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Teachers' strategy in conducting assessments in the new normal era

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ABSTRACT

Assessment is an important component of learning which aims to determine student achievement in learning. However, the pandemic has changed how assessment is carried out, prompting teachers to look for new strategies in carrying out mathematics learning assessments under any conditions, whether in normal conditions or during a pandemic. This study described the strategies used by high school mathematics teachers in assessing mathematics learning during the pandemic towards the post-pandemic period. This type of research is descriptive exploratory research with a qualitative approach. The subjects in this study were three mathematics teachers, three principals, and three vice principals from a public senior high school in Yogyakarta City, Indonesia. Qualitative data were collected by means of questionnaires, interviews, and documentation. The collected data were analyzed qualitatively according to Bogdan and Biklen. The results of the study reveal that the mathematics teacher's strategy for carrying out assessments during a pandemic includes: i) determining the appropriate online assessment platform that suits the needs; ii) assessment based on student participation; iii) using various of online assessment methods; iv) prioritizing academic integrity and honesty in the assessment implementation; and v) carry out the management and reporting of data on the results of the assessment in accordance with established procedures.

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1. INTRODUCTION

Mathematics has an essential role in efforts to master science and technology. This is the reason mathematics needs to be taught at every school level. Mathematics learning is taught through formal education from elementary and middle school to higher education levels [1]. The higher the level of education attained, the complexity of the mathematics contents studied also increases, thus demanding thinking skills well. One of them needs to be trained in students, i.e., the higher-order thinking skills that is accustomed to the learning process. Learning mathematics at school aims not only to teach students about mathematics contents and how to apply it in everyday life but also to form their personality and develop a systematic, critical, creative, and disciplined mindset. The results of learning mathematics are reflected in personal character, which is consistent with the mindset that has been formed. Success in achieving the goals of learning mathematics can be done by carrying out an assessment. Assessment is the process of collecting and processing information to measure the achievement of student learning outcomes [2], [3] creating

experiences that apply knowledge in real-life contexts [4], and can be used by teachers to clarify achievement and learning objectives [5]. The collection of such information must be accurate and complete in order to create the right decisions. Assessment is not only oriented toward the achievement of student learning outcomes but also toward the learning process. Related to this, the assessment of results and learning processes must be balanced. This is in line with the assessment in the 2013 curriculum, which emphasizes the processes and results assessment.

The 2013 curriculum has been used in the Indonesian education system since the academic year of 2013/2014. One of the 2013 curriculum's main goals is to improve the education quality in Indonesia by preparing students to become capable individuals and able to compete in the global era. The 2013 curriculum also considers the balance between knowledge, skills, and attitudes in learning. Students not only learn to gain knowledge but are also trained to develop the skills needed to apply this knowledge in everyday life and develop positive attitudes that support their success in various aspects of life. Learning implementation based on the 2013 curriculum requires students to be involved in an active role to center the learning on students. In this matter, the teacher also has an essential role as a facilitator and must have the creativity to support the learning process [6]. The learning process that is well conducted in the classroom between teachers and students can affect the quality of education. However, the emerging pandemic that has hit most of the world, including Indonesia, impacts all aspects of human life in terms of the economy, society, health, and even education. Coronavirus Disease 2019 (COVID-19) has been declared by the World Health Organization or WHO as a pandemic since March 11th, 2020. COVID-19 is caused by SARS-CoV-2, a group of viruses infecting the respiratory system. Common symptoms that appear when exposed to COVID-19 infection include fever, coughing, and shortness of breath. In severe cases, the COVID-19 virus can cause pneumonia, kidney failure, and acute respiratory syndrome, which can cause death, so this virus needs to be watched out for [7], [8]. As a result of the COVID-19 pandemic, governments worldwide are focusing on the health and safety of teachers and students by conducting teaching and learning remotely/online [9].

The online-based learning method is a process of delivering learning content using technology in the process that is open, flexible, and distributed so that it is not limited to space and time [10]. During online learning, students can communicate with teachers through several applications, including WhatsApp groups, Google Classroom, Google Meet, Zoom, and others [11]. The important role of the internet is changing the mathematics learning formats and teachers' role in the classroom. Since the pandemic and the shift to distance learning, technologies such as mobile phones, digital learning objects, social networks, and the internet have become central factors in education, by the condition of available access and smooth connectivity [12]. During the COVID-19 period, online learning became an alternative and an important element in maintaining the continuity of teaching-learning activities [13]. Educators and students must consider many important parameters decently when participating in online learning systems, including content, instructions, relationships, motivation, and mental health [14].

Some obstacles occurred in online learning implementation, which in the continuous period could affect future education quality. The long-term negative impacts experienced by students in online learning can lead to learning loss. Learning loss is defined as the learning process that is not optimal due to the absence of students at school [15]. Learning loss occurs when educational progress does not occur at the same rate as it has historically occurred in previous years [16]. One of the causes is that students find it challenging to concentrate on learning at home, whine about the difficulty of assignments by their teachers, and increased stress-level and boredom due to prolonged isolation can cause anxiety and depression in children [17]. From the parents' point of view, not all of them can support their children's learning at home because of responsibilities such as work or household chores. Some parents may struggle to understand their children's lessons and have no idea how to motivate them when helping them study at home [18]. Learning loss over a long period can cause a decrease in students' ability to understand learning contents and work on exams. In the end, students can experience lower assessment results.

The implementation of assessment has also changed to be online during the pandemic. This situation creates obstacles and challenges for teachers and students in online assessments. Previous research indicates that there are obstacles to using technology, namely teachers' and students' limited mastery of information technology [19], [20]. It is challenging for teachers to master the technology so that the online learning and assessment process runs smoothly during the pandemic. The interview results from one of the respondents revealed that senior high school mathematics teachers had difficulty conducting assessments using online media because of their limitations in mastering technology. One of the difficulties experienced by the teacher is when inputting questions into the system. If teachers are not skilled in mastering technology, the pictures or graphs in math problems can be illegible or blurry. This causes students to be hampered during the test. Although many technological devices are available, without adequate training, teachers may be unable to use these devices effectively because most teachers are familiar with conventional classroom teaching and assessment methods [21].

Other obstacles to the implementation of the assessment were also found in several studies including constraints on infrastructure and technological resources, attention to the security of assessment [22] decreased student motivation impacted on poor assessment results, not all students having gadgets, constrained by unstable internet networks, and limited internet quota [23], there is academic dishonesty, namely plagiarism behavior, both plagiarism between students, and plagiarism from the internet [24]; and timeliness related to collecting student answers in completing assignments [25].

The COVID-19 pandemic has shifted the education system to online learning, which is an alternative need to maintain the continuity of teaching and learning activities. However, the long-term effects of online learning on students' ability to understand learning content and take exams and the challenges faced by teachers and students in online assessments have not been adequately explored. The drastic changes in the structure of schools and the use of remote teaching methods caused by the COVID-19 pandemic have revealed systemic social and educational problems more clearly to society at large. This prompted researchers to think about the possibility of a "new normal" [26]. Meanwhile, the implementation of online assessments has created challenges for teachers and students. Previous studies have shown that limited mastery of information technology is an obstacle in using technology. Therefore, this study aims to find ways to overcome the challenges and obstacles to online learning and assessment in mathematics education in the new normal era, especially focusing on strategies that teachers can use to carry out assessments to improve student learning outcomes effectively.

2. RESEARCH METHOD

This research is explorative descriptive research with a qualitative approach. Using a qualitative approach, this study describes the strategy of senior high school mathematics teachers in conducting mathematics learning assessments during the pandemic to a post-pandemic period in the Academic Year of 2021/2022 which teachers use to assess student learning outcomes. Data related to teacher strategies for carrying out mathematics learning assessments during the pandemic to post-pandemic were collected using questionnaires, interviews, and documentation. The data sources were three mathematics teachers, three school principals, and three vice-principals from public senior high school in Yogyakarta City, Indonesia. Schools were selected as the research sample purposively by considering ability, readiness of research subjects, and availability of data needed for research as well as paying attention to school grades. Based on the consideration, three of eleven public senior high schools in the city of Yogyakarta were selected as the research sample. The three schools in this study were then coded as first senior high school, second senior high school, and third senior high school.

Qualitative data analysis technique is using field data analysis of Biklen and Bogdan [27]. First, the data obtained by researchers were analyzed and then reduced. Data reduction is done by summarizing, choosing the main things, focusing on the essential things, looking for themes and patterns, and dismissing unnecessary ones. The reduction process is carried out by making tables to help classify sub-themes. Thus, the reduced data will provide a clear picture, and make it easier for researchers to collect and look for further data if it is needed. Second, after the data has been reduced, the researcher looks for relationships between sub-themes before presenting the data so it easier to understand what is happening in the field, planning the next steps based on what has been understood. The data in qualitative research (namely with narrative text) can also presented in graphs, matrices, networks, and charts. After presenting the reduced data in sub-themes grouping table, the researcher then looking for relationships between sub-themes to make it easier to describe in the discussion section and draw conclusions. Third or the final stage in qualitative data analysis techniques, drawing conclusions and verifying data which are carried out by looking at the results of data reduction still referring to the analysis objectives to be achieved. This stage aims to find the essence of the data collected by looking for relationships, similarities, or differences to draw conclusions as answers to existing problems.

3. RESULTS AND DISCUSSION

The results of this study are strategies used by senior high school mathematics teachers in assessing mathematics learning during the pandemic towards the post-pandemic period. The COVID-19 pandemic has had a significant impact on the assessment's implementation in various fields, including education. The pandemic condition raises various obstacles and challenges in the learning process. Some of the obstacles encountered include limited internet access, inadequate equipment, and a lack of technological skills from students and teachers. Most learning is done online, so stable internet access and adequate devices are crucial factors in ensuring the smooth running of learning. Technological constraints are also a challenge for students and teachers, especially for those who are not familiar with the technology used in the online learning

process. Some examples of opinions from teachers, vice principals, and school principals regarding assessment constraints during a pandemic are:

> "*Uncertain that students work independently or asking for assistance. Assessment results do not adequately represent students' abilities as a whole.*" (Teacher 1)

> "*Assessment still uses Google Form platform. Student who cheats by searching other webs during exams are difficult to supervise.*" (Teacher 2)

> "*Students are not submitted their work on time.*" (Teacher 3)

> "*(Teachers) cannot observe the character of students during assessment directly.*" (Vice Principal 1)

> "*(Teachers) cannot guarantee all students to be honest (in working their assessment).*" (Vice Principal 2)

> "*The obstacles (showing up) are mostly internet signal/network and devices used by students. There are questions that can be read by others but cannot be read on one student."* (Vice Principal 3)

> "*For assessment, (it) underwent a significant change, from paper-based to online using an assessment application from the school, so (teachers and schools) had to change their mindset and (start to) master technology, the obstacles that emerged were for senior teachers having difficulty mastering technology.*" (Principal 1)

> "*(Teachers) are less objective in assessing students' character or attitude*" (Principal 3)

Amid the limitations and challenges faced, it is necessary to implement a strategy in the assessment implementation to provide accurate and helpful assessment results still. This study found three themes in implementing the assessment strategy: planning the assessment, implementing the assessment, and reporting student learning outcomes. Assessment planning during a pandemic must adapt to transforming situations and conditions. The teacher also considers the type of learning carried out (online or blended learning), the availability of technology, and the students' ability to access and use technology. Based on the interview results, the teacher makes an assessment plan at the planning stage as usual, such as making assessment objectives integrated with the syllabus and lesson plan, developing criteria for achieving basic competence as a basis for assessment, determining the assessment techniques and assessment instruments according to basic competences achievement indicators; inform students as early as possible about the aspects being assessed and the criteria for achievement; make instruments based on the grid that has been made and equipped with scoring guidelines in accordance with the assessment technique used; as well as using reference criteria in determining student grades. However, what distinguishes the pandemic from normal situations is that the implementation of the assessments includes more limited learning methods, such as distance or online learning that uses online platforms, so that in the planning stage, the teacher must adapt to the existing conditions, such as considering the appropriate platform based on the needs and goals assessment. Some examples of statements from several teachers that are in line with the strategy for planning assessment during the COVID-19 pandemic are:

> "*I did the initial planning by analyzing basic competencies so that the cutoff score was defined clearly since the beginning of learning it was also conveyed (to students), students were also signaled that there will be an assessment after completing the basic competence.*" (Teacher 1)

> "*The assessment reference that we use is criterion-referenced test.*" (Teacher 2)

> "*Basic competencies mapping, establishing assessment techniques, assessment forms, assessment objectives, constructing questions until the scoring.*" (Teacher 2)

> "*Presentation during daily assessment usually uses Google Forms and during midterm exams or final exams use a system or application from the school.*" (Teacher 1)

> "*Attitude assessments are done by observation journal entries and discussions.*" (Teacher 3)

> "*Skills assessments are done using project assessments. For example, in trigonometry subject, I (teacher) ask students to make an infographic using GeoGebra (application) for the final exams (as the final project).*" (Teacher 1)

"*I (teacher) give tasks or portfolios to assess (students') skills.*" (Teacher 2)

Table 1 shows the reduction results on the theme of assessment planning during pandemic towards post-pandemic era.

Table 1. Reduction results on the theme of assessment planning during pandemic towards post-pandemic era

No	Subtheme	Inter-relation of subthemes
1	Google Classroom to monitor and assess student performance online	Determining the appropriate online assessment platform that suits the needs
2	Google Form, Quizizz, or Kahoot to conduct daily assessments online	
3	Zoom or Google Meet to conduct presentations and discussions online	
4	WhatsApp for delivering information such as send assignments, inform test schedules, and collecting answers	

According to the interview results, implementing learning assessments during the pandemic involved more limited learning methods, such as online learning using online platforms. Therefore, the teacher must consider the platform that fits the needs and objectives of the assessment when planning the assessment. However, various obstacles must be overcome during a pandemic, such as limited internet access, inadequate devices, and a lack of technological skills from students and teachers. Therefore, learning assessment must consider these aspects in its implementation during a pandemic. In addition, learning assessment must also consider the learning process carried out by students during online learning. The use of technology in assessment is also becoming more critical and frequently carried out, such as using online applications for assignment submissions or online exams. Some examples of statements from several teachers that are in line with the strategy for implementing assessment during the COVID-19 pandemic are:

"*Attitude assessment through observation during online learning*." (Teacher 1)

"*Observations were also made when students are present at Google Meet, submitting assignments, and being active during online learning.*" (Teacher 3)

"*The assessment is the same as before the pandemic: daily assessments, midterm exams, and final exams are still being carried out.*" (Teacher 2)

"*I do daily assessment usually after completing one basic competence*" (Teacher 3)

"*For skills assessment, written tests or projects are given, the results in photos are sent through the GCR, there are presentation activities too.*" (Teacher 2)

"*Assignments outside of learning hours are done at the end of basic competence (when students submit their assignments and during online learning)*." (Teacher 1)

Managing and reporting of student learning outcomes during the COVID-19 pandemic is carried out online using digital learning applications or platforms. The managing of student learning outcomes includes collecting, organizing, and analyzing data on student learning outcomes, while the reporting aims to provide clear and structured information about students' learning progress. This reporting involves teachers, principals, and parents or guardians of students to ensure that the information provided can be utilized effectively by all of them. Reporting of assessment results during the COVID-19 pandemic requires an appropriate and effective strategy so that assessment results can provide accurate information on student abilities and achievements. Some examples of statements from several teachers that are in line with the strategy for reporting assessment results during the COVID-19 pandemic are as follows.

"*Formulate a brief description of student attitudes based on journal entries or anecdotal records*." (Teacher 2)

"*The results of managing the grades obtained by students on daily assessments, midterm exams, final exams, and assignments.*" (Teacher 1)

"*Assessment of assignments, written tests, and oral tests*." (Teacher 2)

"*Results of assessments on assignments/portfolios, presentation skills, and student work*." (Teacher 1)

"*Every teacher finish correcting the results of student work then recaps the data, the value of each student is entered in the school's assessment system in Excel form, so now it is easier for teachers to record scores.*" (Principal 3)

"*(Students who have) high scores (more than the cutoff score) are given enrichment and (students who have) scores less than the cutoff score are given remedial.*" (Teacher 3)

"*Reporting (student learning outcomes) is based on daily assessments, midterm exams, and final exams.*" (Teacher 3)

"*Student report cards are presented in* print *and given to parents/guardians of students.*" (Teacher 1)

Table 2 shows the reduction results on the theme of teacher assessment practices, and Table 3 shows the reduction results on the theme of reporting student learning outcomes.

Table 2. Reduction results on the theme of teacher assessment practices

No	Subtheme	Interrelation of subthemes
1	Assessment of student attendance during online learning	Assessment is carried out based on student participation
2	Assessment based on students' online activities such as online presentations and discussions	
3	The assessment is carried out by considering the timeliness of assignment submission	
4	Giving online quizzes/tests after finishing giving subject matter or after completing one basic competency	Assessment is carried out using various online assessment methods
5	Assessment is carried out by giving online quizzes/tests after completing the subject matter or after completing one basic competency	
6	Assessments are carried out to ensure student understanding by means of online discussions and presentations	
7	Assessment through online portfolio	
8	Students write academic honesty statement before the assessment/test is carried out	Assessment is carried out by prioritizing academic integrity and honesty
9	Supervision is carried out using two devices during the assessment/examination	
10	Students are asked to turn on the camera on each device they use	
11	Randomization of test items on the system used for assessment	
12	Using time restrictions during tests to prevent students from cooperating with each other	
13	Conduct oral tests to test students' work results by paying attention to the synchronization of steps and mathematical principles used to verify whether it is really the student's own effort or with the help of others	

Table 3. Reduction results on the theme of reporting student learning outcomes

No	Subtheme	Inter-relation of subthemes
1	Recapitulate data from the assessment results, then process and interpret them	Carry out the management and reporting of data on the results of the assessment in accordance with established procedures
2	Reporting is done periodically	
3	Reporting on the assessment of student learning outcomes is presented in the form of a report card	
4	Reporting of the results of the assessment is carried out offline with limited face-to-face following the health protocol	

The COVID-19 pandemic has changed many things, including in terms of education and educational assessment. Along with the application of distance learning, online assessment is an alternative used by teachers to evaluate students' progress. In addition, the COVID-19 pandemic has also shown its influence in encouraging the use of digital technology in mathematics learning [28]. This is due to the need for tools and technology platforms that can facilitate distance learning and online assessments effectively, including in the context of learning mathematics. Therefore, determining an online assessment platform with the help of the right technology as needed is an important assessment planning strategy during the COVID-19 pandemic. In determining the right online assessment platform, teachers also pay attention to several factors, namely the purpose and type of assessment, number of participants, time, location, ease of use, availability of facilities, and security. Taking these factors into account, planning a good assessment during the COVID-19 pandemic can help determine the right online assessment platform and ensure that the assessment can be carried out fairly, accurately, and effectively. Our study has identified several online platforms that teachers often use when conducting online assessments during the COVID-19 pandemic, consisting of Google Classroom, Google Forms, Zoom, Google Meet, WhatsApp Group, and school assessment systems. This is in line with a study [29] which revealed that the applications used by teachers in carrying out cognitive assessments online include digital applications owned by schools, Google Forms, and Google Classroom. Apart from these applications, teachers also use WhatsApp and Email, but due to their limited features, these two applications

are used only to present questions to students, collect answers to questions, and inform test schedules. This is different from a study [30] which demonstrated that WhatsApp is the platform most used by teachers to support learning and send assignments during the COVID-19 pandemic because it consumes little internet data compared to other applications. In addition, another study [31] suggests that constructing digital tests using Google Forms allows us to provide direct feedback to students to support self-assessments. Furthermore, study [13] recommends Microsoft Teams for use because it is easy to use, compatible, and can be installed on laptops and mobile devices. Accordingly, the platform of choice used by each teacher and student during the COVID-19 pandemic emphasizes the ease and practicality of use [32].

Assessment based on student participation can assist teachers in assessing the attitude competence of students online during the COVID-19 pandemic. Assessments based on online participation can include an assessment of attendance in online learning, presentations, and discussions during online learning, and the timeliness of submitting online assignments. Assessment of student presence in online learning is a form of assessment of student involvement in online learning. In this assessment, the teacher can calculate the amount of student involvement in each online learning session and take notes regarding student attendance during online learning. This can be done by observing the history of logging into the learning platform used or through related features provided by online learning platforms or applications. This attendance assessment is important because it shows the extent to which students are involved in the online learning process and can be the basis for providing feedback to students and determining the final grade. This finding supports the study [33] which found that one of the assessment strategies used by teachers in online mathematics learning is to consider the presence of students. Even though learning is carried out online, students are still required to take attendance in the class group (i.e., WhatsApp group) to monitor student involvement in online learning. Other studies also show that there is a significant relationship between student attendance and academic achievement [34]. In addition, the results of previous studies stated that learning videos in the blended learning model which were recorded and uploaded to the internet led to reduced student attendance and had an impact on academic achievement [35].

A variety of online assessment methods that teachers use such as online tests, online assignments, online oral exams/tests, and online portfolios can help teachers evaluate students' abilities during online learning and provide greater flexibility and inclusivity in the assessment process. Variations of these methods can be used to measure the competence of knowledge and skills of students. Variations in the assessment method are carried out by the teacher through an online platform that has been determined in the assessment plan. The online test is an assessment method that is often used by teachers in online learning. Learners can take online tests through online test platforms such as Google Forms. Online tests can include various types of questions such as multiple choice, short answers, and essays [36]. The results of the interviews in our study revealed that when the teacher gave questions in multiple choice form, their answers had to be accompanied by the steps for working on each question item that the students did to arrive at that answer. The results of the work in the form of step by step answers to the multiple choice questions are usually captured or scanned and then submitted by students to Google Classroom. The same goes for online assignments and portfolios that are usually submitted in Google Classroom. Some examples of online portfolios in mathematics lessons are in the form of a collection of mathematical assignments that have been done by students and notes taken by students during the lesson including the formulas they learned. Our findings are in line with several studies showing that various methods have been used to convert traditional assessments to suit online assessments such as time-limited assessment assignments such as quizzes, homework assignments, essay questions, video streaming assessments such as oral exams, viva voce presentations [37], and open book exams (midterm and final semester) [38].

Academic dishonesty has been one of the main challenges in using online assessments during the COVID-19 pandemic. Securing online assessment from academic misconducts or dishonesties is a major concern during this pandemic [38]. It is necessary to take appropriate actions and effective strategies to overcome academic dishonesty and maintain academic integrity in the online learning process and assessment during this pandemic. The findings of our study show strategies that can be carried out, namely by students writing honesty statements before the assessment is carried out, monitoring using two devices and activating the camera on each device during online assessment/examination, randomizing questions on the system used, using time limits during tests to avoid student collaboration, and conducting oral tests to test students' work and paying attention to the suitability of the steps and mathematical principles used. In connection with the use of the time limit provided for students to work on assignments or examinations, a study by Gamage *et al*. [37] shows that initially the time limit was an attempt to prevent cheating. However, recent studies have proven that deadlines or time limits are no longer effective in preventing academic misconduct. This is because students can now take advantage of third-party services such as "essay mills" or freelancers who offer to complete high-risk assignments in a short time for a higher fee. Previous studies (e.g., [16]) have shown that effective preventive measures to avoid acts of academic fraud in online learning

and assessment include setting a time limit for taking tests, giving different questions to each student, conducting oral/question-and-answer tests when checking student work results on existing assignments or tests to verify whether the assignments or tests were done alone or with the help of others, and supervision during the assessment by activating video conferencing. In addition, in a study [23] it was stated that by paying attention to mathematical procedures and principles in the results of students' work, the teacher can obtain an overview of the extent to which students understand the questions and can answer questions in a structured manner.

Strategies in processing and reporting learning outcomes are important for teachers to understand and consider. By following the established procedures or guidelines, data processing, and reporting can be done consistently. This will ensure that the resulting data can be compared over time allowing teachers to evaluate student performance on an ongoing basis. Part of processing the results of the assessment is recapitulating the data on the results of the assessment based on daily observations/activities, daily grades, midterm, and final semester grades, as well as assignment or portfolio scores using a scoring system that has been created by each school. In practice, the processing of student assessment results is not an obstacle for teachers because they have been assisted by the system. According to the results of the interviews, each teacher finished correcting students' work then the scores of each student were entered into the school's scoring system in Excel form. The use of Excel and a school-made assessment system that is connected between the teacher and homeroom teacher has the benefit of helping the teacher recap and obtain the final assessment results. This is an initiative from the school to minimize obstacles. In contrast to the findings of [39], the results obtained were that teachers experienced difficulties when recapitulating student value data and reporting because there were still many teachers who had not been able to make good use of Excel or other assessment systems, due to a lack of information technology insight.

Reports of student learning outcomes can be provided to students online or offline. Reports on student learning outcomes in daily and midterm assessments can be provided to students in a portable document format (PDF), while reports on student learning outcomes in the final semester exams can be given to parents of students offline/limited face-to-face by adhering to health protocols. To avoid crowds, schools divide the delivery of learning outcomes reports to parents into several sessions with limited participants and a predetermined time. This kind of strategy for reporting student learning outcomes is in line with findings in research conducted by Kumar and Kumar [40], where reporting of student learning outcomes is carried out in four sessions with predetermined hours. Every session there are only ten parents who attend while still adhering to the health protocol. The strategy for reporting the results of the assessment includes five stages: data collection, data processing, data interpretation, data presentation, and reporting. This finding has similarities with the results of research conducted by Braund [41] which has shown stages in reporting the results of assessments conducted by teachers. First, the teacher conducts daily assessments and then writes the results in the daily activity plan book. Second, the teacher transfers the daily assessment notes to the recapitulation book. Third, the teacher analyzes the development of each student based on the recapitulation results. Fourth, the teacher transfers the results of the analysis into the report card. Fifth, the teacher gives the student's report card to the parents/guardians of the student.

In the new normal era, information technology literacy is not only important for the future of students but is also an important part of the whole development. Therefore, future evaluation parameters should not only focus to students' ability to remember information and knowledge but also the ability to collect information, internalize knowledge, solve complex problems [42] and should be focused to the development of students' independent learning skills in mathematics [43]. Test security such as the use and combination of assessment assignments also needs to be considered by teachers in developing literacy about online assessment [38]. To keep up with the latest changes in assessment, teachers need to hone their technology skills to be able to practice and implement creative and innovative online assessments. The findings in this study can be used as input for policymakers, especially in the field of mathematics education, to provide the support and facilities needed by teachers to develop skills in the field of assessment, such as providing the necessary training and resources for teachers, as well as developing policies that support teacher professional development in the field of assessment. Teachers can also collaborate with colleagues or join communities that focus on professional development of teachers in the field of assessment to gain support and to share experiences and knowledge. By developing themselves in the field of assessment and utilizing available resources, teachers can ensure that the assessments carried out can have a positive impact on learning and the overall quality of education in the new normal era.

4. CONCLUSION

From the results of the analysis, it was found that the strategies used by mathematics teachers in high schools in conducting assessments in the new normal era included several things. First, teachers must choose an online assessment platform that suits their needs. Second, assessment must be based on student

participation. Third, teachers should use a variety of different online assessment methods. Fourth, integrity and honesty must be maintained during the assessment process. Fifth, teachers must follow established procedures in managing and reporting assessment data. Further studies could be conducted to improve online assessment strategies by involving teachers and students from a wider range of schools and areas so that the results can be generalized and more representative. In addition, the results of this study can be applied in mathematics learning and its assessment in senior high schools by adjusting to the current curriculum. Thus, by considering several matters related to strategies for carrying out assessments in the new normal era, it is hoped that teachers would be able to increase the effectiveness and efficiency of mathematics learning in high schools and can ensure that the online assessment process becomes more reliable and effective for education in the future.

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