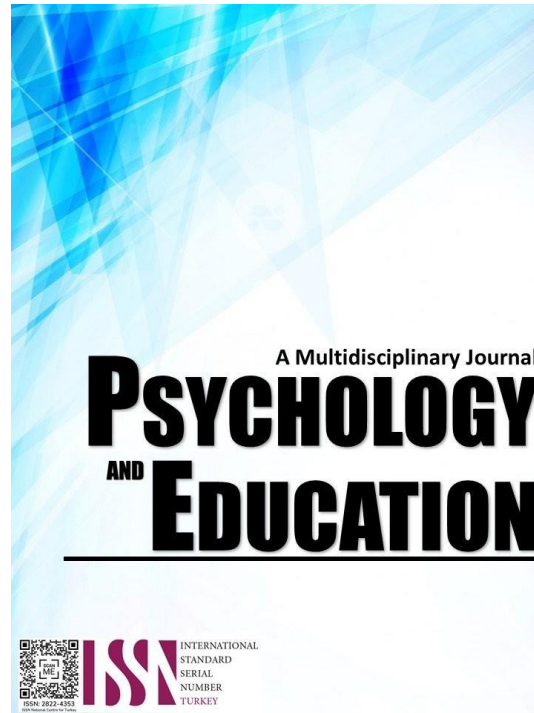


EVALUATION OF THE LEARNING MODULES IN MATHEMATICS



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Evaluation of the Learning Modules in Mathematics

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Abstract

This study aimed to assess the Grade 8 level of learning modules in mathematics from the City Division and Bohol Division throughout the first and second quarters. The researcher uses document analysis in this study, this technique is the most effective way to identify the module's quality aspects in terms of objectives, content, face validity, suitability of approach, and clarity of the module in a systematic and precise manner. By employing the document analysis and the material, the researcher found out that the evaluator evaluated the learning modules of the Bohol Division and City Division where it can be determined that the mathematics modules are different. The findings employed the Input-Process-Output (IPO) framework as a model and the assessed learning modules would be employed in the new way of teaching mathematical ideas. With this, the researcher recommends that the learning modules as a material fit for the intended users.

Keywords: *learning modules, objectives, content, face validity, suitability of approach, and clarity*

Introduction

Students can grasp a subject independently or collaboratively through the use of learning resources. Prior to distribution to students, instructional materials need meticulous preparation by teachers or the Department of Education. Dr. K. Sejpal's Modular Teaching System (2013) defines modular instruction as a work unit during the teaching process. Estrañero (2001) characterizes a module as an educational resource—an explicit, self-directed unit of instruction containing elements such as a broad study idea, specific skills to acquire, a diverse approach to practicing skills, enrichment activities, and assessments.

Whether independently or in small groups, a module can be used, adapting to the learner's preferred pace of study. It is designed to enable students to define goals, choose relevant information, follow a self-selected learning sequence from various presenting modalities, and assess progress. Faced with this challenge, the researcher aimed to evaluate mathematics learning modules covering the first and second quarters. Inferential statistics were employed to present the data, with previous studies guiding the comparison between Bohol Division and City Division learning module evaluations.

Anticipating that assessed modules could revolutionize the teaching of mathematical concepts, the researcher expects future students to benefit. This approach acknowledges the necessity of instructional resources to complement teaching techniques, promoting awareness among students enrolled in the upcoming school year.

Research Questions

The study's goal was to assess the Grade 8 level of learning modules in mathematics from the City Division and Bohol Division throughout the first and second quarters.

Specifically, the study sought to answer the following questions:

What is the rating on the quality elements of the learning modules in Grade 8 Mathematics from the Bohol Division for the First and Second Quarters in terms of:

- 1.1 Objectives;
- 1.2 Content;
- 1.3 Face Validity;
- 1.4 Suitability of Approach; and
- 1.5 Clarity?

2. What is the rating on the quality elements of the learning modules in Grade 8 Mathematics from the City Division during the First and Second Quarters in terms of:

- 2.1 Objectives;
- 2.2 Content;
- 2.3 Face Validity;
- 2.4 Suitability of Approach; and
- 2.5 Clarity?

Literature Review

This research was also influenced by the Philippine government's support for quality assurance in education, which was implemented with the passing of the Enhanced Basic Education Act of 2013. (Republic Act 10533). It stresses that the K-12 reform does not just apply to the Department of Education (DepEd),

but to all of Philippine education and labor as well. Its ultimate objective is to have a different impact on each sector while also requiring all of these groups to collaborate in order to ensure a seamless transition to the new system.

The Commission on Higher Education is required to collaborate with the Department of Education and other institutions on teacher training and education, which includes ensuring that teacher education institutes' curricula, meet quality requirements. This ensures that the next generation of instructors will be prepared to teach young Filipinos under the new educational system. Their involvement in the formation of society's future is regarded vital since they are the primary molders of young minds (Marasigan, 2019). The Enhanced Basic Education curriculum across K-12 has merged GE courses in the high school core courses of higher education programs in consideration of the College Readiness Standards (CEB Resolution No. 298-2011), resulting in the modification of the present GE curriculum (CHED Memorandum No. 59 Series 1996).

The module, according to Rumpus (2003), is a self-contained, self-contained unit of a planned set of learning activities meant to assist the learner in achieving specified well-defined objectives. According to Galanida (2005), instructional resources such as modules are effective in teaching fundamental Mathematics; moreover, instructional materials with manipulative exercises assisted in the development of basic mathematical ideas. Teaching secondary mathematics requires the use of instructional resources that lead to autonomous learning, as Espinar and Ballad (2016) found. It also discovered a substantial disparity in the responses of the respondents.

Methodology

The study systematically describes and justifies the research design and methods applied to evaluate learning modules from Bohol Division and City Divisions. Employing document analysis and a research instrument adapted from the Colombo Plan Staff for Technical Education, the researcher enlisted mathematics, literature, and research experts as evaluators to assess module quality. The data collection involved the review and authorization of the assessment tool, random sampling of Grade 8 modules, and subsequent analysis to address identified issues and achieve research objectives.

The study's participants were Mathematics module

experts or assessors who were hand-picked by the researcher. The first evaluator holds a Doctorate in Education with a specialization in Research and Evaluation and has presented research papers at national and international conferences. In addition, those papers were published in a local publication and in a Scopus magazine. The second evaluator is an English, Literature, and Research topic specialist with a Doctor of Arts in Literature and Communication degree. The third evaluator holds a master's degree and has participated in several workshops and seminars. In addition, he is one of the school's statisticians and researchers. These evaluators graded the learning materials using the researcher's research instrument. The researcher examined the evaluated modules for the participants' privacy. The results of the evaluation were used only for research purposes.

In this study, the document analysis process comprised key steps for assessing learning modules from both divisions. Starting with adapted evaluation questions from the Colombo Plan Staff, a panel of evaluators, endorsed by the Chairman of Mathematics for both divisions, systematically applied criteria to assess quality aspects. The assessment involved scoring, calculating mean scores, and verbal interpretation. Prior to conducting the study, a communication letter seeking approval was diligently secured, directed to the office of Bohol Division and City Division. This proactive measure aimed to ensure official endorsement and support for the research. Additionally, the researchers took some steps to uphold participants' rights, emphasizing their freedom to cease participation if they felt any violation of their rights. A consent letter was thoughtfully provided to informants, emphasizing the commitment throughout the study. The researcher prioritized maintaining the participants' interests during the evaluation, and their willingness to engage was evident through their signatures on the consent form. The researcher ensured participant privacy during the data collection, which included physically retrieving full assessment sheets from evaluators and subsequent weeks of analysis. The study's findings were then interpreted within the context of the objectives and research questions, following a structured and systematic approach to evaluate learning modules comprehensively.

An Input-Process-Output (IPO) diagram is also important when trying to achieve a research outcome, illustrating inputs, such as materials and information, process instructions, and resulting outputs. The IPO diagram breaks down the research process into Input, Process, and Output components, providing clarity, illustrating interactions, and aiding communication of



the research design. It identifies gaps and opportunities for improvement, aligns with research questions, and allows iterative refinement for a focused and effective study.

A graphic paradigm depicts the study's flow, problem, variables, procedure, and expected results. Box 1 outlines the input, encompassing approval letters, literature, and related studies. Box 2, the Process variable, details steps for problem resolution, incorporating document analysis, data collection, instruments, and statistical analysis. Box 3 represents the study's final product: recommendations for improving the educational system.

Results and Discussion

The findings derived from the data acquired during the document analysis research are presented below. The ratings on the quality components of the learning modules in Grade 8 Mathematics from Bohol Division and City Division in terms of objectives, content, face validity, suitability of method, and clarity are provided in this section for the First Quarter and Second Quarter. These can be found in the tables that follow. The information was counted, tabulated, and statistically processed. The findings and conclusions were then based on the data, which were evaluated and interpreted.

Table 1. *Rating of the Objectives of the Learning Modules in Grade 8 Mathematics from the Bohol Division for the First and Second Quarters*

Item Statements	Bohol Division					
	First Quarter		Second Quarter		Overall	
	Mean	O.D.	Mean	O.D.	Mean	O.D.
1. The self-instructional material meets evidently the defined needs.	4.33	Excellent	4.56	Excellent	4.45	Excellent
2. The purpose of the self-instructional material has been made evident clear to all likely users.	4.22	Excellent	4.22	Excellent	4.22	Excellent
3. The self-instructional material introduction provides a clear coverage of the scope.	4.22	Excellent	4.33	Excellent	4.28	Excellent
4. The objective is evidently related to the purpose of the self-instructional material.	4.33	Excellent	4.22	Excellent	4.28	Excellent
5. All the general objectives are associated to the purpose of self-instructional material.	4.22	Excellent	4.11	Very Good	4.17	Very Good
6. The accomplishment of the general objectives is due to the clear set of specific objectives.	4.00	Very Good	4.11	Very Good	4.06	Very Good
7. The self-instructional material is clearly aligned to the purpose of the suitability of objectives.	4.33	Excellent	4.33	Excellent	4.33	Excellent
8. The objectives are attainable and measurable.	3.89	Very Good	4.11	Very Good	4.00	Very Good
Overall	4.19	Very Good	4.25	Excellent	4.22	Excellent

Legend: 4.21 - 5.00 Excellent; 3.41 - 4.20 Very Good; 2.61 - 3.40 Good; 1.81 - 2.60 Fair; 1.00 - 1.80 Poor

According to Cedefop (2017), the objectives or

assertions of what a learner is expected to know, be able to accomplish, and grasp following a learning sequence are the quality elements of objectives. Moreover, according to Rumpus (2003), it is a self-contained unit of a planned set of learning activities meant to assist the learner in achieving specified well-defined objectives.

In Table 1, it is shown that from the Bohol Division modules for the first quarter, six out of eight indicators are rated excellent, and the two are rated very good by the assessors. Furthermore, the overall rating on the objectives in the learning modules from Bohol Division for the first quarter by the three assessors is very good, with a mean rate of 4.19. This means that Bohol Division's module only requires a little room for adjustment in the association of general objectives to self-instructional material, it can be seen in the modules and Item 8 "The objectives are attainable and measurable," because in the Learning Module 1 on the topic of different types of polynomials that one topic per day is covered, but it is quite difficult for students to connect the achievement of general objectives to a clear set of specific objectives. The ideas, principles, examples, exercises, explanations, and discussions of the lessons in the modules are well-organized and presented so that students can understand. Students may not know what is expected of them if learning objectives are not completely acquired or are unclear, which can lead to confusion, frustration, or other factors that obstruct the learning process.

However, for the second quarter, among the eight indicators of the quality of objectives element, five are rated excellent by the assessors, and three are scored very good for the module prepared by the Bohol Division. The overall rating on the objectives in the learning modules from Bohol Division for the second quarter by the three assessors is excellent, with a mean rate of 4.25. It shows that the modules meet the defined needs in terms of the quality elements of objectives and have been made evident clear to all likely users.

The quality elements of content according to the Department of Education Order No. 1 2, Section 2020, The target Most Essential Learning Competencies (MELCs) per quarter are "sufficiently covered," the instructional design and organization are "aligned," the text and visuals are "more or less accurate and error-free," and appropriate learning assessment is included.



Table 2. Rating of the Content of the Learning Modules in Grade 8 Mathematics from the Bohol Division for the First and Second Quarters

Item Statements	Bohol Division					
	First Quarter		Second Quarter		Overall	
	Mean	Q.D.	Mean	Q.D.	Mean	Q.D.
1. All the contents are aligned to the objectives.	4.56	Excellent	4.44	Excellent	4.50	Excellent
2. The contents have been arranged in simple to complex sequence.	4.22	Excellent	4.44	Excellent	4.33	Excellent
3. The materials form systematic procedures of steps.	3.78	Very Good	3.89	Very Good	3.84	Very Good
4. The material provides pre-tests to measure prior knowledge/schema	1.67	Poor	2.00	Fair	1.84	Good
5. Appropriate self-check questions and answers are provided for formative assessments.	3.22	Good	3.67	Very Good	3.45	Very Good
6. All self-check are directly relevant to the content of each selected topics	4.22	Excellent	4.22	Excellent	4.22	Excellent
7. All activities on selected topics are appropriate for their content and objectives.	4.22	Excellent	4.56	Excellent	4.39	Excellent
8. The self-instructional material contains well organized definitions of terms.	3.44	Very Good	3.22	Good	3.33	Very Good
Overall	3.67	Very Good	3.92	Very Good	3.80	Very Good

Table 2 shows that the assessors gave excellent ratings to four of the eight indicators from the Bohol Division learning modules for the first quarter. On the other hand, receives lower ratings in the quality elements in terms of content in item 4 “The material provides pre-tests to measure prior knowledge/schema,” with ratings of 1.67 (Poor) because pre-test to measure prior knowledge/schema is not provided or indicated in the learning modules, it can be seen in the modules and Item 5 “Appropriate self-check questions and answers are provided for formative assessments”, Bohol Division obtained the rate of 3.22 (Good) since it can be observed in the learning module 2 on the topic of solves problems involving factors of polynomials that the assessment stated “Solve the given problem and show the solutions completely. The sum of two numbers is 16 and the sum of their squares is 146. Find the two numbers”; because whole learning modules only provide few formative questions and without answer keys. As a result, students are unable to double-check their activity responses. Furthermore, the three assessors gave the Bohol Division a very good overall rating of the quality elements of learning modules in terms of content, with a mean score of 3.67.

For the second quarter, the Bohol Division, receives lower ratings in the quality elements in terms of content in Item 4 “The material provides pre-tests to measure prior knowledge/schema,” is only fair by the assessors with the mean of 2.00 (Fair) since only the

questions for formative evaluations, which are multiple-choice, are provided or included in the learning module in topic problems involving systems of linear inequalities in two variables and the assessment stated that “Read each item carefully. Write the letter of the correct answer on your sheet. Show your solution on a separate sheet of paper. For example, in number 1 stated that “It is the set of all second coordinates. A. Relation, B. Domain, C. Range D. Function”, and there is no answer key provided and also this area in content indicates that the module in itself barely provides an assessment tool to know whether students have working knowledge on a certain topic. In addition, room for improvement should also be undertaken specifically to self-instructional materials to contain the well-organized definition of terms with the mean of 3.22 (Good), since it can be observed in the learning module 2 on the topic of problems involving systems of linear inequalities in two variables that the instructional materials stated “Steps in solving a system of linear inequalities in two variables by graphing. In example 1, solve the system $\{2x+y > 3\}$ and $\{-4x +3y < 6\}$,” but there are no steps provided on how to solve this given problem, and thus fails to help students to understand the material independently. Two indicators such as the systematic procedures and steps, and the self-check questions and answers to the formative assessments need little improvement, while the rest are rated excellent. The overall rating on the content in the learning modules from Bohol Division for the second quarter by the three assessors is very good with a mean rate of 3.92.

Table 3. Rating of the Face Validity of the Learning Modules in Grade 8 Mathematics from the Bohol Division for the First and Second Quarters

Item Statements	Bohol Division					
	First Quarter		Second Quarter		Overall	
	Mean	Q.D.	Mean	Q.D.	Mean	Q.D.
1. Layouts and overall design is appropriate.	4.00	Very Good	4.22	Excellent	4.11	Very Good
2. Still pictures contribute to the understanding of the subject matter.	3.56	Very Good	4.33	Excellent	3.95	Very Good
3. Visual presentations aid to easily understand the topic.	4.11	Very Good	4.44	Excellent	4.28	Excellent
4. Reading while focusing attention on key points and concepts are well-highlighted.	3.67	Very Good	3.89	Very Good	3.78	Very Good
5. Learning activities promotes active participation and response.	4.56	Excellent	3.44	Very Good	4.00	Very Good
6. Self-instructional material maps are creatively highlighted to help students understand better the subject matter.	3.33	Good	3.67	Very Good	3.50	Very Good
7. Self-instructional material appears interesting to the learners.	3.44	Very Good	3.67	Excellent	3.56	Very Good
8. Visual elements have been successfully integrated into learning sequence.	4.00	Very Good	4.11	Very Good	4.06	Very Good
Overall	3.71	Very Good	3.97	Very Good	3.84	Very Good

Face validity quality aspects, according to DepEd

Order No. 12, s. 2020, for layout and design. The “physical characteristics, format, and aesthetics of SLMs should be acceptable and properly organized.

Table 3 shows that the assessors gave excellent ratings to one of the eight indicators from the Bohol Division for the first quarter. However, the Bohol Division receives lower ratings in the quality elements in terms of face validity in item 6 “Self-instructional material maps are creatively highlighted to help students understand better the subject matter” with a mean of 3.33 (Good) because some of the assessments in learning module instruct that “for 6-7, kindly refer to the graph of the system of the linear below,” but there are no graphs or maps provided in the modules, and thus fails to meet a creatively highlighted to help students understand the subject matter better. Furthermore, the three assessors gave the Bohol Division a very good overall rating of the quality elements of learning modules in terms of face validity, with a mean score of 3.71.

Of the seven indicators of face validity of the module from the Bohol Division for the second quarter, four requires small improvement as they are rated very good by the assessors namely; on reading while focusing attention on key points and concepts that are well-highlighted with the mean of 3.89; learning activities that promote active participation and response with the mean of 3.44; self-instructional material maps are creatively highlighted to help students understand better the subject matter with the mean of 3.67; and visual elements have been successfully integrated into learning sequence with the mean of 4.11 since it can be observed in the module 2 on the topic of problems involving systems of linear inequalities in two variables that the instructional materials stated “An ordered pair (x,y) is a solution to a system of inequalities if it satisfies all the inequalities in the system. Graphically, the coordinates of a point that lie on the graphs of all inequalities in the system is part of its solution”, however, no graphics are supplied to assist students in comprehending the presented instances. With a mean grade of 3.84, the three assessors gave the face validity in the learning modules from Bohol Division a very excellent assessment for the second quarter.

The quality elements of suitability approach according to DepEd Order No. 12, s. 2020. The degree of knowledge is adequate for learning objectives, and the use of form and word is true to the level of requirements and interests of the prospective users.

Table 4. *Rating of the Suitability Approach of the Learning Modules in Grade 8 Mathematics from the Bohol Division for the First and Second Quarters*

Item Statements	Bohol Division					
	First Quarter		Second Quarter		Overall	
	Mean	Q.D.	Mean	Q.D.	Mean	Q.D.
1. The varying abilities of the learners are in consideration with the module.	3.56	Very Good	3.56	Very Good	3.56	Very Good
2. The activities fit the interest of the learners.	3.44	Very Good	3.78	Very Good	3.61	Very Good
3. The activities provide the needs of the learners	4.11	Very Good	4.11	Very Good	4.11	Very Good
4. The vocabulary load is appropriate to the level of the intended users.	4.00	Very Good	4.22	Excellent	4.11	Very Good
5. The language fragment used is suited to the prospective users.	4.11	Very Good	4.00	Very Good	4.06	Very Good
6. The form and wording used are appropriate to level of needs and interests of the prospective users.	3.89	Very Good	4.11	Very Good	4.00	Very Good
7. The level of knowledge is suited to the target learners.	3.89	Very Good	4.33	Excellent	4.11	Very Good
8. The activities are appropriate to the level of needed skills of the target learners.	3.56	Very Good	4.22	Excellent	3.89	Very Good
Overall	3.82	Very Good	4.04	Very Good	3.93	Very Good

Table 4 shows that all of the indicators from the Bohol Division for the first quarter were rated very good by the assessors. Furthermore, the three assessors gave the Bohol Division a very good overall rating of the quality elements of learning modules in terms of suitability approach, with a mean score of 3.82. Little improvement of the module of the Bohol Division is necessary especially in considering the learner, the activities, the language and wordings, and the form in the design of the module to suit the needs of the learners to attain quality excellence since the instructional activities in Learning Module 1 on the topic of different forms of polynomials said “Find the factors of the following,” yet only one exercise is supplied.

However, from the Bohol Division for the second quarter, all indicators of the modules are scored lower since they do not suit the learners' interests, and some of the activities are not acceptable for the target learners' level of essential abilities, because “Determine if each ordered pair is a solution of the system of linear equality $2x + y4x - 2y6$,” as stated in learning module 2, “Show your solution.” To complete this exercise, students must first examine the graph so that they can readily answer it and are motivated to do so. The study's findings reveal that the aspect of “Suitability of Approach” for the second quarter is rated as “very good” by the assessors, with a mean score of 4.04. This indicates that the language fragment utilized is appropriate for the intended users and that the activities meet the learners' needs.



Table 5. Rating of the Clarity of the Learning Modules in Grade 8 Mathematics from the Bohol Division for the First and Second Quarters

Item Statements	Bohol Division					
	First Quarter		Second Quarter		Overall	
	Mean	O.D.	Mean	O.D.	Mean	O.D.
1. The instruction is clear and easy.	4.56	Excellent	4.33	Excellent	4.45	Excellent
2. The pictures used in the self-instructional material are related to the scope of the lesson.	3.44	Very Good	4.44	Excellent	3.94	Very Good
3. The layout of the pages fits to the level of the intended users.	3.56	Very Good	4.33	Excellent	3.95	Very Good
4. The explanations in the self-instructional material are comprehensive to the users.	3.44	Very Good	3.33	Good	3.39	Very Good
5. The examples presented in the module are organized and clear.	3.89	Very Good	3.67	Very Good	3.78	Very Good
6. The sizes of the text are legible and clear to understand the concept or idea.	3.78	Very Good	3.89	Very Good	3.84	Very Good
7. The exercises or self-assessment is in relation with the lesson in the self-instructional material.	4.44	Excellent	4.67	Excellent	4.56	Excellent
8. The vocabulary used in the self-instructional material is easily understandable.	4.22	Excellent	4.44	Excellent	4.33	Excellent
Overall	3.92	Very Good	4.14	Very Good	4.03	Very Good

The quality elements of clarity according to DepEd Order No. 1 2, s. SLMs must “have coherence of clarity and concepts are free of grammar syntax spelling and punctuation mistakes and are consistent in style” by 2020.

Table 5 shows that three out of eight indicators were rated excellent by the assessors from the Bohol Division for the first quarter. However, in comparison to the other indicators, the Bohol Division is rated very good because the modules need more improvement and to clear set of pictures used in the self-instructional material is related to the scope of the lesson and the self-instructional material's explanations are not comprehensive to the users As can be observed, there are no pictures or visual presentations in learning module 1, however the other modules are available. Furthermore, the overall rating of the quality elements of learning modules in terms of clarity for Bohol Division by the three assessors is very good with a mean rate of 3.92.

For the second quarter of the Bohol Division, five out of eight indicators are rated excellent by the assessors. There needs to be little improvement of the module of Bohol Division on the areas related to organization and clarity of the examples with the mean rate of 3.67; the sizes of the text in order to be more understandable with the mean rate of 3.89; and in the quality elements of clarity in item 4 “The explanations in the self-instructional material are comprehensive to the users” with the mean 3.33 (Good) since it can be observed in the learning module 2 on the topic of problems involving systems of linear inequalities in two

variables that the instruction of the assessment stated that "Show below is a mathematical statement. Write LE for Linear Equation and LI for Linear Inequality”; this makes students confuse about where to answer since the instruction does not indicate where to write their answer. The assessment results imply that the study guide's questions and problems are meant to be measured and are based on the lessons delivered. This indicates that the outcome is still positive, with clear teaching behaviors and many variables influencing student achievements, such as communication skills, accommodating learner differences, clarity of explanations, and assessment procedures. However, some questions/problems are unnecessary and should be removed from the module.

Table 6. Rating of the Objectives of the Learning Modules in Grade 8 Mathematics from the City Division for the First and Second Quarters

Item Statements	City Division					
	First Quarter		Second Quarter		Overall	
	Mean	O.D.	Mean	O.D.	Mean	O.D.
1. The self-instructional material meets evidently the defined needs.	4.67	Excellent	4.44	Excellent	4.56	Excellent
2. The purpose of the self-instructional material has been made evident clear to all likely users.	4.56	Excellent	4.44	Excellent	4.50	Excellent
3. The self-instructional material introduction provides a clear coverage of the scope.	4.67	Excellent	4.44	Excellent	4.56	Excellent
4. The objective is evidently related to the purpose of the self-instructional material.	4.44	Excellent	4.22	Excellent	4.33	Excellent
5. All the general objectives are associated to the purpose of self-instructional material.	4.44	Excellent	4.67	Excellent	4.56	Excellent
6. The accomplishment of the general objectives is due to the clear set of specific objectives.	4.78	Excellent	4.67	Excellent	4.73	Excellent
7. The self-instructional material is clearly aligned to the purpose of the suitability of objectives.	4.78	Excellent	4.67	Excellent	4.73	Excellent
8. The objectives are attainable and measurable.	4.33	Excellent	4.33	Excellent	4.33	Excellent
Overall	4.58	Excellent	4.49	Excellent	4.54	Excellent

The table above shows that both quarters prepared by the Bohol Division in terms of the Objective element meet the required quality criteria as these are rated excellent by the assessors, i.e., mean of 4.58 and 4.49, respectively. Learners, parents, instructors, and assessors may all benefit from objective statements since they assist in defining the program and qualification aims and make it simpler for everyone involved to strive toward these goals and indicating a high quality of the material for student learning. It is to be noted that learning objectives are short statements that outline what students should know after the school year, course, unit, lesson, project, or class time. Teachers frequently use learning objectives to set interim academic goals for pupils who are working toward fulfilling more comprehensive learning standards.



Table 7. Rating of the Content of the Learning Modules in Grade 8 Mathematics from the City Division for the First and Second Quarters

Item Statements	City Division					
	First Quarter		Second Quarter		Overall	
	Mean	Q.D.	Mean	Q.D.	Mean	Q.D.
1. All the contents are aligned to the objectives.	4.67	Excellent	4.44	Excellent	4.56	Excellent
2. The contents have been arranged in simple to complex sequence.	4.22	Excellent	4.00	Very Good	4.11	Very Good
3. The materials form systematic procedures of steps.	4.44	Excellent	4.00	Very Good	4.22	Excellent
4. The material provides pre-tests to measure prior knowledge/schema	4.78	Excellent	4.67	Excellent	4.73	Excellent
5. Appropriate self-check questions and answers are provided for formative assessments.	4.78	Excellent	4.67	Excellent	4.73	Excellent
6. All self-check are directly relevant to the content of each selected topics	4.67	Excellent	4.67	Excellent	4.67	Excellent
7. All activities on selected topics are appropriate for their content and objectives.	4.89	Excellent	4.67	Excellent	4.78	Excellent
8. The self-instructional material contains well-organized definitions of terms.	4.11	Very Good	4.22	Excellent	4.17	Very Good
Overall	4.57	Excellent	4.42	Excellent	4.50	Excellent

In their Order No. 12 series 2020, the Department of Education said that they will verify whether modules achieve the aim of Most Essential Learning Competencies within the content element. This implies that each module's material should include everything pupils need to know while also ensuring that the texts and images are correct and error-free. The accomplishment of this goal will increase the reliability of the material and promote student learning.

Table 7 above shows only one of the indicators in the City Division learning modules was given very good and the rest got an excellent rating from all assessors that there are quite a several areas to work on the content of the modules in Grade 8 Mathematics. Although, overall, the assessors evaluate the City Division module as excellent, with a mean rating of 4.57. It demonstrates that the modules from City Divisions perform well in terms of the quality components of the content are aligned to the objectives and all activities on selected topics are appropriate to have been arranged in simple to the complex sequence.

For the second quarter form the City Division, six out of eight indicators are scored by assessors are excellent, while the other two arrangements of the material from simple to complex and the systematic procedures and steps are rated very good, and so only minor improvements are required to achieve excellence since it can be shown in module 2 on the topic of using systems of linear inequalities in two variables in real-life situations that “Graph the following and use crayon in shading” is mentioned in “What's in” in type B, because there are no

instructions offered, the learner will not comprehend. With a mean score of 4.42, it got an outstanding overall rating.

The content and context of learning objectives for activities are inextricably linked to the content and context of module and course objectives. The objectives should be consistent throughout activities, modules, and the whole course (University of Wisconsin System Board of Regents, 2016)

Table 8. Rating of the Face Validity of the Learning Modules in Grade 8 Mathematics from the City Division for the First and Second Quarters

Item Statements	City Division					
	First Quarter		Second Quarter		Overall	
	Mean	Q.D.	Mean	Q.D.	Mean	Q.D.
1. Layouts and overall design is appropriate.	4.56	Excellent	4.44	Excellent	4.50	Excellent
2. Still pictures contribute to the understanding of the subject matter.	4.22	Excellent	4.67	Excellent	4.45	Excellent
3. Visual presentations aid to easily understand the topic.	4.33	Excellent	4.67	Excellent	4.50	Excellent
4. Reading while focusing attention on key points and concepts are well-highlighted.	4.22	Excellent	4.56	Excellent	4.39	Excellent
5. Learning activities promotes active participation and response.	3.78	Very Good	4.22	Excellent	4.00	Very Good
6. Self-instructional material maps are creatively highlighted to help students understand better the subject matter.	4.11	Very Good	4.44	Excellent	4.28	Excellent
7. Self-instructional material appears interesting to the learners.	4.11	Very Good	4.22	Excellent	4.17	Very Good
8. Visual elements have been successfully integrated into learning sequence.	4.33	Excellent	4.44	Excellent	4.39	Excellent
Overall	4.21	Excellent	4.46	Excellent	4.34	Excellent

Figure 8. .

Basing on the Department of Education Order No. 12 series of 2020, the layout and design seek to guarantee that "the physical characteristics, format, and aesthetics of self-learning modules are suitable and properly structured." The physical characteristic of the module will help student-learners better understand the content of the material, as visuals and other presentations encourage higher learning than just pure words and texts.

It is noteworthy, that both modules from the first and second quarter prepared by the City Division are rated by the assessors excellent with the mean rate of 4.21 and 4.46, respectively. It shows that the modules perform well in terms of the face validity quality elements and that the learning activities encourage active involvement and reaction. It is already incorporated the necessary physical characteristic to attain the goal of the quality element of face validity. These ratings indicate that the activities and performance tasks in the module are relevant to the module's objectives and that the activities and performance tasks in the module serve as enrichment tasks for a clearer and better understanding of the



topics presented. The materials they have distributed to students meet all the necessary criteria to achieve the quality of learning based on the face validity element.

The end product should emphasize applying and integrating the information and skills learned in a specific unit of teaching. Lessons in the modules need less instructor supervision, and the design of each activity and performance challenge is centered on the objectives of each module's lesson. The drawings and images are well-organized, and visuals accompany certain concepts to promote learning via greater comprehension.

Table 9. Rating of the Suitability Approach of the Learning Modules in Grade 8 Mathematics from the Bohol Division for the First and Second Quarters

Item Statements	City Division					
	First Quarter		Second Quarter		Overall	
	Mean	Q.D.	Mean	Q.D.	Mean	Q.D.
1. The varying abilities of the learners are in consideration with the module.	4.11	Very Good	4.44	Excellent	4.28	Excellent
2. The activities fit the interest of the learners.	3.78	Very Good	3.78	Very Good	3.78	Very Good
3. The activities provide the needs of the learners	4.33	Excellent	4.00	Very Good	4.17	Very Good
4. The vocabulary load is appropriate to the level of the intended users.	4.44	Excellent	4.44	Excellent	4.44	Excellent
5. The language fragment used is suited to the prospective users.	4.33	Excellent	4.67	Excellent	4.50	Excellent
6. The form and wording used are appropriate to level of needs and interests of the prospective users.	4.11	Very Good	4.67	Excellent	4.39	Excellent
7. The level of knowledge is suited to the target learners.	4.22	Excellent	4.33	Excellent	4.28	Excellent
8. The activities are appropriate to the level of needed skills of the target learners.	4.11	Very Good	4.22	Excellent	4.17	Very Good
Overall	4.18	Very Good	4.33	Excellent	4.26	Excellent

According to the Department of Education Order No. 12, series of 2020, the degree of knowledge is adequate for learning objectives, and the use of form and word is true to the level of requirements and interests of the prospective users. Thus, when the users are considered in the design of the module, it can solicit greater interest from the students. More so, the form, the language, and the activities of the modules once suited to the needs and interests of the students, greater learning is expected.

Table 9 shows the rating of the assessors as to the suitability of approach of the modules from the City Division for the first quarter, four out of eight indicators in the City Division were rated excellent. This indicates that the language fragment utilized is appropriate for the intended users and that the activities meet the learners' needs. The City Division for the first quarter received a very good overall rating with a mean score of 4.18. It demonstrates that in terms of the quality aspects of the suitability approach, the modules' activities meet the requirements for the

learners, and the vocabulary load and language fragment are appropriate for the intended users' level.

On the other hand, from the City Division for the second quarter, five out of eight indicators in the City Division were rated excellent and the three are very good it means the activities are to be adjusted a bit to fit the needs and the interests of the students since it can be seen in Module 1 on topic differentiating linear inequalities in two variables from linear equations in two variables in the activity 1 the directions stated that "Shown below are sets of mathematical statements. Sort the mathematical statements inside the box by writing it in its proper row as shown in the table. Write your answer in a separate sheet", perhaps one example should be included in the box to pique the student's interest in answering or completing the exercise. All the other indicators not mentioned are scored excellent by the assessors which mean that these areas were able to achieve the quality of the module in terms of "Suitability of Approach."

Table 10. Rating of the Clarity of the Learning Modules in Grade 8 Mathematics from the City Division for the First and Second Quarters

Item Statements	City Division					
	First Quarter		Second Quarter		Overall	
	Mean	Q.D.	Mean	Q.D.	Mean	Q.D.
1. The instruction is clear and easy.	4.78	Excellent	4.67	Excellent	4.73	Excellent
2. The pictures used in the self-instructional material are related to the scope of the lesson.	4.44	Excellent	4.78	Excellent	4.61	Excellent
3. The layout of the pages fits to the level of the intended users.	4.67	Excellent	4.56	Excellent	4.62	Excellent
4. The explanations in the self-instructional material are comprehensive to the users.	4.33	Excellent	4.44	Excellent	4.39	Excellent
5. The examples presented in the module are organized and clear.	4.33	Excellent	4.44	Excellent	4.39	Excellent
6. The sizes of the text are legible and clear to understand the concept or idea.	4.67	Excellent	4.44	Excellent	4.56	Excellent
7. The exercises or self-assessment is in relation with the lesson in the self-instructional material.	4.67	Excellent	4.44	Excellent	4.56	Excellent
8. The vocabulary used in the self-instructional material is easily understandable.	4.56	Excellent	4.67	Excellent	4.62	Excellent
Overall	4.56	Excellent	4.56	Excellent	4.56	Excellent

The Department of Education Order No. 12 series of 2020 emphasized, that in terms of the clarity of the material, the self-learning modules should guarantee that they are "are devoid of grammatical, syntactic, spelling, and punctuation mistakes, and are consistent in style." The achievement of this goal will promote the reliability, validity, and quality of the learning material that will enhance the confidence of the students and users in the material itself.

Table 10 shows the score of the assessors to the "Clarity" element of the modules from the City Division for both first and second quarters; all of the



indicators were rated excellent by the assessors. In the overall rating, City Division modules for the first and second quarters are rated excellent with a mean value of 4.56. This means that the materials are clear to the users and are easily understood even for self-learners. It demonstrates that the modules satisfy the quality components of the objectives, as the teaching is clear and simple, and the exercises or self-assessment activities are related to the lesson in the self-instructional material.

Conclusion

Based on the data gathered and on the results of document analysis on expert evaluations of mathematics modules in Bohol Division and City Division reveal significant differences. In City Division, the discussion focused on determining prerequisite concepts and skills, identifying necessary learning activities, and preparing lessons based on content and references. The modules developed for City Division excelled in objectives, content, face validity, suitability of approach, and clarity.

Conversely, a notable learning gap was identified in Bohol Division modules, primarily attributed to resource constraints, leading instructors to omit portions of the actual content. However, the objectives, face validity, suitability of approach, and clarity of the developed modules were still rated as very good. This discrepancy in content coverage raises concerns about the overall quality and comprehensiveness of the learning experience for students in Bohol Division compared to their counterparts in City Division.

Addressing the resource challenges faced by Bohol Division is deemed crucial to ensuring a more equitable and effective learning environment. Despite these challenges, the learning modules have the potential to greatly assist students in independently grasping concepts and acquiring essential skills in Mathematics.

Based on the findings and conclusions of the study, the following recommendations are given: (1) Increase the number of evaluators or assessors to evaluate the various learning module criteria. (2) The future researchers may also conduct a study involving other subjects. (3) Future researchers may conduct a different study involving different levels of mathematics or different criteria of learning module to conduct a more in-depth evaluation from the first quarter to the fourth quarter or for the entire school

year to see the consistency of the learning modules' effectiveness.

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