Assessment Tools Used by the Senior High School Mathematics Teachers during Modular Distance Learning

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Abstract: *This study aimed to determine the assessment tools used in selected schools in Pilar Cluster, S. Y 2021 - 2022. This study used the qualitative method of research. The respondents of the study were the senior high school Mathematics teachers in Pilar cluster. The main instrument used in the study was a survey questionnaire. An interview schedule was also utilized to challenges and the techniques on the implementation of assessment tools. Appropriate statistical measures and tools were used to analyze and interpret the data gathered. The findings were: In terms of the formative assessment tools by the senior high school teachers in mathematics, quizzes and polls and student self - assessment got the highest frequency with a total of 11 out of 12 or rank 1, followed by sending written feedback through SMS and other forms with a frequency of 8 or rank 3 and rank 4 with 7 frequency is strategic questions/Open - ended question tool. On the other hand, along the summative assessments used, paper and pencil test have the highest frequency of 12 or rank 1 out of 12 respondents. It was followed by portfolio. and problem Sets (Series of Activity Sheets) with a frequency of 7 or rank 2.5 and rank 4 is surveys questionnaire with a total frequency of 4. On the implementation of formative assessment, teachers performed different strategies. Most of them used rubrics and criteria to determine the learning gaps and where to start the lesson. Some of them give grades and include their solutions in checking. Some of the teachers asked the students to do self - reflection to assess their knowledge about a topic. With this, teachers can determine the strategies to be employed along the teaching - learning process. They also send feedback through chat or messenger. In addition, reflections and journals are also utilized to see if what the students know about the topic. On the other hand, along the implementation of summative assessment, they used rubric as one of the techniques in scoring the assessment. Teachers also included the solutions in checking the tests. Proper scoring system was also utilized to know the performance of the learners. In addition, Zip Grade App to automatically know the score of the multiple - choice test conducted. In addition, most of the teachers used the item analysis to determine the least learned competencies which need intervention. Item analysis was used to analyze student responses to individual exam questions with the intention of evaluating exam quality. Majority of the teachers also adopted the grading system based on DepEd order. The reliability and validity of the assessment results got the highest frequency of 12 or rank 1 which is the most encountered among the challenges of the teachers. Next to it is the involvement of students in the assessment process which gathered 9 responses or 2 of the total number of participants. Meanwhile, designing assessment tool for complex performance and feedbacking of students learning got a frequency of 8 or 3.5. The utilization of authentic assessment is another challenge which teachers met. It has a frequency of 7 or rank 5 while 6 or 6.5 in rank for the adaption of assessment strategies in the new normal and use of digital technology for the assessment. Finally, the assessment information in the new normal and creating formative assessment tools with 4 or rank 8 and 2 or 9 in rank respectively. Based on the results of this study, an action plan for teachers' capacity building to improve the implementation of assessment tools for learning and of learning. The conclusions were: The senior high school mathematics teachers used varied traditional paper and pencil assessment tools during the modular distance learning. On the implementation of formative assessment, the senior high school mathematics teachers frequently used the scoring rubric and sending feedbacks through chats/messenger. On the implementation of summative assessments, the senior high school mathematics teachers frequently used rubrics, item analysis and grading system. There were several challenges met along the utilization of formative and summative assessments. These challenges were encountered by the teachers during the modular distance learning. An action plan for teachers' capacity building, mentoring, and training can be adapted and utilized. The recommendations were: Teachers may use new and interesting assessment tool whether for blended, online or face to face. Teachers may be guided by school heads and master teachers in the implementation of formative assessment tools appropriate for modular distance learning. Teachers should conduct interesting summative assessments appropriate for modular distance learning to monitor the academic progress of the students as well as their learning gaps. Challenges met by the senior high school teachers may be considered to enhance the assessment tools used by the teachers appropriatefor the teaching - learning modalities adopted by the school. The proposed action plan for teachers' capacity building is recommended to further enhance the implementation of assessment tools. Researchers may conduct a study like the present study in a wider scope.*

Keywords: Assessment Tools, Modular Distance Learning

1. Introduction

In education, there is an extensive agreement that assessment is an essential part of any effective educational system or program. Teachers, parents, and other stakeholders all want to know whether students are learning effectively and developing academically in school. According to UNESCO (2018), to improve the learning outcomes, there is a need to know what the students learned and what needs to be improved. Thus, assessment of learning is important part of an educational system plan.

Assessment pertains to the wide variety of methods or tools that educators use to evaluate, quantify, and document the academic readiness, learning progress, skill acquisition, or educational needs of students (Glossary of Education Reform, 2015). One of the common assessments is the standardized assessments which are intended, directed, and scored in a standard, or consistent, manner. They often use a multiple - choice format, though some include formative and summative are the two types of assessments used in assessing and evaluating learning. Formative assessments provide both students and teachers with the information they need to improve the learning process while it is happening. Its goal is to monitor development toward a goal or

objective. While we usually think of tests and evaluations being scored with a letter or number, formative assessments provide students with feedback rather than a grade. Informal, or formative assessments are about checking for understanding in an effective way to guide instruction. They are used during instruction rather than at the end of a unit or course of study. Examples of formative assessments includea brief written summary of a lecture or lesson, student - teacher conferences, a completed graphic organizer, such as a Venn diagram, a quiz, which can be scored by the student or teacher.

On the other hand, summative assessments are generally given at the end of unit or lesson. Unlike formative assessments, which may occur several times during a course or unit, summative assessments happen only a few times over the course of the academic year. A common goal of this type of evaluation is to measure the mastery of learning standards. Unlike formative assessments, which emphasize feedback, summative assessments always yield a specific grade. Examples of summative assessments include end of term or semester final exams, end - of - unit or chapter tests, and benchmark assessments which measure mastery of a standard.

Most of the schools in the Philippinesduring this time of pandemic are implementing modular distance learning. Modules are used for learning concepts and skills. These contain activities that learners can do in their own phase. The formative and summative assessments are given after finishing the modules to evaluate and assess learning.

The Deped Order No.31 series of 2020 "Interim Guidelines for Assessment and grading of the basic education learning continuity is issued to provide guidance on the assessment of student learning and on the grading scheme to be applied this time of pandemic. It is stated that assessment should meaningfully support learner's development and respond to varied context at this time. In distance learning modalities, teachers shall design assessments bearing the assumption that the learners will asynchronously take them and have open access to various sources. Therefore, a variety of assessment strategies is necessary with formative assessment taking priority to inform teaching and promote growth and mastery.

On the other hand, during the pre - pandemic, the DepEd Order No.8, s.2015, Policy Guidelines on Classroom Assessment for the K to 12 basic education program was implemented. Students are assessed using summative assessment with three components, namely, written works, performance task and quarterly assessment which are no longer applicable this time. There is no quarterly assessment in modular distance learning, rather summative tests are given at the end of the unit or lesson.

In the implementation of modular distance learning, summative assessments are used to evaluate student learning at the conclusion of a specific instructional period—typically at the end of a unit, course, semester, program, or school year. Summative assessments are typically scored and graded tests, assignments, or projects that are used to determine whether students have learned what they were expected to learn during the defined instructional period. Likewise, formative assessments such as short quiz, KWL chart, asking simple questions and diagnostic test are used before going through the other parts of the modules. This way, Students' knowledge about the topic will be assessed.

However, the challenges came across in terms of using summative and formative assessment tools in modular distance learning. How teachers can ensure that these assessment tools are effective in evaluating what the students learn and what other methods can be used to assess learning. Moreover, how do teachers perform the scoring, analyzing and feed backing considering that there has no face - to - face interaction. Some of the learners cannot be reached out due to poor internet connection and unavailability of gadgets. Likewise, to implement summative assessments along scoring, analysis, and grading was another issue. Whether the summative assessments were done by the learners themselves or by their parents or siblings. It is in this light that the present study attempts to provide intervention to the issues encountered in assessment of learning.

According to the research by Calixto, Manalo, and Peralta (2021), teachers adopted strategies that required them to provide students immediate feedback, use online assessment tools, go over previous questions with them, encourage students to actively participate in class, and link learning objectives to formative evaluation. Teachers had to deal with a variety of issues, including a lack of motivation, a lack of internet access and technology, and inadequate digital literacy. However, they used approaches to deal with the issues by developing differentiated assessment. The study's conclusions suggested that teachers use a number of online formative assessment strategies similarly to how they perform in - person instruction.

Another study looked into how formative evaluation affected students' performance in secondary school mathematics. The results showed that formative assessment has a strong significant difference in the mean achievement score of Mathematics students exposed to it, but there is no significant difference in the mean achievement scores of students not exposed to formative assessment. To improve their abilities and performance, they advised instructors to take part in training on creating formative assessments (Moyosore, 2015). The setting of the study was in Pilar Sorsogon. The researcher chose this as the locale of the study since Pilar is one of the largest rural municipalities in the province of Sorsogon. It is a coastal municipality but, predominantly agricultural is the main source of their income. Aside from this, Pilar is the place where the researcher is working as a teacher. It was on her experience that students failed in the assessments given to them during the modular distance learning. This study aimed to determine the assessment tools used in selected schools in Pilar Cluster and proposed action to improve the implementation of assessment process.

2. Statement of the Problem

This study determined the assessment tools used in selected schools in Pilar Cluster, S. Y 2021 - 2022.

Specifically, seeks answers to the following questions:
1) What are the assessment tools used by the senior high school teachers in general mathematics during the modular distance learning along: a. formative, and b. summative?
2) How are the formative assessments implemented by the teachers along: a. scoring, b. analysis, and c. feed backing?
3) How are the summative assessments implemented by the teachers along: a. scoring, b. analysis, and grading?
4) What are the challenges met by the teachers along the utilization of assessment tools?
5) What plan of action may be proposed to improve the implementation of assessment process?

3. Methodology

3.1 Research Design

This study aimed to determine the assessment tools used by senior high school teachers in General Mathematics in Pilar cluster.

This study utilized descriptive method research design with the use of a qualitative analysis. This research design is often based on methods of observation and inquiry; qualitative research "explores the meaning of human experiences and creates the possibilities of change through raised awareness and purposeful action" (Taylor & Francis, 2013). This method also focuses on life experiences; they are more about the "why" and "how" rather than the "how many", or "how often".

The main instrument used in the study is a survey checklist to gather the needed data. An interview guide was also utilized to determine challenges met by the teachers along the utilization of assessment tools. Appropriate statistical measures and tools were used to analyze and interpret the quantitative data gathered. For the analysis of qualitative data, thematic coding was used to record or identify responses that are linked by a common theme or idea to establish a framework of thematic ideas (Gibbs 2007). Thematic analysis is usually applied to a set of texts; such as interview transcripts. The researcher closely examined the data to identify common themes – topics, ideas and patterns of meaning that come up repeatedly.

3.2 The Participants

The main source of data for this research were the results of the survey questionnaire and interview. The participants of this study were chosen purposively. Purposive sampling was used since only those who are teaching general mathematics were part of the study. Majority of them are Teacher III while in terms of sex, there are five participants who are female and seven are male.

The participants were the senior high school Mathematics teachers in Pilar Cluster namely; Pilar National High School, Salvacion National High School, Bayasong National High School, Manuel T. Sia National High School, Lungib National High School, Bantayan National High School, Palanas National High School, Tingco National High School, San Rafael National High School and Abucay National High School.

3.3 Research Instrument

The main instruments used in gathering the data were the survey checklist and interview guide which were prepared by the researcher with the guidance of her adviser and approval of the members of the thesis committee.

The survey checklist was composed of 2 parts. The first part was the assessment tools used by the senior high school teachers in mathematics during the modular distance learning along: a. formative, and b. summative. The second part was on the challenges met by the teachers along the utilization of assessment tools during pandemic.

On the other hand, the interview guide was composed of questions on how formative assessments implemented by the teachers along scoring, analysis, and feed backing as well as how the summative assessments implemented by the teachers along scoring, analysis, and grading.

The drafts of the survey questionnaire and interview schedule were submitted to the following: Dean of the Graduate School, thesis adviser, panel members for the suggestions. Some of the items were modified to elicit response suited to the problems. The comments and suggestions were used to revise the instruments of this study. Changes were made until the formulation of the final copy of the survey questionnaire and interview guide.

3.4 Data Collection Procedures

In the first phase, the researcher sent a communication letter asking permission to the Schools Division Superintendent. After the approval, the researcher sent the letter to the office of the principals for the manner and date of data gathering. The data gathering was done last April 11, 13, 15, 20 & 22, 2022 that lasted for two weeks. The researcher personally conducted the survey and retrieved after the respondents accomplished it.

An interview was conducted to get the responses of the participants on the challenges and techniques to implement the formative and summative assessment. The researcher visited the schools which were included in the study. Teachers - participants were being approached by the researcher and explained the purpose of the interview. The interview lasted for 15 minutes for each participant. Follow - up questions were given to clarify their responses.

After collecting the data, the responses were interpreted and analyzed. Furthermore, after the collection and tabulation of the needed data, the researcher utilized statistical tools for further analysis. Thematic was used to group their responses from the interview conducted.

3.5 Data Analysis Procedure

The data to be gathered was subjected to different measures such as frequency count and ranking. Frequency count and ranking were used to determine the assessment tools used by

the senior high school mathematics teachers along formative and summative assessment.

On the other hand, thematic coding was used to determine how formative assessments implemented by the teachers along scoring, analysis, and feed backing as well as how summative assessments implemented by the teachers along scoring, analysis, and grading. On the challenges met along the utilization of assessment tools, frequency count and ranking were also utilized.

4. Results and Discussions

4.1 Findings

Based on the data gathered, the following findings were revealed:
1) In terms of the formative assessment tools used by the senior high school teachers in mathematics, quizzes and polls and student self - assessment got the highest frequency with a total of 11 out of 12 or rank 1.5, followed by sending written feedback through SMS and other forms with a frequency of 8 or rank 3 and rank 4 with 7 frequency is strategic questions/Open - ended question tool.
2) On the other hand, along the summative assessments used, paper and pencil test have the highest frequency of 12 or rank 1. It was followed by portfolio. and problem Sets (Series of Activity Sheets) with a frequency of 7 or rank 2.5 and rank 4 is surveys questionnaire with a total frequency of 4.
3) On the implementation of formative assessment, teachers performed different strategies. Most of them used rubrics and criteria to determine the learning gaps and where to start the lesson. Some of them give grades and include their solutions in checking. Some of the teachers asked the students to do self - reflection to assess their knowledge about a topic. With this, teachers can determine the strategies to be employed along the teaching - learning process. They also send feedback through chat or messenger. In addition, reflections and journals are also utilized to see if what the students know about the topic.
4) On the other hand, along the implementation of summative assessment, they used rubric as one of the techniques in scoring the assessment. Teachers also included the solutions in checking the tests. Proper scoring system was also utilized to know the performance of the learners. In addition, ZipGrade App to automatically know the score of the multiple - choice test conducted. In addition, most of the teachers used the item analysis to determine the least learned competencies which need intervention. Item analysis was used to analyze student responses to individual exam questions with the intention of evaluating exam quality. Majority of the teachers also adopted the grading system based on DepEd order.
5) The reliability and validity of the assessment results got the highest frequency of 12 or rank 1 which is the most encountered among the challenges of the teachers. Next to it is the involvement of students in the assessment process which gathered 9 responses or rank 2 of the total number of participants. Meanwhile, designing

assessment tool for complex performance and feedbacking of students learning got a frequency of 8 or 3.5. The utilization of authentic assessment is another challenge which teachers met. It has a frequency of 7 or rank 5 while 6 or rank 6.5 for the adaption of assessment strategies in the new normal and use of digital technology for the assessment. Finally, the assessment information in the new normal and creating formative assessment tools with 4 or rank 8 and 2 or rank 9 respectively.
6) Based on the results of this study, an action plan for teachers' capacity building, mentoring, and training to improve the implementation of assessment tools for learning and of learning.

4.2 Conclusions

Based on the findings, the following conclusions were drawn:
1) The senior high school mathematics teachers were using varied traditional paper and pencil assessment tools during the modular distance learning.
2) On the implementation of formative assessment, the senior high school mathematics teachers frequently used the scoring rubric and sending feedbacks through chats/messenger.
3) On the implementation of summative assessments, the senior high school mathematics teachers frequently used rubrics, item analysis and grading system.
4) There were several challenges met along the utilization of formative and summative assessments. These challenges were encountered by the teachers during the modular distance learning.
5) An action plan for teachers' capacity building, mentoring and training can be adapted and utilized.

5. Recommendations

Based on the conclusions, the following recommendations were drawn:
1) Teachers may used new and interesting assessment tool whether for blended, online or face to face.
2) Teachers may be guided by school heads and master teachers in the implementation of formative assessment tools appropriate for modular distance learning.
3) Teachers should conduct assessments regularly (daily, weekly, monthly, and quarterly) to monitor the academic progress of the students as well as their learning gaps.
4) Challenges met by the senior high school teachers may be considered to enhance the assessment tools used by the teachers appropriate for the teaching - learning modalities adopted by the school.
5) The proposed action plan for teachers' capacity building is recommended to further enhance the implementation of assessment tools.
6) Researchers may conduct a study like the present study in division wide.

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