

## AN ANALYSIS OF MATHEMATICS TEACHERS' DIFFICULTIES IN IMPLEMENTING 2013 CURRICULUM

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### ABSTRACT

This research aimed to explore the difficulties faced in online learning, based on a survey conducted by the Indonesian Ministry of Education in 2020. The survey revealed that 58% of participants found the learning process ineffective, 38% reported a lack of guidance, 35% faced challenges with poor communication, 62% lacked internet access, and 59.5% objected to school assignments. The study focused on three main objectives: 1) understanding the online learning process, 2) exploring assessment methods, and 3) investigating the challenges faced by teachers in preparing instructional materials. The research adopted a descriptive qualitative method, employing data collection through observations and interviews. Data analysis involved presenting, reducing, and drawing conclusions from the gathered information. The observational analysis and interview results indicated that 95% of the learning process still followed the curriculum guidelines. Additionally, students expressed concerns about teachers lacking instructional modules and facing difficulties in using digital platforms to teach topics such as integral symbols, logarithms, matrices, and mathematical induction. While teachers prepared lesson plans (RPP), they did not align well with the provided textbooks, making it challenging for students to actively engage in the learning process. Regarding assessment methods, 60% of students disagreed with the difficulty level of the material being tested, which exceeded what was taught. Consequently, learning outcomes did not meet expectations. Teachers faced several difficulties, including operating the Google Meet platform, writing symbols, proving formulas, explaining concepts, managing internet connectivity, correcting assignments, and implementing student-centered learning methods. These challenges resulted in a misalignment between the planned lesson plans and their implementation. The research concludes that improvements are necessary in pedagogical practices related to online learning. Efforts should be made to provide teachers with adequate instructional modules, enhance their digital literacy skills, and address the difficulties faced during the assessment process. By addressing these issues, it is expected that online learning experiences will become more effective and beneficial for both teachers and students.

### Keywords:

Teacher's Difficulty;  
Teacher's  
readiness;2013  
Curriculum

### INTRODUCTION

Basically the educational process is not only building knowledge, but shaping the character of students in a better way, this is clearly stated in the curriculum. (Holy 2020). However, in December 2019, a disease emerged that caused new problems in society, especially in the world of education. Maintaining the success of the curriculum during the conventional implementation process is not easily affected by the virus. This type of virus is

the Corona virus (Suhendra, Asworowati, and Ismawati 2020). The virus is a new disease category, starting from the usual symptoms such as flu, coughing, loss of sense of smell, not breathing smoothly until the stage of death. This disease is thought to be easier to attack anyone, especially people who have traces of disease that have been inherent in the body all this time (Dubey and Dubey 2020). This virus has spread quite widely to various countries, this is because it can be transmitted through objects that this virus sticks to from saliva, sneezing

or forms that have been affected by this disease. (Cheng et al. 2020). In this case, information is unclear and creates speculation and has a huge impact on people's daily activities, especially in the education sector. Indonesia itself is experiencing obstacles in the educational process both at school and at university. It is not only the learning process that is problematic but has reached the administrative stage which is not properly prepared. The learning that is expected to be structured is not in accordance with what is expected by the curriculum. Survey conducted by the ministry of education and UNICEF on May 29, 2020 and continued on June 8, 2020, received 4,000 responses from 34 provinces spread across Indonesia. The survey results obtained that as many as 58% of students were burdened during the implementation of online learning online, 38% of students thought that there was a lack of guidance and communication from the teacher, this was the first and foremost issue. Then. In research conducted by (Suhada et al. 2020), argues that 62% of students need smooth internet access, this is considered necessary in the activities of the learning process properly. Basically, communication tools and learning process aids are readily available and often developed by experts on the internet, meaning that online learning is not the reason for the failure of implementing the 2013 curriculum. (Khairunnisa and Aziz 2021). One of the methods applied during this pandemic is online learning or familiarly called online learning. The early history of the emergence of the term online in the 1980s, another understanding that can be recognized by the world of education is e-learning (Nurcholif, Suartama, and Sukmana 2021). Approximately 188 countries in the world have used online education processes, such as online learning, internet schools, TV schools and learning mentoring processes. Various methods that can be used such as Zoom, Slack, Google Meet, Google Classroom and Edu Page, this media can be used as a tool for direct communication (Basilaia and Kvavadze 2020). The development of e-learning learning systems in Indonesia has developed since the beginning of 2015, but it is still relatively minimal in its development in the field of education. This is because not a few people think that such a model or method does not provide convenience during the implementation of learning (Muthy and Pujiastuti 2020). In research conducted by (Raziq et al. 2020) shows, the situation of the transition of learning from the face-to-face process to online or online methods about 60.5% of students are ready to adapt and able to use technology as a learning tool, but 59% object to the tasks given by educators when the learning process is complete. In this case, the assigned task resulted in a stress level of about 60% of the students. The researcher conducted interviews with several teachers who argued that distance learning had difficulties in preparing the learning materials taught to students. The teacher also said that the implementation of the learning process carried out during this pandemic was not in line with the expectations of the curriculum that had been run face-to-face.

The learning outcomes obtained by students in this pandemic period does not guarantee the quality of the learning process. Related to this, there is a gap between the teacher's opinion and the expectations of the curriculum. The influence of the use of online learning technology in Indonesia greatly affects the mental, knowledge and attitudes of students and influences teachers in preparing materials and implementing curriculum (Cahyani, Nurmawati, and Cahyasari 2021). Other facts were also discovered by (Nengrum et al. 2021) in that the online education process during the Covid.19 pandemic showed as many as 92% of students had difficulty interacting and many experienced problems during the online learning process. SMRC Public Policy Manager, Tati D. Wardi said that this survey was followed by respondents aged 17 years and over. Of this amount, 5% admitted to still attending school and studying, 87% of the total online learning respondents, while those

who did not study amounted to 13%. Of the respondents who study online, 92% have quite a lot of problems and difficulties. The learning from home policy imposed by the government throughout the country, makes all activities that are usually carried out outside the home inversely and must be done from home. Like educational activities that require practical/mathematical learning activities and educational administration, activities like this have to be carried out from home until the end of 2021. This policy encourages educators to look for appropriate models and strategies as well as what media can be used in learning activities from home. Another problem arises, namely in areas of Indonesia where it is difficult to get an internet connection (Raziq et al. 2020). Not all regions in Indonesia enjoy uninterrupted internet connections and not all students have communication tools such as mobile phones or laptops. This only gives the impact of feeling lazy and stressed for students because they cannot access in understanding the subject matter provided by educators. As a result, teaching and learning activities are not carried out effectively as conventional methods are usually carried out in schools with the concept of a 13 curriculum (Rahmi 2020). While the core of the curriculum itself is to have cognitive, affective, and psychomotor abilities and simultaneously with the orientation of the character formation of students as much as possible. (Simanjuntak et al. 2020). The government and the people of Indonesia realize that the curriculum is an important foundation in the education system in Indonesia. The main and first objective of the curriculum is to achieve the national education process by taking into account the development of students, the needs of national development, as well as the development of science, information technology and cultural arts. Educational problems faced now make it difficult for teachers and are not ready to apply the curriculum used so far, even though in Law Number 14 of 2005 concerning Teachers and Lecturers, article 10 paragraph (1), the success of a teacher is measured by four competencies, namely pedagogy, Professional, Social and Personality. On the other hand (Information and Islam, 2019).

In achieving a success, there are two main factors in implementing the 2013 Curriculum, the first determining factor is the suitability of the competence of educators and education staff with the ability to prepare materials that are in line with the curriculum. In this case, an educator really mastered the professional competencies being taught. The second determining factor is divided into three elements, namely (i) the availability of textbooks or textbooks used by educators as the main material in the formation of materials in accordance with the curriculum; (ii) the role of the government in providing assistance, guidance and supervision; and lastly (iii) strengthening school management and school culture. The 2013 curriculum requires teachers to carry out learning activities based on integrative thematics and a science approach (Raibowo, Nopiyanto, and Muna 2019). However, according to the above background, the 2013 Curriculum is difficult for teachers to implement, especially during this pandemic situation, it is necessary to "analyze the readiness and difficulties of teachers in implementing the 2013 Curriculum during the Covid 19 pandemic".

#### Research Problem Formulation

1. How is the implementation of the curriculum during the online learning process during the Covid-19 pandemic?
2. How is the teacher assessment method in measuring the success of the online learning process during the Covid 19 pandemic?
3. How do teachers overcome difficulties when implementing the 2013 Curriculum during the Covid-19 pandemic?

#### Teacher Difficulties in Applying Learning

The word difficulty comes from the word "difficult" this can mean someone who is in a difficult and difficult situation. From this definition, it can be interpreted that the word difficulty arises due to an obstacle in designing and implementing something (Annur and Hermansyah 2020). In the lives of students, a teacher is a person who is always imitated and imitated. The teaching profession is a profession that has special expertise, teachers are always labeled with sources who are able to solve obstacles or who can overcome difficulties. Sumartini (2020) argues that teachers are defined by the community as people who carry out the

educational process, not necessarily in a particular place. An educator is someone who imparts process knowledge, demonstrates skills.(Lumbantoruan and Male 2020)said that the teacher took the role of a facilitator and as an obligatory person in terms of fostering students in a better direction. The main roles and duties of the teacher are three main tasks of an educator, the first is the task of the profession, the task of society and the task of humanizing humans. In the first stage, the profession of a teacher is expected to be able to develop professionally, teach and train students at a level that has been divided. Teachers are expected to be able to master their knowledge and apply assistance or carry out development in accordance with technological developments. In the world of education, a teacher is expected to have special skills in their respective fields and be able to apply them in difficult times such as a pandemic situation. The last stage is that the teacher is expected to be able to humanize humans. This means that teachers cannot discriminate between a person's abilities or circumstances in educating students. A teacher must set an example so that other students imitate or imitate the attitude shown by an educator.

### **The Nature of the Learning Process**

The Doctrine (2021)a process from being ignorant to knowing, from being unable to being able and being merely understanding to being very proficient. The learning process is also defined as a change in a person's behavior through interaction with other people. Learners do not only interact as the main resource in the learning process, but interact with all learning resources.(Lumbantoruan 2019)the efforts made in guiding students when the learning process takes place develop models and learning methods according to the conditions taught by the teacher. Learning is a structured combination which is divided into human elements, materials, facilities, equipment, and procedures that influence each other to achieve learning objectives(Faris, Dimas Muhamad 2020). Teachers who become facilitators in learning teach according to the form of curriculum material that has been prepared. Other procedures that must be submitted include schedules, models and methods as well as the media used in the learning process(Hanifah, Supriadi, and Widyastuti 2019). A professional teacher prepares himself before entering the world of teaching, the following is a form of readiness of a teacher. The purpose of a learning is a process from a formulation to a good result. The learning objectives are not only on the final result but more on the method, what strategies are used in achieving the learning objectives. With the clear objectives of the learning, the teacher can easily measure the level of success of students. The clarity of the material and media provided makes students feel comfortable(Konita, Asikin, and Noor Asih 2019). Online learning. Online learning can be interpreted as a way of interaction between educators and students. Online or online carried out in separate places but at the same time. Online learning is not much different from face-to-face learning. However, in online learning, information and communication can be hampered due to internet interference. To overcome internet disturbances, teachers are required to prepare other alternatives in delivering material, such as videos or study modules(Holy 2020). By considering online learning is a method and strategy in communicating that can provide great benefits for the interests of researchers, educators, and students. So teachers need to understand the characteristics or potential of online learning. In addition to online weaknesses due to internet connections that can be disrupted, there are also advantages of online learning, namely media that can help distance communication processes and save costs, so online learning is very helpful.(Jeklin 2016). The hope is that after educators and students are more independent in using online technology, online learning can be done en masse (Riyana, 2009). Group and Individual Learning. The concept of online learning can be done by anyone at any time. It can be in the form of groups or individuals, meaning that students can make forms of learning independently. The tasks given by the teacher can be done by students independently and can interact directly with the teacher who gives the assignment. Structured. A teacher can prepare in detail and in full, such as face-to-face learning, preparing syllabus, subject matter, media, models, methods in delivering or making learning modules. The teacher explains the material online and provides examples that can be accessed by students easily. Increase

interest and activity. A teacher must be able to create an atmosphere that can increase interest so that students can actively participate in learning. Things like this can be started by communicating from the teacher and continued to the students themselves, obstacles and those related to the learning process. Patterned, learning designed by the teacher must be patterned and have a link between one material and another. Basically, online learning does not change the concepts that occur in face-to-face learning such as the material being taught, the concept of the material provided, communication with teachers and students. In online learning, students are indeed connected to the virtual world. Students find many learning resources that can be accessed easily and are not limited.

### **Teacher Competence**

Surya, Rochman, and Nurmila (2019) Teacher Pedagogic Competence, Every educator must have pedagogical competence. Pedagogic competence is defined as how the abilities that must be possessed by an educator and are able to design forms of learning related to the basic abilities of children being educated. Pedagogy itself is a science for the method of educating students. So an educator is required in terms of mastering this pedagogic competence in order to know the characteristics of children who are educated in a better direction and pay attention to the process of educating. Teacher Professional Competence, In this competency, what is required of a teacher is professional or transparent in educating, assessing and evaluating students. Professional competence in question is the ability of a teacher to manage, design learning and apply it according to his profession properly (Fadli and Imtihan 2019). Things like this can start from teaching skills, the ability to master the material to be taught and reach the mastery stage in completing student and student administration. Social Competence, this competence is no longer foreign to the public, this competence is related to how to communicate. Social competence relates to how the communication skills of a teacher in delivering previously designed material. This competency is supported by what methods and media are used in communicating with others. Teachers interact with other people every day, especially communicating with students. In addition, he must be able to interact with other teachers, school leaders and parents of students of various professions (Yulmasita Bagou and Sukung 2020). Personal Competence, The personality competence in question is the competence possessed by the teacher with a good and reasonable personality, attitude and speech that should be used as an example or role model by the students. The personality of a teacher can be seen starting from the simple, such as an example of dressing, communicating well and politely, and becoming a personality that is liked by students. (Sukmawati 2019).

### **METHODS AND MATERIALS**

Types of descriptive qualitative research, Libraries (2020) said qualitative research is to produce descriptive data that can be described in the form of sentences and supported by simple numerical data. In descriptive research there are procedures used, namely observation, interviews, documentation, data analysis and how the method in data collection is (Teacher et al. 2019). Research location and time in Jatirangga High School, Jati Sampurna, Bekasi City and carried out in May-July 2021.

Primary data collection techniques are data obtained directly from the main source, Observations and observations are made for data collection by looking directly at the conditions and circumstances of how far the effect of a incident and what form of solution is taken (Arifin 2020). Interviews were conducted by means of direct communication and face to face individually with the online method. In addition to individual interviews. The study of documentation referred to in this is the researcher studying the records of the answer data and respondents from the object. This documentation is used as additional data to strengthen the evidence. Research results from observation data and interview data have validity and can be trusted if the data is supported by documentary evidence. The documents collected will be selected according to the purpose and focus of the problem. This method is used to obtain data in the form of text and images. Written documentation such as methods and strategies

used in the learning process, infrastructure in learning, teacher conditions and how teachers communicate. Data analysis, This research seeks, arranges in a structured way the results of interviews, field notes and documentation. The results obtained will be organized into categories and then compiled into patterns and then synthesized and studied in detail (Shidiq and Choiri 2019). The research describes and describes the data obtained in words or sentences and analyzed descriptively. Researchers try to explain in detail about the results of the study in accordance with the data collected during the research. The data that has been collected from observations and interviews as well as documentation, then the presentation of the data, the collection of information obtained from individuals and groups of students, the presentation of the data is aligned so that the data resulting from the reduction is patterned, structured and organized then in the reduction of the data, the data reduction in question is the researcher classifying the data into several parts and then the researcher reduces the data which is the basis for drawing initial conclusions. Conclusion and Verification, in the initial conclusions drawn and confirming the strong documentary evidence that has been obtained. This confirmation is considered necessary from the documentation in determining the final conclusion and interpreting it in a sentence. (Darmalaksana 2020).

## RESULTS AND DISCUSSION

### Results

Table 1. Coding of Research Observation Results



Code	Keywords	Interpretation
	Readiness	Schools surveyed do not have modules/modules prepared by the teacher themselves, do not have a smooth internet network, there is no formulation of learning objectives, the learning media used cannot help, lack of readiness in applying learning methods, there is no assessment, no evaluation, there is no lesson plan.
	Difficulty	Difficulty compiling material according to the curriculum, difficulty using models, methods and strategies in compiling materials and implementation, difficulty using google meet media in the learning process.

Table 1 shows the unpreparedness of educators resulting in difficulties in the process of implementing online learning. This results in the learning process not being optimal and not achieving the target of learning outcomes. The results of this study are in line with the theory that unpreparedness before the implementation of learning creates new difficulties during the process.

### Interview result





Code	Keywords	Number of Respondents	This interpretation/word is an indicator of the instrument asked to the source
	Pedagogic	7	Policy approaches, decisions, strategies, methods, and learning techniques,
	Professional	9	Composing materials, modules, teaching materials, organizing, writing symbols, implementing materials, and using technology
	Social	3	Communicate effectively, empathically and politely with students and be enthusiastic and positive.
	Personality	2	Indicates his appreciation for the diversity of thoughts, opinions, ethnicities, ideas, backgrounds, physical

Table 2. Coding of Interview Results

From table 2. shows, the first order that often appears discussed by resource persons is about the preparation of material in the module, delivery of material, writing symbols, and the use of technology media, this is stated in professional competence. While the second order that is often discussed by resource persons is methods, strategies and learning and assessment techniques. The initial conclusion based on the observation coding table and interview results

is that the teachers are not ready in terms of professional and pedagogic competence. The teacher does not prepare materials/modules, the assessment process, methods, strategies and the use of media are not optimal. Teachers only provide textbooks and adopt the assessments used during conventional or face-to-face learning several years ago. Difficulties arise during the process of implementing the material,  
Documentation Coding Results

Indicator	Interpretation
Readiness	Completely still using K13, textbooks as the main source, not compiling materials, not making modules, not having methods, strategies and not sharing assessments
Difficulty	Implementation, writing symbols, explaining concepts, difficulties in using technology, difficulties in explaining examples of questions, and difficulties in checking assignments

Table 3. Documentation/Verification Coding

From table 3, it is clear that the documentation intersects with the results of observations and interviews, that the teacher does not appear to have prepared materials and modules, methods, strategies and assessments. However, distributing textbooks is the main resource in the learning process. Difficulties can be seen from the documentation, the teacher has difficulty in explaining the textbooks given, the difficulty in writing symbols, concepts, sample questions, the use of google meet media and difficulties in checking homework.

**Discussion**

1. Implementation of the curriculum during the online learning process during the Covid-19 pandemic

From teacher observations and interviews, there are 95% in schools, the form of curriculum used is curriculum 13 and the learning process fully adopts the K13 curriculum. At this point, each teacher follows the absolute policy of the school. This is due to schools being late in getting information from the government about the curriculum and time allocation for online learning. From the results of observations and interviews, the principal seems ready and confident with the implementation of online learning. The school has prepared facilities such as computers, internet and the google meet application which is paid for and this google meet application is the result of the agreement of all parties, principals, teachers and all students. Every teacher is allowed to implement learning from school.



Figure 1. Computer Room Facility1



Figure 2. Computer Room Facility 2

The facilities provided by the school are very helpful for educators and teaching staff in carrying out administration and learning to students. The school and the principal expect that with the facilities that have been prepared, the teachers are fully responsible for preparing

materials and learning and providing monthly reports as a percentage of the responsibility. The form of interaction of the learning process that is used in schools takes the form of the Google Meet application. In addition, the school enforces teachers to use WhatsApps (WA), Google Forms, Google Classroom, Google Drive, Youtube, WA group subjects, in sending assignments. However, when observed and interviewed by mathematics teachers, there were several obstacles in preparing materials and implementing them. Although the teacher admits, the school guarantees facilities that can be used to support the smooth learning process with students who are at home with internet coverage, it is not smooth. The results of the teacher's observations do not have modules or materials compiled by the teacher that can be distributed to students, the teacher only provides package books that are sold online versions. This makes students burdened in self-study because the textbook is too abstract. The teacher also admitted in the interview session that in compiling materials or modules by adjusting the K13 curriculum it was very difficult and took a long time. The teacher also admitted that in explaining the material contained in the textbook many difficulties were found, writing symbols, checking students' homework, proving a mathematical concept. The results of the teacher's observations do not have modules or materials compiled by the teacher that can be distributed to students, the teacher only provides package books that are sold online versions. This makes students burdened in self-study because the textbook is too abstract. The teacher also admitted in the interview session that in compiling materials or modules by adjusting the K13 curriculum it was very difficult and took a long time. The teacher also admitted that in explaining the material contained in the textbook many difficulties were found, writing symbols, checking students' homework, proving a mathematical concept. The results of the teacher's observations do not have modules or materials compiled by the teacher that can be distributed to students, the teacher only provides package books that are sold online versions. This makes students burdened in self-study because the textbook is too abstract. The teacher also admitted in the interview session that in compiling materials or modules by adjusting the K13 curriculum it was very difficult and took a long time. The teacher also admitted that in explaining the material contained in the textbook many difficulties were found, writing symbols, checking students' homework, proving a mathematical concept. that in compiling materials or modules by adjusting the K13 curriculum is very difficult and takes a long time. The teacher also admitted that in explaining the material contained in the textbook many difficulties were found, writing symbols, checking students' homework, proving a mathematical concept. that in compiling materials or modules by adjusting the K13 curriculum is very difficult and takes a long time. The teacher also admitted that in explaining the material contained in the textbook many difficulties were found, writing symbols, checking students' homework, proving a mathematical concept.

The results of interviews with students gave a response that the teacher did not have a module and the material was not prepared by the teacher. Students also argue that in explaining the material contained in the textbook, the teacher has difficulty writing mathematical symbols so that the concepts built are not fully accepted by students. This slightly hinders the learning process of certain materials that should be simplified from textbooks into modules. The textbook provided by the teacher is less effective in constructing the minds of students, so that the interaction in terms of discussing the material taught by the teacher is not in accordance with the learning outcomes in the curriculum. Textbooks which are the main source of online learning cause quite a lot of problems when learning online. During the learning process, teachers are not seen using learning models and strategies. Whereas in theory, an educator must use learning methods and strategies when delivering material. This makes students only listen to the teacher through Google Meet without any interaction between the two. The learning process looks ineffective, such as explaining concepts, explaining sample questions and giving practice questions. The teacher only explains the concepts in the textbook and is like a percentage. Explain sample questions and provide practice questions. The teacher only explains the concepts in the textbook and is like



a percentage. Explain sample questions and provide practice questions. The teacher only explains the concepts in the textbook and is like a percentage.

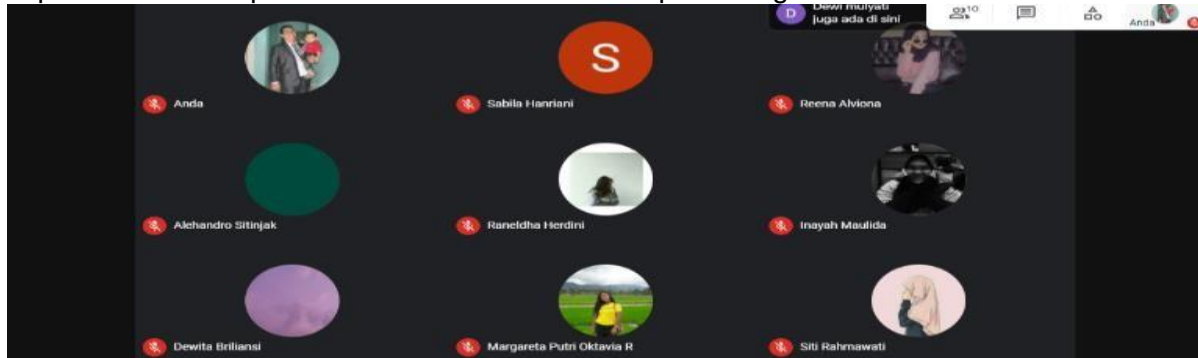


Figure 3. Learning in progress

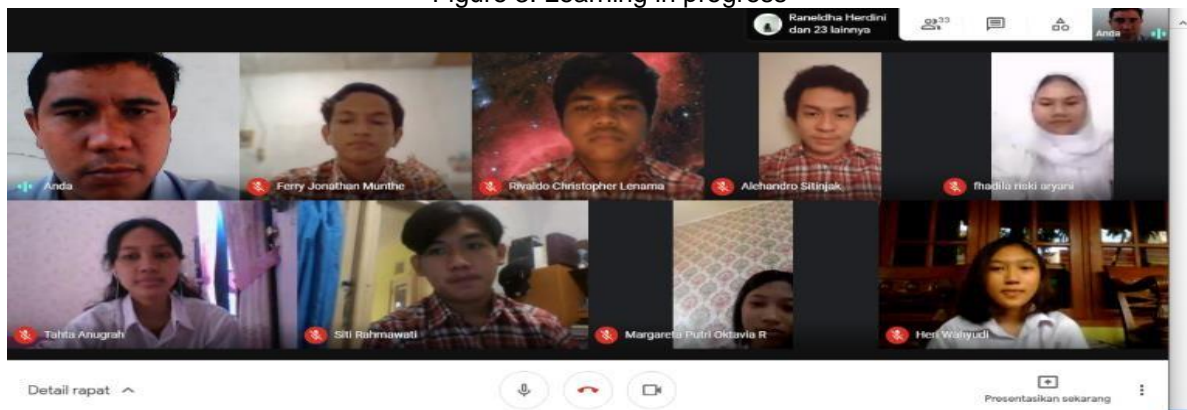


Figure 4. Photo of the interview session

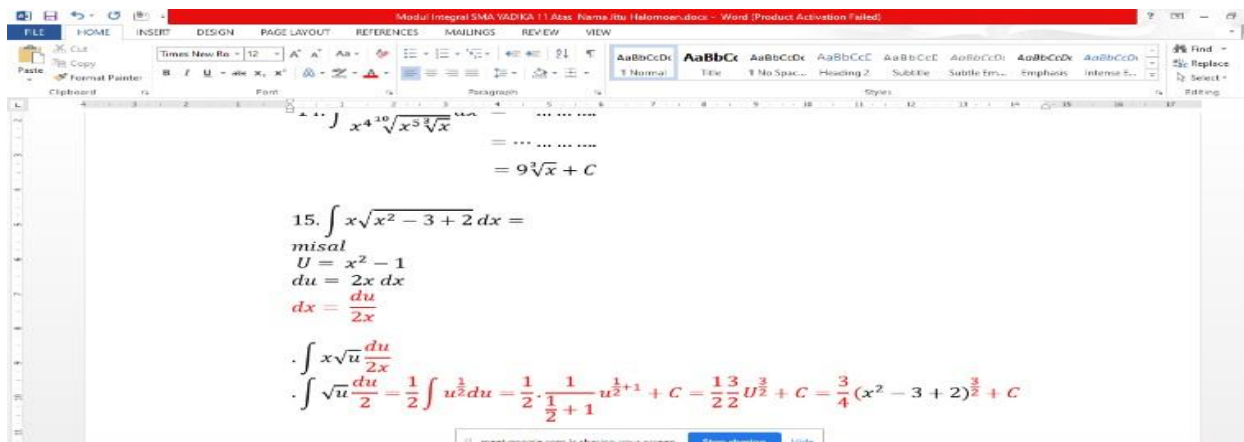


Fig.5. Difficulty writing symbols on google meet media

It was found that the teacher had difficulties in implementing integral material, iinduction, logarithm. This occurs when there is a lack of media mastery when writing mathematical concepts in Google Meet. Difficulty explaining material that requires accuracy of proving formulas, accuracy of pictures and accuracy of graphs to be known by students as well as concepts and flow of completion of sample questions and questions do not look well. Professional competence and pedagogical competence of teachers in using the Google Meet application media are limited. The limitations of professional and pedagogical competence can be seen when observations are made in the delivery of material, graphic concepts and images are not visible. The responses of students that arise are that they answer that they do not understand in solving problems, they do not understand what formula is used, there are no ideas in solving them, and they do not understand how to draw graphs. This results in the

understanding of students being incomplete or even not understanding at all in solving a mathematical problem. In fact, solutions in overcoming problems such as sample questions, proving formulas, image accuracy and graphic accuracy can be included in the module, if the teacher has prepared a learning module in accordance with the teacher's lesson plan from the start. It can also be seen that there is a lot of material that should be achieved by students but is missed. Researchers see that the above is not in accordance with the achievements expected by the curriculum from a professional perspective. Whereas the theory says a teacher must design or compile material and adjust it to the initial abilities of the students being taught. The preparation of the material can be poured in the form of modules or teaching materials. Modules prepared by the teacher can be distributed to students as a basis for independent study at home. The theory also says that by preparing the material, the assessment process and the media in delivering the material is a form of teacher readiness. The theory also says that the difficulty factor comes from within and outside the teacher himself. This is proven by the difficulty of the teacher during implementation, difficulties arise because the teacher does not prepare teaching materials, methods, strategies and the assessment process from the start. The source admitted in the interview session partly below: The theory also says that the difficulty factor comes from within and outside the teacher himself. This is proven by the difficulty of the teacher during implementation, difficulties arise because the teacher does not prepare teaching materials, methods, strategies and the assessment process from the start. The source admitted in the interview session partly below: The theory also says that the difficulty factor comes from within and outside the teacher himself. This is proven by the difficulty of the teacher during implementation, difficulties arise because the teacher does not prepare teaching materials, methods, strategies and the assessment process from the start. The source admitted in the interview session partly below: Is it difficult to carry out online learning during the corona virus pandemic? If so, what are the difficulties experienced in carrying out online learning?

*Teacher's Answer:*

*Yes, the difficulties experienced in compiling modules that are in accordance with learning outcomes in accordance with K13. Another difficulty is when applying logarithmic and integral material, they often have difficulty operating arithmetic concepts, using symbols and drawing graphs in the form of patterns.*

What are the factors that can cause difficulties or obstacles in the implementation of online learning during the corona virus pandemic?

*Answer:*

*Internal factors, namely operating the Google Meet application, determining symbols, showing online proof, lack of time in implementing learning outcomes.*

External factors, namely the lack of student activity, lack of student interest in completing assignments, when students enter the Google Meet media are different so the material must be explained repeatedly and there is not enough time. Is the implementation of the K13 curriculum in line with the learning process in schools during this pandemic?

*Answer:*

*Yes, but there are some difficulties when preparing the material optimally*

## 2. Methods for assessing the success of online learning.

The assessment method used by the teacher in assessing the success of students already exists. The results of the interview with the principal, when the researcher asked how the teacher did an assessment of the student learning outcomes? The principal answered that the teacher did a very good assessment and used an assessment instrument to measure the success of students. This is confirmed correctly, the teacher shows the assessment that has been prepared. Although the principal's opinion of the assessment method is very good, however, observations and interviews with students do not agree with the form of assessment used. There are no assessment instruments and rubrics, only based on the

results of the final test. While on the one hand, Interviews with students, asking why they do not agree with the assessment given? Student answers 1) *The assessments made were not distributed to students at the beginning such as face-to-face schools,* 2) *the material that was tested was partly not in the distributed textbooks,* 3) *the material being tested is much more difficult than what is being taught. What are your hopes for future improvements?* 1) *distributing assessment instruments,* 2) *compiling material that is in accordance with what is being tested in the form of modules,* 3) *creating discussion groups among friends,* 4) *expecting a textbook compiled by the teacher himself which is equipped with examples and questions being tested,* 4) *provide special guidance for students who do not understand.*

3. Difficulties in implementing the 2013 Curriculum through online application media

The theory says that there are two factors of difficulty, the first is the factor from oneself and from outside. The difficulty factor from the results of observations, observations and coding of researcher interviews with teachers during the implementation of the learning process, teachers experience quite a lot of difficulties when operating the Google Meet application which is used as a media tool in the learning process. Explaining concepts, proofs and symbols used makes it difficult for teachers to explain the flow of initial understanding to the stage of final understanding. The book provided by the teacher is not strong enough to answer questions from students, the module does not exist, the material is not prepared directly by the teacher, plus the duration of time is limited and requires the teacher to answer only part of the student's questions, the difficulty of writing symbols resulted in the teacher's time being wasted quite a lot in explaining only one material, difficulty using the google meet media, difficulty checking assignments and difficulties in explaining material that required accuracy and proof of formulas. This problem, the researchers observed, continued on the next day and led to a less effective online learning of mathematics in the classroom. Teachers also have difficulty implementing learning models and strategies. The difficulty felt by the teacher from the interview was when examining the work of students and responding to mistakes made by students, in this case the teacher acknowledged that there was a short time limitation and lack of physical ability to examine and distribute the work of students. What are the difficulties experienced in carrying out online learning during the Covid pandemic? *The teacher's answer is difficulty operating the symbols in the application and taking time to search for only one symbol, this was not anticipated from the start. Are there supporting policies from your relatives/schools to reduce the possibility of difficulties in carrying out online learning? If so, what are the supporting policies? Answer: There is not any yet. How to deal with difficulties that arise outside school policies in implementing online learning?*

*Answer: Try to discuss with colleagues who are proficient in computer technology and students.*



Figure 5. Interview with the Principal



Figure 6. Interview with the Vice Principal

There are highlights from the results of interviews with vice principals, namely:  
How do teachers communicate with students when they encounter difficulties?

*Answer: Each teacher has their own social competence ability and a week before learning begins the teachers have given the syllabus and lesson plans to the principal and vice curriculum section for discussion and if there are difficulties beyond what was discussed, teachers are given the authority to overcome them according to their field by keep submitting the results at the end of the semester.*

Do you think the form of learning that teachers do online is in line with the curriculum?

*Answer:*

*It's in line*

In your opinion, how do teachers know the understanding ability of their students if learning is done online?

*Answer: Provide practice questions, tests and communicate with students.*

*How many times have math teachers conducted online lessons during the coronavirus pandemic?*

*Answer: Once a week for one class.*

*The researcher also got the results of the instruments that the researchers distributed to students for indicators of social competence.*

## CONCLUSION

The school, teachers, educators and students agreed on the media used during the learning process, namely Google meet. Whatsapp media, google classroom as a tool in collecting assignments, but there are still difficulties and new problems encountered during implementation. The difficulty seen is that during the learning process, the teacher has difficulty in explaining and writing symbols and mathematical concepts from integral, matrix, induction and logic materials. This can happen because the teacher does not prepare the material from the beginning. Students expect materials or modules that are prepared by the teacher himself and pour learning methods and strategies in it. Students argue, there are quite a lot of problems when learning from the internet, which is not good, the book provided cannot build the initial concept of students, the assessment is not transparent, the teacher's difficulty in explaining the examples of questions in google meet. It is hoped that mathematics teachers in high school are expected to develop professional competence and pedagogic competence in Integral material, mathematical induction, mathematical logic and pour the material into media used online. Assessments must also be prepared and adjusted to the standard indicators used by teachers in and distribute them to students. The indicators and assessment instruments provided help students achieve better and honest results. It is hoped that mathematics teachers in high school are expected to develop professional competence and pedagogic competence in Integral material, mathematical induction, mathematical logic and pour the material into media used online. Assessments must also be prepared and adjusted to the standard indicators used by teachers in and distribute them to students. The indicators and assessment instruments provided help students achieve better and honest results. It is

hoped that mathematics teachers in high school are expected to develop professional competence and pedagogic competence in Integral material, mathematical induction, mathematical logic and pour the material into media used online. Assessments must also be prepared and adjusted to the standard indicators used by teachers in and distribute them to students. The indicators and assessment instruments provided help students achieve better and honest results

1. Professional competency development for prospective teachers and teachers
2. Teacher pedagogic competency training continues to be improved
3. Schools often provide training to teachers in compiling materials or modules to minimize difficulties in implementing the material taught in the classroom.
4. Improved training for educators in the development of the assessment process and the use of media used as a tool for the learning process.
5. Reviewing the K13 curriculum in online learning, especially during the pandemic
6. Activating the online library function as an additional easily accessible source of student learning
7. Educators make indicators and assessment instruments and validate assessment instruments and can be accessed by students
8. Create student assignments or projects related to material concepts and relate to the environment around students and fully use the learning process using methods and strategies, making it easy to measure the success of students
9. Arrange material in a structured manner and prioritize the basic abilities of students
10. The teacher makes a pre-test of the material being taught before compiling the concept of the material and the methods used in teaching.

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