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Least mastered skills and effective instruction in teaching general mathematics in the Philippines

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Abstract

This study examined the relationship between the profiles of 31 General Mathematics teachers and their engagement in effective instructional practices, focusing on how these factors impact the number of least-mastered skills among students in General Mathematics. The study used questionnaires to gather information about instructors' academic and professional backgrounds, classroom resources, and instructional strategies. The findings revealed varying levels of engagement among General Mathematics teachers in effective instructional practices. Key areas measured included interactions with peers, teachers' attitudes toward their profession, involvement in the teaching-learning process, limitations in teaching classes, classroom instruction effectiveness, encouraging students to engage in mathematical activities, confidence in teaching Mathematics, and monitoring student progress in Mathematics. Notably, factors affecting the number of least-mastered skills were linked to age, educational background, years of service, and possession of a postgraduate degree. Furthermore, a moderate positive correlation was observed between teachers' engagement in effective instruction, and skill mastery.

Keywords: Effective instruction; general mathematics; instructional strategies; least mastered skills

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1. INTRODUCTION

Mathematics proficiency is a system that is interconnected in students' learning in mathematics; this includes the previous knowledge and skills they need to effectively understand the new concepts in mathematics such as solving problems (Awofala et al., 2022). Furthermore, students can learn to much extent and become proficient mathematically when the environment is suitable for learning, have sufficient time to finish the task, and the learning task within the developmental stage of the students; the learning materials planned program, teaching, and evaluation are well structured (Awofala et al., 2022). In the Philippines, the least learned competencies are more on topics that are listed in the last part and those topics that are highly analytical of the three main divisions of General Mathematics. The possible reasons students had a hard time with these competencies were because of the difficulty of the topics, or those that were not discussed (Mamolo, 2019).

According to Article XIV, Section 5 (2) of the 1986 Philippine Constitution; teachers are encouraged to develop teaching and learning material such as workbooks, reference books, and modules that create meaningful learning journeys to enhance their understanding. It can be interpreted that teachers have a great responsibility to help students learn the scientific skills and concepts that they find hard to understand (Carbonneau, 2020; Cheng et al., 2024). In the educational process, teaching strategies and techniques such as instructional aids as print and non-printed materials can be utilized to eliminate negative attitudes of students towards their subject matter (Soltura, 2022; Wakhata et al., 2022; Lenz et al., 2024).

Several difficulties are also implicated in the low level of pupils' HOTS such as students having difficulties in solving mathematics problems in the national exam when it is written with contextual problems and narration (Retnawatiet et al., 2018). Yet with the help of effective teaching strategies these obstacles can be engaged like learning objectives, a sequence of learning activities, assessment, and evaluation are all part of the instructional materials. In the study of Jimenez and Stanger (2017), the use of math manipulatives in building students' mathematics skills was found to be a factor. In addition, students benefit from the use of manipulatives to learn early numeracy concepts, and they like doing so.

Soltura (2022) discovered that pupils believed they studied best when the teaching was less theoretical. This can be accomplished by going over the content with practical classes and demonstrations. Overall, students were more satisfied with the modular, self-directed approach to learning than with the previous, more convenient method of learning in the classroom (Soltura, 2022). Furthermore, the modular does not affect self-concept or learning methods, but affects motivation, anxiety about learning, and self-monitoring (Zhu et al., 2024). On the other hand, the findings of Robinson and Crittenden (as cited in Soltura, 2022) underlined the use of learning and modules.

While there are modalities and instructional designs that are not as effective as the self-directed approach, the study of Hwang & Lai, (2017) showed that some of the learning content in the out-of-class learning activities was abstract or difficult to understand, such as mathematics topics (Hwang & Lai, 2017). According to Hwang and Lai (2017), proper guidance helps students not become helpless but eventually succeed in acquiring knowledge in preparation for the next mathematical concept (Mason et al., 2013; Hwang & Lai, 2017).

Singer et al., (2016) emphasize that instruction must reflect modern brain science and communicate that anybody has the potential to learn mathematics effectively (Budak 2012; Singer et al., 2016), by focusing on students' profiles (Vilkomir and O'Donoghue 2009, Singer et al., 2016), and perhaps discuss how to foster the potential of math students who excel (Zmood 2014, Singer et al., 2016). The author found out that mathematically talented children cover a wide range of baseline skills, histories, and surroundings, as well as represent the view that most students have potential that, with sufficient instruction, can enable them to achieve far higher levels of mathematics performance (Singer et al.,

2016) While, metacognitive tools such as idea mapping, journal writing, and think-aloud may aid increase students' achievement when employed in Mathematical teaching and learning (Mamolo, 2019).

From previous studies, if the teacher is anxious about math, it signals that the teacher may simply lack the necessary mathematical understanding to teach mathematics (Novak & Tassell; 2017, Ramirez et al., 2018). The teacher may lack adequate mathematical expertise or knowledge for teaching mathematics in general. It is widely documented that many math-worried individuals have the essential arithmetic knowledge and techniques to be successful in math, but fears of failure make it difficult to properly access and use knowledge when it matters the most (Ramirez et al., 2018). Teacher quality, especially regarding certification and licensure, was found to be a more powerful predictor of student achievement than other factors, such as the teacher's degree level, in contributing to student learning gains(Sirait, 2016).

According to Sirait (2016), many studies suggest that the teacher is the most important factor in student performance. Furthermore, instructor traits have a major impact on student achievement. Teacher attributes such as educational background, experience, certificate status, leadership experience, perseverance, teacher evaluation score, and readiness for coursework are variables that a scholar must pay attention to, for student accomplishment (Sirait, 2016).

1.1. Purpose of study

The research and findings indicate that multiple interrelated variables contribute to effective learning in mathematics, as well as factors that hinder student progress in mathematics classrooms. This study, therefore, aimed to explore the key factors affecting learning outcomes in mathematics. The results provide a comprehensive map of the least mastered skills and the instructional factors most closely associated with effective mathematics teaching.

Specifically, this study sought to answer the following questions:

1. What is the profile of the G11 Mathematics teachers in terms of Gender, Age, Years in Teaching, Educational Background (Post Graduate, Professional Development attended for the last two years).

2. What are the least mastered skills in General Mathematics of the G11 students based on the assessment of the respondents?

3. What is the level of engagement of teachers in effective mathematics instruction in terms of: Interactions with other teachers; How they feel about being a teacher; The extent to which agree or disagree on other matters related to the teaching-learning process; Extent of limit in teaching classes; Doing class activities related to classroom instruction; Asking students to do the mathematics activities with the selected situations; Being confident in teaching Mathematics; Monitoring students' program in mathematics?

4. Is there a significant relationship between the profile of the G11 Mathematics teachers and the level of the least mastered?

5. Is there a significant relationship between the profile of the G11 Mathematics teachers and the level of engagement of teachers in effective mathematics instruction?

6. Is there a significant relationship between the level of engagement of teachers in effective mathematics instruction and the least mastered skills?

2. METHODS AND MATERIALS

This study utilized the descriptive correlational research design (Stangor & Walinga 2019) to measure the relationship between the profile of the teachers-respondent, the level of engagement of teachers in Grade 11 teacher in General Mathematics, and the level of least mastered skills in General Mathematics in selected senior high schools in the Division of Rizal. A correlation research strategy is

used to measure two or more variables to determine the extent to which the variables are connected (Alshmemri et al., 2017). According to Cresswell and Guettemann (2019), correlation research includes the display of scores and multiple variable analysis. A descriptive design, on the other hand, stresses an explanation of the relationship between and among variables (Seeram, 2019).

2.1. Participants

In this study, there were 31 respondents from different schools in the division of Rizal, Philippine.

2.2. Data collection instrument

The Trends in International Mathematics and Science Study (TIMSS) tracks global trends in student achievement in mathematics and science, providing insights into disparities across educational systems in nearly 60 countries. This study leverages the TIMSS Teacher Questionnaire (2015) to collect comprehensive data on teachers' academic and professional backgrounds, classroom resources, instructional strategies, and attitudes toward teaching. TIMSS assesses a broad range of problem-solving skills in mathematics, with approximately two-thirds of the tasks requiring students to apply reasoning and analytical skills. Although the cognitive domains remain consistent across different contexts, TIMSS adjusts the focus based on evolving educational priorities.

This investigation will specifically utilize the TIMSS Teacher Questionnaire Mathematics (2015), with selected items focusing on the following questions: (1) teacher profiles and (2) questions regarding being a teacher, such as #9 How frequently do you have the following types of contacts with other teachers? #10-How often do you feel the following about your job as a teacher? #11-Indicate how much you agree or disagree with each of the following statements. #14 How frequently do you do the following in this class? #15 How do the following, in your opinion, limit how you teach this class? #17-How would you describe your confidence in doing the following when teaching mathematics to this class? #18 How frequently do you ask pupils to undertake the following when teaching mathematics in this class? #23 How important do you think the following sources are for monitoring students' mathematical progress? #24 Have you participated in any of the following professional development activities in the last two years? The items in the TIMSS questionnaire were purposefully chosen to be consistent with the study's structure and limitations. Furthermore, the TIMSS questionnaire was chosen because the Philippines often ranks last in various international evaluations. As a result, let the data acquired in this study serve as the baseline data for developing the TIMSS/PISA standard of mathematics teaching.

The questionnaire was validated by the three (3) master teachers in mathematics. Master teachers in public senior schools are considered instructional leaders and masters in their specialization of which in this case they are masters in mathematics. The survey questionnaire underwent a dry run before it was fielded through Google Forms.

2.3. Data collection procedure

This section presents the data-gathering tool and its sources. The first section of the survey questionnaire collected the respondents' profiles, while data on the least mastered skills were gathered based on teachers' responses regarding students' mastery of various learning competencies. Teachers indicated which competencies their students had mastered, with competencies left unchecked identified as "least mastered" for each specific teacher. Responses were then tallied and ranked to determine which competencies were not commonly mastered among students, based on feedback from the 31 General Mathematics teachers.

This data is readily available and reliable, as teachers regularly encode test results into the division database following each quarterly exam, providing accurate insights into students' mastery or non-mastery of specific topics.

3. RESULTS

This section contains information about the results of the study and the analysis and interpretation of data gathered with the use of the adapted statistical measures. The presentation includes a narrative discussion of the results and implications of the data gathered which are illustrated in tables.

3.1. Problem No. 1. Profile of the teachers in terms of gender, age, years in teaching, educational background, postgraduate, and professional development attended for the last two years.

Table 1
Profile of the respondent in terms of gender

Gender	Frequency	Percentage
Male	14	45.2
Female	17	54.8
Total	31	100.0

In this study, there were 31 respondents from different schools of the division of Rizal of which 14 of the respondents were male or 45 % of the sample population, and 17 were female or 55% of the sample population (table 1).

Table 2
Profile of the respondent in terms of age

Age	Frequency	Percentage
25 years old & below	1	3.2
26 – 35 years old	7	22.6
36 – 45 years old	14	45.2
46 – 55 years old	7	22.6
56 years old & above	2	6.5
Total	31	100.0

Table 2 is the profile of the respondents in terms of age. It is distributed as follows: one respondent from the group of 25 years old and below; seven respondents from the group ages 26-35 years old; 14 respondents belong to 36-45 years old; seven from 46-55 years old; and two from ages 56 and above. According to the table, the majority of the respondents belong to the ages 36-45 years with 45 percent.

Table 3
Profile of the Respondent in Terms of Years in Teaching

Years in Teaching	Frequency	Percentage
5 Years & below	2	6.5
6-10 years	11	35.5
11-20 years	13	41.9
21 years and above	5	16.1
Total	31	100.0

Table 3 presents the profile of the respondents in terms of years of teaching/teaching experience. Forty-two percent of the respondents or 13 respondents had 11 to 20 years of teaching, followed by thirty-six percent with six to ten years of teaching experience. The second lowest number is 16 percent, or five respondents with above 21 years of experience, and only two teachers had below five years of teaching experience.

Table 4
Profile of the respondent in terms of educational background

Educational Background	Frequency	Percentage
BSE	19	61.3
BS with Units	9	29.0
Other	3	9.7
Total	31	100.0

Table 4 presents the profile of the respondents in terms of educational background. In Table 4, the majority of the respondents are graduates of Bachelor of Secondary Education with 19 respondents or 61 percent, nine respondents or 29 percent are graduates of Bachelor in Mathematics with units in education, and only three respondents are non-major or not related.

Table 5
Profile of the respondent in terms of post-graduate

Post Graduate	Frequency	Percentage
MA Mathematics	19	61.3
Without MA	12	38.7
Total	31	100

Table 5 presents the profile of the respondents in terms of whether they a post-graduate or not. The data indicates that 61 percent of the respondents hold a master's degree in mathematics, while 39 percent do not.

Table 6
Profile of the respondent in terms of professional development attended for the last two years

Professional Development	Yes		No	
Attended	Frequency	Percentage	Frequency	Percentage
a) Mathematics content	22	71	9	29
b) Mathematics pedagogy/instruction	18	58.1	13	41.9
c) Mathematics curriculum	13	41.9	18	58.1
d) Integrating information technology into mathematics	17	54.8	14	45.2
e) Improving students' critical thinking or problem-solving skills	13	41.9	18	58.1
f) Mathematics assessment	11	35.5	20	64.5
g) Addressing individual students' needs	16	51.6	15	46.4

Table 6 presents the respondents' profiles regarding professional development topics attended. The data reveals that 65 percent participated in sessions focused on mathematics assessment, 58 percent on enhancing critical thinking and problem-solving skills, 46 percent on addressing individual students' needs, 45 percent on integrating technology into mathematics, 42 percent on mathematics pedagogy and instructional methods, and only 29 percent attended sessions centered on mathematics content.

3.2. Problem No. 2. Least mastered skills in General Mathematics of the G11 students by on the assessment of the respondents.

Table 7
Distribution of Learning Competencies Most Likely Not Mastered by the Students According to the Respondents

Learning Competencies of General Mathematics	Frequency	Percentage	Rank
Solves problems involving exponential functions, equations, and inequalities.	23	76.67	1
Represents a logarithmic function through its: (a) table of values, (b) graph, and (c) equation.	23	76.67	2
Finds the domain and range of a logarithmic function.	23	76.67	3
Solves problems involving logarithmic functions, equations, and inequalities.	23	76.67	4
Represents an exponential function through its: (a) table of values, (b) graph, and (c) equation.	22	73.33	5
Determines the intercepts, zeroes, and asymptotes of logarithmic functions.	22	73.33	6
Determines the intercepts, zeroes, and asymptotes of an exponential function.	21	70.00	7

Solves problems involving inverse functions.	20	66.67	8
Solves exponential equations and inequalities.	19	63.33	9
Represents real-life situations using logarithmic functions.	19	63.33	10
Determines the: (a) intercepts; (b) zeroes; and (c) asymptotes of rational functions	18	60.00	11
Represents real-life situations using one-to-one functions.	18	60.00	12
Represents real-life situations using exponential functions.	18	60.00	13
Distinguishes logarithmic function, logarithmic equation, and logarithmic inequality.	18	60.00	14
Solves logarithmic equations and inequalities.	18	60.00	15
Represents an inverse function through its: (a) table of values, and (b) graph.	17	56.67	16
Finds the domain and range of an inverse function.	17	56.67	17
Finds the domain and range of an exponential function.	17	56.67	18
Distinguishes rational function, rational equation, and rational inequality.	16	53.33	19
Solves rational equations and inequalities.	16	53.33	20
Represents a rational function through its: (a) table of values, (b) graph, and (c) equation.	16	53.33	21
Finds the domain and range of a rational function.	16	53.33	22
Distinguishes between exponential function, exponential equation, and exponential inequality.	16	53.33	23
Solves problems involving functions.	15	50.00	24
Solves problems involving rational functions, equations, and inequalities.	15	50.00	25
Represents real-life situations using rational functions.	13	43.33	26
performs addition, subtraction, multiplication, division, and composition of functions	12	40.00	27
Determines the inverse of a one-to-one function.	11	36.67	28
Represents real-life situations using functions, including piece-wise functions.	10	33.33	29
Evaluates a function.	9	30.00	30

Table 7 presents the distribution and ranking of the learning competencies most likely not mastered by the students according to the respondents. The result was presented in ranks. The number of least mastered skills was ranked as 1 and the lowest number of least mastered skills. Hence, the findings show that: (1) Solves problems involving exponential functions, equations, and inequalities; (2) Represents a logarithmic function through its: (a) table of values, (b) graph, and (c) equation; (3) Finds the domain and range of a logarithmic function; (4) Solves problems involving logarithmic functions, equations, and inequalities get same number, hence, they rank as 1-4. The findings indicated that the topic "evaluating functions" had the lowest number of instances marked as "not mastered," suggesting it was one of the more successfully mastered skills among students.

3.3. Problem No. 3. Level of engagement of teachers in effective mathematics instruction.

Table 8

Level of engagement of teachers in effective instruction in terms of interactions with other teachers

Interactions with other teachers	WM	VI
1. Discuss how to teach a particular topic	3.10	O
2. Collaborate in planning and preparing instructional materials	3.10	O
3. Share what I have learned about my teaching experiences	3.26	O
4. Visit another classroom to learn more about teaching	2.39	S
5. Work together to try out new ideas	2.87	O
6. Work as a group on implementing the curriculum	3.06	O
7. Work with teachers from other grades to ensure continuity in learning	2.74	O
Composite Mean	2.93	**O**

Note: 4(4.00-3.50) – Very Often (VO) Observed, 3(3.49-2.50)–Often (O) Observed, 2(2.49-1.50)-Sometimes(S) Observed, 1(1.00-1.49)-Never/Almost Never (N/AN) Observed

Teachers' engagement in effective mathematics instruction in terms of interaction with other teachers is one of the criteria given in the TIMSS (2015). According to the survey results from selected General Mathematics teachers, Table 8, indicator number 3, shows that teachers share their insights and experiences related to their teaching practices, with a mean score of 3.26. Considering this is the highest among the criteria still, this is interpreted as often observed. Another criterion that posited a significant one is criterion number 2. Number 2 showed that teachers are collaborating in terms of planning and preparation of instructional materials with a 3.10 mean with verbal interpretation as often observed, same result with criteria number 1, showed that teachers discussed their topic to their co-teachers as part of their engagement in effective teaching in General Mathematics. Lastly, one of the least criteria that they selected is visiting or observing another classroom to learn more about teaching which is interpreted as seldom it is observed. Overall, the level of engagement of the respondents in these criteria is often observed with a composite mean of 2.93.

Table 9

Level of engagement of teachers in effective instruction in terms of how often the respondents feel about being a teacher

	Feel About Being a teacher	WM	VI
1.	I am content with my profession as a teacher	3.29	O
2.	I am satisfied with being a teacher at this school	3.39	O
3.	I find my work full of meaning and purpose	3.45	O
4.	I am enthusiastic about my job	3.45	O
5.	My work inspires me	3.32	O
6.	I am proud of the work I do	3.68	VO
7.	I am going to continue teaching for as long as I can	3.42	O
	Composite Mean	3.43	**O**

Note: 4(4.00-3.50) – Very Often (VO) Observed, 3(3.49-2.50)–Often (O) Observed, 2(2.49-1.50)-Sometimes(S) Observed, 1(1.00-1.49)-Never/Almost Never (N/AN) Observed

Significantly, item number 6 stands out among the rest. It is about how the teachers are proud of their work own work with a 3.68 mean interpreted as very observed, while being contended for being a teacher as their profession rank as the lowest level. Nevertheless, table 9 showed all items aside from number 6 are under observed level highlighting items such as 'they find their work full meaning and purpose;' 'being enthusiastic;' they are inspired by their work, and even commit to 'continue teaching as they can.' The composite means of teachers' engagement in effective instruction in terms of the feeling of the respondents of being a teacher is 3.43, interpreted as 'often observed.'

Table 10

Level of engagement of teachers in effective instruction in terms of the extent to which the respondents agree or disagree

	Teacher's Agreement and Disagreement on:	WM	VI
1.	There are too many students in the classes	3.23	O
2.	I have too much material to cover in class	3.06	O
3.	I have too many teaching hours	2.90	O
4.	I need more time to prepare for class -	3.26	O
5.	I need more time to assist individual students	3.55	VO
6.	I feel too much pressure from my parents	1.97	S
7.	I have difficulty keeping up with all of the changes to the curriculum	2.45	S
8.	I have too many administrative class	3.06	O
9.	I have too many administrative tasks	3.05	O
	Composite Mean	**2.94**	**O**

Note: 4(4.00-3.50) – Very Often (VO) Observed, 3(3.49-2.50)–Often (O) Observed, 2(2.49-1.50)-Sometimes(S) Observed, 1(1.00-1.49)-Never/Almost Never (N/AN) Observed

Table 10 shows the level of engagement of teachers in effective instruction, in terms of the extent to which they agree or disagree with selected concerns on the teaching and learning process. The result showed that there were variations of levels observed: like in item number 5 'I need more time to assist individual students' remarkably marked as very observed with 3.55 mean. Other concerns such as the number of students in the classroom, topic coverage, teaching hours, time of preparation, and administrative tasks are marked as often observed. Concern with the difficulty in keeping up with the changes to the curriculum was marked as the least observed with a 2.45 mean. Overall, the engagement of teachers in effective instruction in terms of selected concerns on teaching and learning process with the composite mean of 2.94, still leveled as 'often observed.'

Table 11

Level of engagement of teachers in effective instruction in terms of extent of limit in teaching class

	Limit in the Class	WM	VI
1.	Students lacking prerequisite knowledge or skills	3.74	VO
2.	Students suffering from a lack of basic nutrition	2.52	O
3.	Students suffering from not enough sleep	2.71	O
4.	Disruptive students	2.81	O
5.	Uninterested students	3.03	O
6.	Students with physical disabilities	2.03	S
7.	Students with mental, emotional, or psychological disabilities	2.32	S
	Composite Mean	2.74	**O**

Note: 4(4.00-3.50) – Very Often (VO) Observed, 3(3.49-2.50)–Often (O) Observed, 2(2.49-1.50)-Sometimes(S) Observed, 1(1.00-1.49)-Never/Almost Never (N/AN) Observed

Table 11 shows the level of engagement of teachers in effective instruction in terms of the extent of limits in teaching classes. The result showed that there is a variation in the level of which item number 1 (Students lacking prerequisite knowledge or skills) ranks at the highest level with the mean of 3.74 which is interpreted as 'very often observed.' Other significant items from Table 11 are on 2-4 (students suffering from lack of basic nutrition, students suffering from not enough sleep, disruptive students, and uninterested students) were leveled as 'often observed' with a mean averaging from 2.52-3.03. While items on students with physical disabilities and students with mental, emotional, or psychological disabilities are leveled as 'sometimes observed.' Overall, the level of engagement of respondents in terms of the extent of limit in the classroom is 'often observed' with a composite mean of 2.74.

Table 12

Level of Engagement of Teachers in Effective Instruction in Terms of Doing the Following Statements in Class

	Doing class activities related to classroom instruction	WM	VI
1.	Relate the lesson to students' daily lives	3.58	VO
2.	Ask students to explain their answers	3.45	O
3.	Ask students to complete challenging exercises that require them to go beyond the instruction	3.23	O
4.	Encourage classroom discussions among students	3.65	VO
5.	Link new content to students' prior knowledge	3.68	VO
6.	Ask students to decide their problem-solving procedures	3.35	O
7.	Encourage students to express their ideas in class	3.61	VO
	Composite Mean	3.51	**VO**

Note: 4(4.00-3.50) – Very Often (VO) Observed, 3(3.49-2.50)–Often (O) Observed, 2(2.49-1.50)-Sometimes(S) Observed, 1(1.00-1.49)-Never/Almost Never (N/AN) Observed

Table 12 presents the level of engagement of teachers in effective instruction in terms of doing the following statements in class. Significantly, four (4) out of seven (7) marked as 'very often observed'

these concerns as follows: (1) related the lesson to the students' daily lives; (2) encouraged classroom discussions among students; (3) link new content to students' prior knowledge, and (4) encourage students to express their ideas in class. The rest items are marked as 'often observed.' These items are about asking students to explain their answers; asking students to complete challenging exercises that require them to go beyond the instruction, and encouraging them to decide their problem-solving procedures. Overall, the level of engagement of teachers in effective instruction in terms of facilitating instruction in the classroom was marked as 'often observed' with a composite mean of 3.51.

Hwang & Lai, (2017) emphasize the importance of designing in-class learning activities to engage students in higher-order thinking. It allows teachers to implement multiple learning strategies in their classroom and creates a dynamic and interactive learning environment for students to apply knowledge and engage in project-based learning or inquiry learning (Hwang & Lai, 2017).

Table 13

Level of Engagement of Teachers in Effective Instruction in Terms of How Often the Respondents Ask the Following Statements

	Asking students to do the mathematics activities with the selected situations	**WM**	**VI**
1.	Listen to me explain new mathematics content -	3.58	VO
2.	Listen to me explain how to solve problems	3.58	VO
3.	Memorize rules, procedures, and facts	3.10	O
4.	Work problems (individually or with peers) with my guidance	3.45	O
5.	Work problems together with the whole class with direct guidance from me	3.42	O
6.	Work problems (individually or with peers) while I am occupied by other tasks -	2.81	O
7.	Work on problems for which there is no immediately obvious method of solution	2.74	O
8.	Take a written test or quiz	3.42	O
9.	Work in mixed-ability groups	3.19	O
10.	Work in same ability groups	2.94	O
	Composite Mean	3.22	**O**

Note: 4(4.00-3.50) – Very Often (VO) Observed, 3(3.49-2.50)–Often (O) Observed, 2(2.49-1.50)-Sometimes(S) Observed, 1(1.00-1.49)-Never/Almost Never (N/AN) Observed

Table 13 presents the level of engagement of teachers in effective instruction in terms of how often the respondents ask their students about the following concerns as stated in Table 13. In this table, the respondents gave prompts to their students to: "listen to me explain new mathematics content" and listen to me explain how to solve problems" marked as 'very often observed.' While the rest of the items in Table 13 marked as 'often observed' with the highest mark on "work problem (individually or with peers) with my guidance, second by "work problems together in the whole class with direct guidance from me" and take a written quiz.' The lowest level in 'often observed' is "work on problems for which there is no immediately obvious method of solution. The overall level of engagement of teachers in effective instruction in terms of how often the respondents ask their students how effectively learn in the classroom is marked as 'often observed' with a composite mean of 3.22.

Table 14

Level of engagement of teachers in effective instruction in terms of confidence in teaching

	Being confident in teaching Mathematics	**WM**	**VI**
1.	Inspiring students to learn mathematics -	3.71	VO
2.	Showing students a variety of problem-solving strategies	3.65	VO
3.	Providing challenging tasks for the highest-achieving students	3.52	VO
4.	Adapting my teaching to engage students' interest	3.61	VO
5.	Helping students appreciate the value of learning mathematics	3.71	VO
6.	Assessing student comprehension of mathematics	3.55	VO
7.	Improving the understanding of struggling students	3.48	O
8.	Take a written test or quiz	3.52	VO
9.	Making mathematics relevant to students	3.77	VO
10.	Developing students' higher-order thinking skills	3.65	VO

Composite Mean	3.62	**VO**

Note: 4(4.00-3.50) – Very Often (VO) Observed, 3(3.49-2.50)–Often (O) Observed, 2(2.49-1.50)-Sometimes(S) Observed, 1(1.00-1.49)-Never/Almost Never (N/AN) Observed

Table 14 presents the level of engagement of teachers in effective instruction in terms of confidence in teaching. Remarkably majority of the items marked as 'very 'often observed' on the note on "making Mathematics relevant to students" with a mean of 3.77, followed by "inspiring students to learn Mathematics" with a mean of 3.71, a similar level with "helping students appreciate the value of learning mathematics "developing students' higher order thinking skills" with a mean of 3.65, same with 'showing students a variety of problem-solving strategy. While item on "improving the understanding of struggling students" is marked as 'often observed,' also, rank the as the lowest level in this concern. Overall, the level of engagement of respondents in terms of confidence in teaching is marked as 'very often observed' with a composite mean of 3.62.

About these findings, a study found that accomplishment motivation and self-concept were substantially related to students' academic achievement in mathematics (Bal-Taştan et al., 2018). Furthermore, it is anticipated that assessing students' implicit motivations may aid in determining the suitability of students' long-term goals and academic progress in science education. People with high achievement motivation are focused on achieving their goals and are generally proactive (Liou et al., 2024). According to Bal-Taştan et al., (2018), students are influenced by the need to achieve a given level, and programs that require them to strive harder to achieve their goals.

Table 15

Level of engagement of teachers in effective instruction in terms of monitoring students' program in mathematics

	Monitoring students' programs in mathematics	**WM**	**VI**
1.	Assessment of students' ongoing work	2.68	ME
2.	Classroom tests (for example, teacher-made or textbook tests) -	2.61	ME
3.	National or regional achievement tests	2.29	SM
	Composite Mean	**2.52**	**ME**

Note: 3(3.00-2.50)–Major Emphasis (ME), 2(2.49-1.50)-Some Emphasis (SE), 1(1.00-1.49)-Little or No Emphasis (L/NE)

Table 15 shows the level of engagement of teachers in effective instruction in terms of monitoring students' programs in mathematics the table shows teacher-respondent give a major emphasis on: "assessment of students' ongoing work;" "classroom test (for an example-teacher-made test or textbook tests)." In terms of "national or regional achievement tests," it showed that the respondents gave less emphasis with a mean of 2.29. Overall, the level of engagement of teachers in effective instruction in terms of monitoring students' programs in mathematics is still in 'major emphasis with a composite mean.

Various obstacles also implicate the low level of students' HOTS, they mark difficulties when solving math problems in the national exam with contextual problems and narration (Retnawati et al., 2018).

3.4. Problem No. 4. Relationship between the profile of the G11 Mathematics teachers and the level of the least mastered.

Table 16

Relationship between the profile of the g11 mathematics teachers and the level of least mastered

Profile Variable	Computed Chi-Square Value	p-value	Interpretation	Decision
Gender	2.325	0.432	Not Significant	Do not Reject the Ho
Age	15.342	0.039	Significant	Reject the Ho
Years in Teaching	14.563	0.045	Significant	Reject the Ho
Educational Background	3.254	0.324	Not Significant	Do not Reject the Ho

Post Graduate	4.556	0.214	Not Significant	Do not Reject the Ho
Professional Development	4.324	0.265	Not Significant	Do not Reject the Ho

Note: p-value ≤ 0.05 – significant, p-value > 0.05 – not significant

Table 16 presents the relationship profile of the respondents and the level of least mastered skills. It showed that in terms of age and years in teaching/ experience, there is a significant relationship because the p-value is lower than 0.05 (p=0.03 and 0.045). Other aspects such as educational background, post-graduate, and professional development.

Rafferty et al., (2020) relate that their study demonstrates the relationship between students' equation-solving and assessment to experienced teachers.

3.5. Problem No. 5. Relationship between the profile of the G11 Mathematics teachers and the level of engagement of teachers in effective mathematics instruction.

Table 17

Relationship between the profile of the g11 mathematics teachers and the level of engagement of teachers in effective mathematics instruction in terms of interactions with other teachers

Profile Variable	Computed Chi-Square Value	p-value	Interpretation	Decision
Gender	2.799	0.247	Not Significant	Do not Reject the Ho
Age	18.885	0.033	Significant	Reject the Ho
Years in Teaching	1.926	0.926	Not Significant	Do not Reject the Ho
Educational Background	7.272	0.122	Not Significant	Do not Reject the Ho
Post Graduate	6.725	0.151	Not Significant	Do not Reject the Ho
Professional Development	2.132	0.323	Not Significant	Do not Reject the Ho

Note: p-value ≤ 0.05 – significant, p-value > 0.05 – not significant

Table 17 presents the relation between the profile of the respondents and the level of engagement of teachers in effective Mathematics instruction in terms of their interaction with other teachers focused on the following aspects: (1) Discuss how to teach a particular topic; (2) Collaborate in planning and preparing instructional materials; (3) Share what I have learned about my teaching experiences; (4) Visit another classroom to learn more about teaching; (5) Work together to try out new ideas; (6) Work as a group on implementing the curriculum; and (7) Work with teachers from other grades to ensure continuity in learning.

Utilizing the Chi-square test of independence to analyze the relationship between the profile of the respondents and the level of engagement of teachers in effective Mathematics instruction in terms of their interaction with other teachers, the result showed that only age was found to be significant with the p-value of 0.033 at 0.05 critical level. With this result the hypothesis was rejected, other factors such as gender, years of teaching, educational background postgraduate, and professional development were found not to be significant.

Table 18

Relationship Between the Profile of the G11 Mathematics Teachers and the Level of Engagement of Teachers in Effective Mathematics Instruction in Terms of How Often the Respondents Feel About Being a teacher

Profile Variable	Computed Chi-Square Value	p-value	Interpretation	Decision

Gender	0.794	0.672	Not Significant	Do not Reject the Ho
Age	6.164	0.629	Not Significant	Do not Reject the Ho
Years in Teaching	5.984	0.425	Not Significant	Do not Reject the Ho
Educational Background	1.555	0.817	Not Significant	Do not Reject the Ho
Post Graduate	15.674	0.040	Significant	Reject the Ho
Professional Development	3.017	0.807	Not Significant	Do not Reject the Ho

Note: p-value ≤ 0.05 – significant, p-value > 0.05 – not significant

Table 18 is the analyzed data on the relationship between the profile of the respondents and the level of engagement of teachers in effective Mathematics instruction in terms of how often the respondents feel about being a teacher focused on the constructs: (1) I am content with my profession as a teacher; (2) I am satisfied with being a teacher at this school; (3) I find my work full of meaning and purpose; (4) I am enthusiastic about my job; (5) My work inspires me; (6) I am proud of the work I do; and (7) I am going to continue teaching for as long as I can.

The result showed that having a post-graduate or master's degree in Mathematics is a factor as shown in the result with a p-value of 0.04, hence, the decision is to reject the null hypothesis. Other factors such as gender, age, years in service educational background, and professional development were found to be not significant as the results showed the p-value is greater than the critical value of 0.05 alpha, hence, the decision is not to reject the null hypothesis.

Table 19

Relationship between the profile of the g11 mathematics teachers and the level of engagement of teachers in effective mathematics instruction in terms of the extent to which the respondents agree or disagree

Profile Variable	Computed Chi-Square Value	p-value	Interpretation	Decision
Gender	0.861	0.650	Not Significant	Do not Reject the Ho
Age	6.627	0.577	Not Significant	Do not Reject the Ho
Years in Teaching	16.526	0.036	Significant	Reject the Ho
Educational Background	4.320	0.364	Not Significant	Do not Reject the Ho
Postgraduate	1.588	0.811	Not Significant	Do not Reject the Ho
Professional Development	4.592	0.597	Not Significant	Do not Reject the Ho

Note: p-value ≤ 0.05 – significant, p-value > 0.05 – not significant

Table 19 is the analyzed data on the relationship between the profile of the respondents and the level of engagement of teachers in effective mathematics instruction in terms of the agreement and disagreement of teachers on the following: (1) There are too many students in the classes; (2) I have too much material to cover in class; (3) I have too many teaching hours; (4) I need more time to prepare for the class; (5) I need more time to assist individual students; (6) I feel too much pressure from parents; (7) I have difficulty keeping up with all of the changes to the curriculum ; (8) I have too many administrative class; and (9) I have too many administrative tasks.

The analyzed data using the Chi-square of independence revealed that years in teaching were found to be significant with a p-value of 0.036 and since the p-value is less than the critical level of 0.05 alpha the decision is to reject the null hypothesis. While, gender, age, educational background, postgraduate,

and professional development were found to be not significant as Table 20 showed their values are less than the critical value of 0.05, hence, the decision is to not reject the null hypothesis.

Table 20

Relationship between the profile of the g11 mathematics teachers and the level of engagement of teachers in effective mathematics instruction in terms of the extent of limit in teaching class

Profile Variable	Computed Chi-Square Value	p-value	Interpretation	Decision
Gender	1.283	0.783	Not Significant	Do not Reject the Ho
Age	9.448	0.664	Not Significant	Do not Reject the Ho
Years in Teaching	9.329	0.407	Not Significant	Do not Reject the Ho
Educational Background	13.669	0.034	Significant	Reject the Ho
Postgraduate	5.047	0.538	Not Significant	Do not Reject the Ho
Professional Development	8.474	0.487	Not Significant	Do not Reject the Ho

Note: p-value ≤ 0.05 – significant, p-value > 0.05 – not significant

Table 20 is the result of the analyzed data on the relationship between the profile of the respondents and the level of engagement of teachers in effective mathematics instruction in terms of the extent of limits in teaching classes such as (1) Students lacking prerequisite knowledge or skills; (2) Students suffering from lack of basic nutrition: (3) Students suffering from not enough sleep; (4) Disruptive students; (5) Uninterested students; (6) Students with physical disabilities; and (7) Students with mental, emotional, or psychological disabilities.

Among the profiles, the educational background was found to be significant using Chi-square independence with a p-value of 0.034 which is less than the value of the critical value of 0.05 alpha. Hence, the decision is to reject the null hypothesis. Other profiles such as gender, age, years in teaching, postgraduate, and professional development are found to be not significant as the results showed that the values of their p-value are greater than the critical value of 0.05 alpha. In this regard, the decision is not to reject the null hypothesis.

Table 21

Relationship Between the Profile of the G11 Mathematics Teachers and the Level of Engagement of Teachers in Effective Mathematics Instruction in Terms of Doing the Following Statements in Class

Profile Variable	Computed Chi-Square Value	p-value	Interpretation	Decision
Gender	0.853	0.653	Not Significant	Do not Reject the Ho
Age	6.112	0.635	Not Significant	Do not Reject the Ho
Years in Teaching	2.540	0.864	Not Significant	Do not Reject the Ho
Educational Background	0.792	0.939	Not Significant	Do not Reject the Ho
Postgraduate	4.053	0.399	Not Significant	Do not Reject the Ho
Professional Development	4.533	0.605	Not Significant	Do not Reject the Ho

Note: p-value ≤ 0.05 – significant, p-value > 0.05 – not significant

Table 21 presents the relationship between the profile of the respondents and the level of engagement of teachers in effective instruction in mathematics instruction in terms of doing the

following statements such as: (1) relate the lesson to students' daily lives; (2) ask students to explain their answers; (3) Ask students to complete challenging exercises that require them to go beyond the instruction; (4) Encourage classroom discussions among students; (5) Link new content to students' prior knowledge; and (6) ask students to decide their problem-solving procedures in their class are found to be not significant. Hence, the decision is not to reject the null hypothesis.

Table 22

Relationship between the profile of the g11 mathematics teachers and the level of engagement of teachers in effective mathematics instruction in terms of how often the respondents ask the following statements

Profile Variable	Computed Chi-Square Value	p-value	Interpretation	Decision
Gender	4.552	0.103	Not Significant	Do not Reject the Ho
Age	17.971	0.023	Significant	Reject the Ho
Years in Teaching	3.113	0.795	Not Significant	Do not Reject the Ho
Educational Background	2.611	0.625	Not Significant	Do not Reject the Ho
Postgraduate	3.312	0.507	Not Significant	Do not Reject the Ho
Professional Development	0.653	0.995	Not Significant	Do not Reject the Ho

Note: p-value ≤ 0.05 – significant, p-value > 0.05 – not significant

Table 22 presents the result of the relationship between the profile and the engagement of teachers in effective mathematics instruction in terms of how often the respondents as their students on the following statements: (1) Listen to me explain new mathematics content; (2) Listen to me explain how to solve problems; (3) Memorize rules, procedures, and facts; (4) Work problems (individually or with peers) with my guidance: (5) Work problems together in the whole class with direct guidance from me; (6) Work problems (individually or with peers) while I am occupied by other tasks; (7) Work on problems for which there is no immediately obvious method of solution; (8) Take a written test or quiz; (9) Work in mixed ability groups; and (10) Work in same ability groups.

In these aspects, only age is found to be significant with a *p*-value of 0.023 which is less than the critical value of 0.05 alpha level analyzed through Chi-square independence.

Table 23

Relationship between the profile of the g11 mathematics teachers and the level of engagement of teachers in effective mathematics instruction in terms of confidence in teaching

Profile Variable	Computed Chi-Square Value	p-value	Interpretation	Decision
Gender	2.928	0.231	Not Significant	Do not Reject the Ho
Age	5.764	0.674	Not Significant	Do not Reject the Ho
Years in Teaching	15.492	0.025	Significant	Reject the Ho
Educational Background	0.760	0.944	Not Significant	Do not Reject the Ho
Postgraduate	2.693	0.610	Not Significant	Do not Reject the Ho
Professional Development	2.124	0.908	Not Significant	Do not Reject the Ho

Note: p-value ≤ 0.05 – significant, p-value > 0.05 – not significant

Table 23 is the findings of the relationship between the profile of the respondents and the level of engagement of teachers in effective mathematics instruction in terms of confidence in teaching

concerning the following aspects: (1) Inspiring students to learn mathematics; (2) Showing students a variety of problem-solving strategies; (3) Providing challenging tasks for the highest achieving students; (4) Adapting my teaching to engage students' interest; (5) Helping students appreciate the value of learning mathematics; (6) Assessing student comprehension of mathematics; (7) Improving the understanding of struggling students; (8) Take a written test or quiz; (9) Making mathematics relevant to students; and (10) Developing students' higher-order thinking skills.

It showed that years in teaching is a factor in terms of being confident as a mathematics teacher with a p-value of 0.025 which is lower than the critical value of 0.05 alpha level. Other aspects in the profile were found not to be significant such as gender, age, educational background postgraduate, and professional development as shown in Table 23, hence, the decision is not to reject the null hypothesis.

3.6. Problem No. 6. Is there a significant relationship between the level of engagement of teachers in effective mathematics instruction and the least mastered skills?

Table 24

Relationship between the level of engagement of teachers in effective mathematics instruction and the least mastered skills

Computed Pearson r Value	Description	p-value	Interpretation	Decision
0.453	Moderate	0.045	Significant	Reject the Ho

Table 24 showed that there is a significant relationship between the level of engagement of teachers in effective mathematics instruction and the least mastered skills with the r-value of 0.453 which is interpreted as moderately correlated; and with the p-value of 0.045 interpreted as significant, hence, the decision is to reject the null hypothesis.

4. DISCUSSION

The finding on the least attended by the respondents (Mathematics content) is somewhat alarming since according to Ebio (2022), content knowledge is one of the most important tools in the teaching profession for teachers as front liners must be equipped with content knowledge in the field of specialization. About the findings that age is a factor in terms of student engagement in effective mathematics instruction in the aspect of teacher compared to other teachers, Ko & Sammons (2013) posited that, on the one hand, their study showed that mid-career teachers show greater effectiveness; on the other hand, teacher effectiveness eventually tends to decline with older age. The claim of Ko and Sammons (2013) was explained by Podolsky et al., (2019) model, which said that workers learn when they spend time intentionally capitalizing on their skills and knowledge. According to his theory, learning increases initially but decreases over time due to fewer opportunities to apply new knowledge. Teachers require time to invest in their teaching skills after gaining a high degree of expertise because this can affect their efficacy in teaching and students' successes (Podolsky et al., 2019).

Furthermore, according to Podolsky et al. (2019), human capital is strengthened when there are mediated interactions with coworkers, known as social capital. Colleagues can exchange their perspectives and experiences to process and make decisions. This is addressed in TIMSS's (2015) survey questionnaire on teacher participation in mathematics effective instruction: 'Discuss how to teach a specific topic;' 'Collaborate in planning and preparing instructional materials;' 'Share what I have learned about my teaching experiences;' 'Work together to try out new ideas;' 'Work as a group on implementing the curriculum;' and 'Work with teachers from other grades to ensure continuity in

learning' were all leveled as "often observed." The significant finding that age is a factor is positioned in Podolsky et al., (2019) decisional capital of experienced teachers is a beneficial insight for novice teachers; thus, expanding social capital will help improve novices' capacity to solve problems of teaching-learning practices.

According to the findings of this study, having a postgraduate degree or Master's in Mathematics has effects on teachers' feelings of being content, satisfied, inspired, enthusiastic, and willing to continue to be in the teaching profession, which is leveled as "often observed." According to Sirait (2016), much research has suggested that teacher quality is an important factor in student achievement. Furthermore, Gaylo & Dale, (2017) states that teachers are supposed to provide effective techniques to help students understand mathematics topics effectively. Similarly, Gaylo and Dale (2017) and Sirait (2016) discovered that teachers' attributes such as educational background, experience, certificate status, and so on were associated with students' accomplishments. Finally, according to Arendain and Limpot (2022), teaching an unmastered subject is a difficult undertaking; hence, having a master's degree in the subject you are teaching is advantageous.

According to Olasen and Lawal (2020), students in overcrowded classes disrupt the teaching and learning process. Olasen and Lawal (2020) go on to say that class size is critical in promoting successful teaching and learning and, ultimately, high student academic performance. In line with the findings on the significant relationship between years of teaching and teachers' level of engagement in effective math instruction about class size, Irvine, (2019) discovered that years of teaching between 1-3 years have a positive effect on students' achievement. According to Ko and Sammons (2013), mid-career teachers are effective, but their efficacy decline over time. This is also supported by cross-sectional research at various levels of education, which discovered that teaching efficacy gradually declines with increased experience (Ko & Sammons, 2013).

According to Almanthari et al., (2020), advanced teaching experience is necessary to strengthen teachers' skills for effective teaching. Podolsky et al., (2019) discovered that the relationship between experience and efficacy is non-linear and sometimes curved, as predicted by the Ben-Porath model. According to the model, the lower the complexity of the teaching experience, the lower the effect; the higher the complexity, the larger the effect (Podolsky et al., 2019).

In terms of findings, Sirait (2016) discovered that license certification was a better predictor of student accomplishment than a teacher's degree. Woessmann (2016) conducted another study that demonstrated the importance of teacher education in the school system. In addition, Gershenson et al., (2016) discovered that average teachers are likely to have low levels of educational attainment. In contrast to the other characteristics, Schonert-Reichl (2017) discovered in her study that neither experienced nor first-year instructors believed their educational program qualified them to recognize and manage children with mental health difficulties.

According to Awofala et al., (2022), mathematical proficiency is a mechanism that students can use to engage in mathematics. Furthermore, their prior knowledge of current difficulties and talents can be effectively used in problem-solving (Awolfala et al., 2022). Another stance on how students effectively learn Mathematics is through an enriching learning environment, given adequate time, developmentally suitable learning goals, well-structured instructional materials, and planned program teaching, and evaluation. Teachers' involvement in effective mathematics instruction, according to Awofala et al., (2022), is related to all students' involvement in theoretical comprehension, routine articulacy, deliberate aptitude, adaptive thought, rich and exact scientific communication, and a constructive fruitful temperament toward mathematics.

Several studies have established a relationship between measures of instructional quality and student achievement, student motivation, or other schooling outcomes; specifically, cognitive activation, clarity of instruction, and a supportive climate are regarded as essential features (Hwang & Lai, 2017); as TIMSS (2019) includes several measures relating to different aspects of instructional

quality, with responses both from teachers and students. In contrast to the findings of this study, Shah and Udgaonkar (2018) state that students respect teachers regardless of their age, gender, or job title, but that dedication, intelligence, hard work, and expertise can earn respect from students.

According to Walker (2021), effective education produces long-term results when proper tactics are used. Strategies assist students in consciously and/or subconsciously completing the learning process (Walker, 2021). According to Walker (2021), successful strategy instruction includes teaching students the proper methods and empowering them to do essential academic tasks. The goal is for students to be able to employ the skills and feel confident in applying what they have learned in future circumstances (Walker, 2021). In terms of noteworthy findings, Abdullah et al., (2016) discovered that there was no effect of age, academic credentials, grades for the teaching post, and years of mathematics teaching experience on the degree of knowledge and practice of HOTS.

Mathematics literacy is the ability of students to formulate, apply, and interpret mathematics in a range of circumstances. It entails employing mathematical concepts, techniques, data, and instruments to describe, explain, and predict occurrences. According to the research, the Philippines ranks last in terms of maths literacy . The impact has been felt in the field, such as in one of Rizal's public high schools, where the results of their accomplishment exam revealed that Mathematics has the lowest mean percentage score among all learning areas (Torres, 2021). This merely demonstrated that Mathematics is the most commonly unmastered skill among pupils.

According to research, students who used diverse learning strategies or effective instructions were able to manage and succeed in learning math ideas. Bonitez's (2021) study, in which she employed Self-instructional Materials, revealed that it enhances students' cognitive skills by developing and applying science concepts, as well as affective skills. The technique becomes effective as kids develop self-reliance and creativity. The self-learning material will also assist students in mastering previously unmastered skills, hence raising their performance level (Bonitez, 2021). These findings urge academics like Mortega (2022) to advise that there is a need to enhance teaching tactics and assess teaching strategies and innovations that promote inefficient learning and ineffectiveness.

5. CONCLUSION

This study aimed to explore the factors influencing the number of least mastered skills among students in General Mathematics and to determine whether teachers' engagement in effective instruction is related to these skills. Based on the empirical data gathered and analyzed using statistical methods, the study concludes that factors such as age, educational background, possession of a postgraduate degree, and years of experience significantly impact teachers' engagement in effective instruction. These elements, in turn, are closely related to the number of least mastered skills among students in General Mathematics.

In light of the conclusions drawn from the study, the following recommendations are highlighted:

1. Teachers should require the teachers a self-inventory of passion in teaching to check their temperature or passion in teaching.

2. Be mindful of hiring and assigning teachers in General Mathematics.

3. Practice collaboration or the mentor and mentee program to guide new teachers.

4. Intensify scholarship and sponsorship to deserving General Mathematics teachers.

5. Implement intervention programs to motivate General Mathematics teachers to engage in effective instruction in teaching General Mathematics.

6. Implement programs to keep the flame burning or keep the passion to teach despite age and number of years in teaching.

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