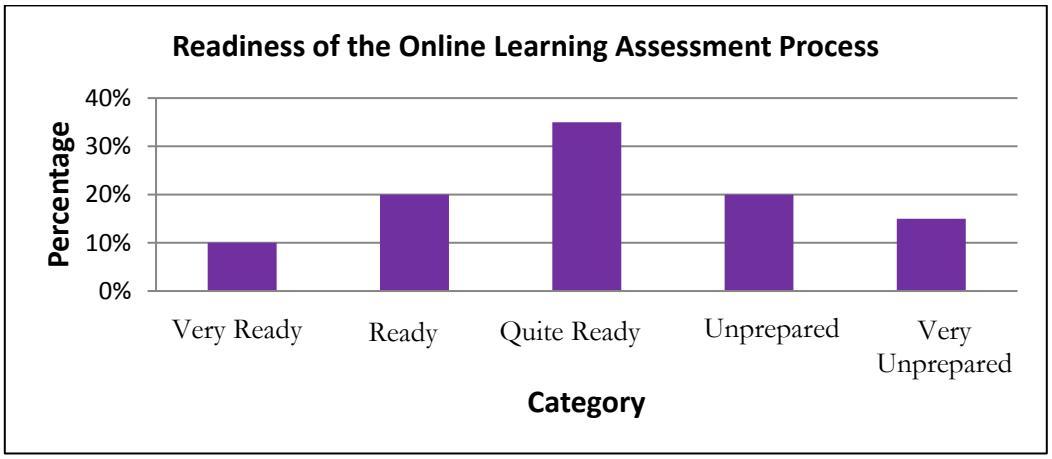

Figure 8. Bar Graph of Readiness of the Online Learning Assessment Process

Based on Figure 8 shows that the readiness of high school mathematics teachers to implement the 2013 curriculum in online learning based on the Assessment Process Readiness indicator is in the "very unprepared" category of 15% (3 teachers), the "not ready" category of 20% (4 teachers), the "Quite Ready" category is 35% (7 teachers), the "ready" category is 20% (4 teachers), and the "very ready" category is 10% (2 teachers). Based on the above results based on the indicators of Readiness of the Assessment Process in the "very unprepared" and "not ready" categories of 35%, the "ready" and "very ready" categories are 30%, and the "fairly ready" categories are 35%. These results indicate a tendency for the Readiness of the Assessment Process to fall into the categories of "very unprepared", "not ready," and "quite ready".

CONCLUSIONS AND SUGGESTIONS

Based on the results of data analysis, description, testing of research results, and discussion, it can be concluded that the readiness of high school mathematics teachers to implement the 2013 curriculum in online learning is in the "ready" category of 40% with an average value of 138.23. Overall, the readiness of high school mathematics teachers to implement the 2013 curriculum in online learning in terms of lesson planning, learning implementation, and learning is categorized as good based on the results of questionnaires distributed to teachers, most of whom already understand the readiness of teachers in implementing 2013 learning, who does not understand teachers' readiness to implement the 2013 curriculum learning.

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