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HOME-SCHOOL LINK AS A SUPPLEMENTARY LEARNING MATERIAL ON THE STUDENTS' MOTIVATION AND PERFORMANCE IN MATHEMATICS

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ABSTRACT

The main purpose of the study was to determine the effect of the Home-School Link as a supplementary material on the students' motivation and performance in mathematics. This study aims to assess the extent of the Home-School Link as a supplementary learning material relative to its components; characteristics; students' motivation; and performance in mathematics. The research also explores into investigating notable disparities in students' performance in mathematics. Furthermore, the study also finds the effect of the Home-School Link as a supplementary learning material on the students' motivation and performance in mathematics.

The study employed descriptive research to assess the influence of Home-School Link as a supplementary learning material on students' motivation and performance in mathematics. Purposive sampling technique was used to 101 Grade 10 students at Pedro Guevara Memorial National High School. Descriptive and inferential statistics, including weighted mean, standard deviation, and T-test.

The objectives, key concept, example, assessment, design, clarity, appropriateness and usefulness as components and characteristics of the Home-School Link were very highly validated. Furthermore, the level of students' motivation in terms of interest and positive attitude was very high, while high in terms of goal clarity and focus and productivity. A notable difference in students' performance in mathematics between the formative and summative test was observed. Lastly, the Home-School Link as a supplementary learning material was found to be very effective on students' motivation and performance in mathematics.

A significant difference in students' performance in mathematics between the formative and summative test was noted. Thus, the null hypothesis is rejected. Significant effect of the use of the Home-School Link as a supplementary learning material on students' motivation was observed, denoted by rejecting the null hypothesis. Lastly, a significant effect of the use of the Home-School Link as a supplementary learning material on students' mathematics performance in summative test was observed. Thus, the hypothesis is rejected.

Based on these results, it was recommended that Mathematics teachers may integrate the use of Home-School Link into their discussion of mathematics concepts that will support the needs of students to have mastery of the topic and boost their self-confidence to participate. Mathematics teachers are encouraged to develop more Home-School Link Material in different topics not only in second quarter topics but in other fields of Mathematics.

KEYWORDS: *Home-School Link; supplementary material; students' motivation*

1. INTRODUCTION

The Department of Education (DepEd) worked collaboratively with other agencies to uplift the morale of teachers, parents, and students. This policy was stipulated in the Constitutional Right of All Citizens to Quality Education authored by Senator Manny Villar in 2010. Senate Bill No. 75, an act ensuring the full realization of the Constitutional Right of All Citizens to Quality Education ordained for "A No Filipino Child Left Behind Act of 2010". In section 2, it was declared a policy of the State to protect and promote the right of the citizens to quality education and to take appropriate steps to make such education accessible to all.

Teachers use a wide range of stimulating materials to teach the concepts outlined in the curriculum. The uses of these learning materials contribute to active involvement in the classroom participation. One of the ways to help the learners achieve success in learning is through giving support aids made by the teachers to understand and apply learning in their daily life with the use of supplementary learning materials (Ayado, et. al, 2022). It also helps the learners to unlock their difficulties in a certain topic.

Supplementary learning materials are the instruments a teacher uses to deliver lessons. Each teacher requires a range of tools to draw upon to assist and support student's learning. These materials play a large role in making knowledge accessible to learners which can encourage them to engage in different ways.

Instructional and supplementary learning materials were modified just to make the lessons easier by following the MELC prescribed by the Department of Education. These teacher-made supplementary learning materials motivated learners and maintained an interest in the field of Mathematics. Teaching-learning experiences by both teachers and students resulted in personalized instructional material one of which was the Home-School Link Supplementary Learning Materials.

In this study, the researcher wants to determine the effectiveness of the teacher-made supplementary learning material called Home-School Link on the performance of Grade 10 students in Mathematics. The material was administered to Grade 10 students who obtained low MPS of the second quarter pre-assessment during school year 2023 - 2024.

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1.1 Statement of the Problem

Specifically, it sought to answer the following questions:

1. What is the level of the Home-School Link's components in terms of:
   - 1.1 Objectives;
   - 1.2 Key Concept;
   - 1.3 Examples; and
   - 1.4 Assessment?
2. What is the level of the Home-School Link's characteristics in terms of:
   - 2.1 Design;
   - 2.2 Clarity;
   - 2.3 Appropriateness; and
   - 2.4 Usefulness?
3. What is the level of Students' Motivation in terms of:
   - 3.1 Interest;
   - 3.2 Goal Clarity;
   - 3.3 Focus and Productivity; and
   - 3.4 Positive Attitude?
4. What is the level of Students' Performance in Mathematics in terms of:
   - 4.1 Formative Test; and
   - 4.2 Summative Test?
5. Is there a significant difference on the students' performance in Mathematics in terms of formative test and summative test with the use of Home-School Link?
6. Is there a significant effect of the use of the Home-School Link on students' motivation?
7. Is there a significant effect of the use of Home-School Link on students' performance in mathematics in terms of summative test?

2. METHODOLOGY

The research design used in this was descriptive method which describes a population, situation, or phenomenon that is being studied. It focuses on answering the how, what, when, and where questions. If a research problem, rather than the why. This method was used to describe the components and characteristics of what was being studied. Hence, this type of research design is an applicable way to determine if the developed Home-School Link, a supplementary learning material in teaching Mathematics 10 will be evaluated.

3. RESULTS AND DISCUSSION

This chapter deals with the presentation of the data gathered based on the research questions, the analysis and interpretation relative to the sub problem and hypotheses stated in chapter 1.

The major findings included were the level of validation of Home-School Link as a supplementary learning material on students' motivation and performance in mathematics.

Level of the Home-School Link's Components

In this study, the major findings for the level of the Home-School Link's components in terms of objectives, key concept, examples and assessment were shown below.

The following tables show the statements, mean, weighted mean, standard deviation, remarks, and verbal interpretation. Table 1 illustrates the level of the Home-School Link's in terms of objectives. The statements, mean, standard deviation, remarks and verbal interpretation were presented.

The objectives are aligned with the Most Learning Competencies in DepEd Curriculum. The mean (M = 4.82) shows a very high level of validity in terms of objectives. Similarly, it describes a direction for the student acquiring new knowledge, skills, and attitudes. Gaining a slightly lower mean (M = 4.32), it still indicates a strong agreement of the teachers on the validity of learning materials component with regards to its objectives.

The level of the Home-School Link's components in terms of objectives gained a weighted mean score of 4.60 and a standard deviation of 0.68 and was verbally interpreted as *very high* among the respondents. This implies that the crafted objectives as part of the learning material hit the targeted goal of this study.

Table 1 ***Level of the Home-School Link's Components in terms of Objectives***

STATEMENT	*MEAN*	*SD*	*REMARKS*
Each lesson in the Home-School Link is accompanied by specific objectives	4.73	0.54	Strongly Agree
The objectives are well planned, formulated and organized.	4.50	0.78	Strongly Agree
The objectives are measurable and attainable.	4.64	0.57	Strongly Agree
The objectives are aligned with the Most Learning Competencies in Deped Curriculum.	4.82	0.49	Strongly Agree
The objectives describe a direction for the student acquiring new knowledge, skills, and attitudes.	4.32	0.82	Strongly Agree
Weighted Mean		*4.60*	
SD		*0.68*	
Verbal Interpretation		*Very High*	

The components' goals are tailored to each class, meticulously thought out, written, and arranged, quantifiable, and reachable. They also correspond with the majority of the learning competencies in the DepEd curriculum and help students gain new abilities, perspectives, and information.

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Table 2 ***Level of the Home-School Link's Components in terms of Key Concept***

STATEMENT	*MEAN*	*SD*	*REMARKS*
The Home-School Link reflects the most important aspect of what is being taught as provided by MELC.	4.50	0.84	Strongly Agree
The content of each lesson is directly relevant to the defined objectives.	4.59	0.58	Strongly Agree
The key concepts show the definition of terms related to the topics.	4.68	0.70	Strongly Agree
The topics are supported by examples and suited to the level of the students.	4.55	0.84	Strongly Agree
Each topic is given emphasis in the lesson.	4.55	0.84	Strongly Agree
Weighted Mean		4.57	
SD		0.77	
Verbal Interpretation		Very High	

Table 2 illustrates the level of the Home-School Link's components in terms of key concept. The statements, mean, standard deviation, remarks, and verbal interpretation were presented.

The key concepts show the definition of terms related to the topics. The mean (M = 4.68) shows a very high level of validity in terms of key concept. Similarly, the Home-School Link reflects the most important aspect of what is being taught as provided by MELC. Gaining a slightly lower mean (M = 4.50), it still indicates a strong agreement of the teachers on the validity of the supplementary learning materials component with regards to its key concepts.

The level of the Home-School Link's components in terms of key concepts gained a weighted mean score of 4.57 and a standard deviation of 0.77 and was verbally interpreted as *very high* among the respondents. This implies that the material accurately represents, reflect, or covers the essential ideas, principles, or information that is intended to convey according to educational standard.

The most crucial elements of the material being taught, as supplied by MELC, were reflected in the key ideas, which also gave definitions for words associated with the subjects.

Table 3 ***Level of the Home-School Link's Components in terms of Examples***

STATEMENT	*MEAN*	*SD*	*REMARKS*
The examples given are based on the Grade 10 Most Learning Competencies.	4.64	0.64	Strongly Agree
The examples given are aligned with the objectives of the lesson.	4.55	0.58	Strongly Agree
Shows concepts related to the content of the lesson.	4.50	0.66	Strongly Agree
Provides activities that help learners apply their learning to a new situation or context beyond the lesson.	4.36	0.77	Strongly Agree
The examples are suited to the needs of the learners.	4.27	0.81	Strongly Agree
Weighted Mean		*4.46*	
SD		*0.71*	
Verbal Interpretation		*Very High*	

Table 3 illustrates the level of the Home-School Link's components in terms of examples. The statements, mean, standard deviation, remarks, and verbal interpretation were presented.

The examples given were based on the Grade 10 Most Learning Competencies. The mean (M = 4.64) shows a very high level of validity in terms of examples. Similarly, the examples were suited to the needs of the learners. Gaining a slightly lower mean (M = 4.27), it still indicates a strong agreement of the teachers on the validity of the supplementary learning materials component with regards to its examples.

The level of the Home-School Link's components in terms of examples gained a weighted mean score of 4.46 and a standard deviation of 0.71 and was verbally interpreted as *very high* among the respondents. This implies that the examples provided in the material are highly relevant, accurately illustrate the concepts being taught.

The examples provided were appropriate for the learners' requirements and based on the Grade 10 Most Learning Competencies.

Table 4 illustrates the level of of the Home-School Link's components in terms of assessment. The statements, mean, standard deviation, remarks and verbal interpretation were presented.

The assessment implemented program was accurate and

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aligned to the design. The mean (M = 4.68) shows a very high level of validity in terms of assessment. Similarly, deftly designs assessment that consider to academic, social, and emotional needs of the learner. Gaining a slightly lower mean (M = 4.27), it still indicates a strong agreement of the teachers on the validity of the supplementary learning materials component with regards to its assessment.

Table 4 ***Level of the Home-School Link's Components in terms of Assessment***

STATEMENT	*MEAN*	*SD*	*REMARKS*
The assessment implemented program is accurate and is aligned to the design.	4.68	0.55	Strongly Agree
The assessment is measurable in terms of the result in every activity and anchored in the objectives.	4.64	0.57	Strongly Agree
Deftly designs assessment that consider to academic, social, and emotional needs of the learner.	4.27	0.86	Strongly Agree
Shows complete understanding of the questions, mathematical ideas, and process.	4.36	0.77	Strongly Agree
Evaluates the student's knowledge and understanding of the lesson.	4.41	0.78	Strongly Agree
Weighted Mean		*4.47*	
SD		*0.73*	
Verbal Interpretation		*Very High*	

The level of the Home-School Link's components win terms of assessment gained a weighted mean score of 4.47 and a standard deviation of 0.73 and was verbally interpreted as *very high* among the respondents. This implies that the questions or tasks accurately reflect the material covered, are aligned with the learning objectives, and can reliably gauge student's understanding and the mastery of the content.

The program's implemented assessment was precise, in line with its design, and skillfully created to take the learner's academic, social, and emotional needs into account.

Level of the Home-School Link's Characteristics

In this study the major findings for the level of the Home-School Link's characteristics in terms of design, clarity, appropriateness and usefulness were shown below.

The following tables show the statements, mean, weighted mean, standard deviation, remarks, and verbal interpretation.

Table 5 ***Level of the Home-School Link's Characteristics in terms of Design***

STATEMENT	*MEAN*	*SD*	*REMARKS*
The design is well-organized which make the lesson more interesting.	4.50	0.84	Strongly Agree
The design is suitable for a range of learning styles and instructional approaches.	4.55	0.84	Strongly Agree
The language used is clear, concise, and motivating.	4.55	0.78	Strongly Agree
The mathematical symbols used are well-defined.	4.55	0.72	Strongly Agree
The instructions in the Home-School Link are concise and easy to follow.	4.50	0.72	Strongly Agree
Weighted Mean		*4.53*	
SD		*0.78*	
Verbal Interpretation		*Very High*	

Table 5 illustrates the level of the Home-School Link's characteristics in terms of design. The statements mean, standard deviation, remarks and verbal interpretation were presented.

The mathematical symbols used are well-defined. The mean (M = 4.55) shows a very high level of validity in terms of design. Similarly, the instructions in the Home-School Link were concise and easy to follow. Gaining a slightly lower mean (M = 4.50), it still indicates a strong agreement of the teachers on the validity of the supplementary learning materials characteristics with regards to its design.

The level of the Home-School Link's characteristics in terms of design gained a weighted mean score of 4.53 and a standard deviation of 0.78 and was verbally interpreted as *very high* among the respondents. This implies that the design of the material effectively supports the educational goals it aims to achieve and the layout, structure, visual elements, and overall aesthetic of the material is not only appealing but also functionally appropriate for learning.

The directions were clear and simple to understand, and the mathematical symbols utilized are well-defined and in line with the design.

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Table 6 illustrates the level of the Home-School Link's characteristics in terms of clarity. The statements, mean, standard deviation, remarks, and verbal interpretation were presented.

The size of the texts was large enough for students to see. The mean (M = 4.77) shows a very high level of validity in terms of clarity. Similarly, the examples of each lesson were presented clearly. Gaining a slightly lower mean (M = 4.41), it still indicates a strong agreement of the teachers on the validity of the supplementary learning materials characteristics with regards to its clarity.

The level of the Home-School Link's characteristics in terms of clarity gained a weighted mean score of 4.58 and a standard deviation of 0.73 and was verbally interpreted as *very high* among the respondents. This implies that the material is exceptionally clear in its communication and presentation that can help ensure that students can easily understand the content without misinterpretations.

Table 6 ***Level of the Home-School Link's Characteristics in terms of Clarity***

STATEMENT	*MEAN*	*SD*	*REMARKS*
The Home-School Link are clear to visualize.	4.68	0.63	Strongly Agree
The size of the texts is large enough for students to see.	4.77	0.52	Strongly Agree
The meaning of the texts is clear for students.	4.55	0.78	Strongly Agree
The Home-School Link clarify the items needed in the SLM.	4.50	0.72	Strongly Agree
The examples of each lesson are presented clearly	4.41	0.89	Strongly Agree
Weighted Mean		*4.58*	
SD		*0.73*	
Verbal Interpretation		*Very High*	

Students could easily read the materials because of their size, and each lesson's examples were given in an understandable manner.

Table 7 illustrates the level of the Home-School Link's characteristics in terms of appropriateness. The statements, mean, standard deviation, remarks, and verbal interpretation were presented.

The examples were aligned to the learning objectives. The mean (M = 4.59) shows a very high level of validity in terms of appropriateness. Similarly, the materials maintained an atmosphere conducive to inquiry. Gaining a slightly lower mean (M = 4.41), it still indicates a strong agreement of the teachers on the validity of the supplementary learning materials characteristics with regards to its appropriateness.

Table 7 ***Level of the Home-School Link's Characteristics in terms of Appropriateness***

STATEMENT	*MEAN*	*SD*	*REMARKS*
The topics in the Home-School Link are appropriate to the level of the learners.	4.55	0.72	Strongly Agree
The content of the lesson appropriate to the learning objectives.	4.50	0.84	Strongly Agree
The examples are aligned to the learning objectives.	4.59	0.72	Strongly Agree
The Home-School Link as supplementary learning materials promote an active quest for new information and ideas.	4.45	0.84	Strongly Agree
The materials maintain an atmosphere conducive to inquiry.	4.41	0.78	Strongly Agree
Weighted Mean		*4.50*	
SD		*0.78*	
Verbal Interpretation		*Very High*	

The level of the Home-School Link's characteristics in terms of appropriateness gained a weighted mean score of 4.50 and a standard deviation of 0.78 and was verbally interpreted as *very high* among the respondents. This implies that the material is highly suitable for its intended audience in terms of educational level and learning objectives.

The examples maintained an environment that encouraged inquiry while also being in line with the learning objectives.

Table 8 illustrates the level of the Home-School Link's characteristics in terms of usefulness. The statements, mean, standard deviation, remarks, and verbal interpretation were presented.

The Home-School Link is a useful supplementary learning material in teaching Mathematics 10. The mean (M = 4.64) shows a very high level of validity in terms of usefulness. Similarly, the supplementary learning material allows the students to use their time more efficiently. Gaining a slightly lower mean (M = 4.59), it still indicates a strong agreement of the teachers on the validity of the supplementary learning materials characteristics with regards to its usefulness.

The level of the Home-School Link's characteristics in terms of usefulness gained a weighted mean score of 4.62 and a standard

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deviation of 0.74 and was verbally interpreted as *very high* among the respondents. This implies that the material is highly effective in fulfilling its intended purpose, which is to support and enhance the learning process.

The Home-School Link helps students manage their time more effectively and is a helpful addition to the curriculum when teaching Mathematics 10.

Table 8 ***Level of the Home-School Link's Characteristics in terms of Usefulness***

STATEMENT	*MEAN*	*SD*	*REMARKS*
The Home-School Link is a useful supplementary learning material in teaching Mathematics 10.	4.64	0.71	Strongly Agree
The Home-School Link serves as a learning material to help the students to understand the topics at their own pace.	4.64	0.71	Strongly Agree
The learning material will allow the students to use their time more efficiently.	4.59	0.72	Strongly Agree
The Home-School Link uses by the students for enhancing their mathematical ability and understanding the concepts of the topics.	4.59	0.83	Strongly Agree
The learning outcomes are identified through the materials provided in the Home-School Link.	4.64	0.71	Strongly Agree
Weighted Mean		*4.62*	
SD		*0.74*	
Verbal Interpretation		*Very High*	

Level of Students' Motivation

In this study, the major findings for the level of students' motivation in terms of interest, goal clarity, focus and productivity, and positive attitude were shown below.

The following tables show the statements, mean, weighted mean, standard deviation, remarks, and verbal interpretation.

Table 9 illustrates the level of students' motivation in terms of interest. The statements, mean, standard deviation, remarks, and verbal interpretation were presented.

The students were excited about the prospects of what they can achieve through their study. The mean (M = 4.41) shows a very high level of motivation in terms of interest. Similarly, they actively seek out on the supplementary learning material for self-study. Gaining a slightly lower mean (M = 3.87), it still indicates an agreement of the students on the level of motivation in terms of their interest.

The level of students' motivation in terms of interest gained a weighted mean score of 4.24 and a standard deviation of 0.80 and was verbally interpreted as *very high* among the respondents. This implies that the students are deeply engaged and enthusiastic about the subject matter or learning activities.

Table 9 ***Level of Students' Motivation in terms of Interest***

STATEMENT	*MEAN*	*SD*	*REMARKS*
I find the topics I am studying genuinely interesting.	4.32	0.79	Always
I am enthusiastic about exploring new knowledge in my study.	4.38	0.76	Always
I enjoy delving deep into materials.	4.23	0.80	Always
I actively seek out supplementary learning material for self-study	4.87	0.90	Always
I am excited about the prospects of what I can achieve through my study.	4.41	0.76	Always
Weighted Mean		*4.24*	
SD		*0.80*	
Verbal Interpretation		*Very High*	

The students were excited about the prospects of what they can achieve through their study and actively seek out on the supplementary learning material for self-study.

Table 10 illustrates the level of students' motivation in terms of goal clarity. The statements, mean, standard deviation, remarks, and verbal interpretation were presented.

The students have well-defined academic and personal goals. The mean (M = 4.29) shows a very high level of motivation in terms of goal clarity. Similarly, they regularly review and adjust their goals to stay aligned with their aspirations. Gaining a slightly lower mean (M = 3.99), it still indicates an agreement of the students on the level of motivation in terms of their goal clarity.

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The level of students' motivation in terms of goal clarity gained a weighted mean score of 4.17 and a standard deviation of 0.85 and was verbally interpreted as *high* among the respondents. This implies that the students have a clear understanding of their learning objectives, what is expected of them, and why they are engaging in the learning process.

The students have well-defined academic and personal goals and they regularly review and adjust their goals to stay aligned with their aspirations.

Table 10 ***Level of Students' Motivation in terms of Goal Clarity***

STATEMENT	*MEAN*	*SD*	*REMARKS*
I have well-defined academic and personal goals.	4.29	0.79	Always
I set specific and achievable targets for my studies.	4.27	0.89	Always
I regularly review and adjust my goals to stay aligned with my aspirations.	3.99	0.89	Often
I can clearly articulate the purpose of my education.	4.26	0.78	Always
I have strong sense of direction in my studies.	4.06	0.90	Often
Weighted Mean		*4.17*	
SD		*0.85*	
Verbal Interpretation		*High*	

The students have well-defined academic and personal goals and they regularly review and adjust their goals to stay aligned with their aspirations.

Table 11 illustrates the level of students' motivation in terms of focus and productivity. The statements, mean, standard deviation, remarks, and verbal interpretation were presented.

The students consistently meet deadlines on tasks. The mean (M = 4.16) shows a high level of motivation in terms of focus and productivity. Similarly, they can maintain focus and avoid distractions during study sessions. Gaining a slightly lower mean (M = 3.78), it still indicates an agreement of the students on the level of motivation in terms of their focus and productivity.

Table 11 ***Level of Students' Motivation in terms of Focus and Productivity***

STATEMENT	*MEAN*	*SD*	*REMARKS*
I can maintain focus and avoid distractions during study sessions.	3.78	0.87	Often
I manage my time effectively and complete assignments promptly.	3.95	0.91	Often
I utilize time management techniques to maximize productivity.	3.82	0.96	Often
I consistently meet deadlines on tasks.	4.16	0.99	Often
I am proactive in organizing my study environment.	4.07	0.92	Often
Weighted Mean		*3.96*	
SD		*0.93*	
Verbal Interpretation		*High*	

The level of students' motivation in terms of focus and productivity gained a weighted mean score of 3.96 and a standard deviation of 0.93 and was verbally interpreted as *high* among the respondents. This implies that students can maintain their attention on the task at hand and consistently channel their efforts towards achieving their learning goals.

Students consistently meet deadlines on tasks and maintain focus and avoid distractions during study sessions.

Table 12 illustrates the level of students' motivation in terms of positive attitude. The statements, mean, standard deviation, remarks, and verbal interpretation were presented.

Table 12 ***Level of Students' Motivation in terms of Positive Attitude***

STATEMENT	*MEAN*	*SD*	*REMARKS*
I maintain a positive outlook even when facing academic challenges.	4.27	0.82	Always
I view setbacks as opportunities to lean and grow.	4.23	0.77	Always
I actively seek solutions to problems rather than dwelling on them.	4.26	0.91	Always
I believe in my ability to overcome obstacles.	4.26	0.86	Always
I am excited about the journey of learning and personal development.	4.57	0.86	Always
Weighted Mean		*4.32*	
SD		*0.85*	
Verbal Interpretation		*Very High*	

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The students were excited about the journey of learning and personal development. The mean (M = 4.57) shows a very high level of motivation in terms of positive attitude. Similarly, the students view setbacks as opportunities to learn and grow. Gaining a slightly lower mean (M = 4.23), it still indicates a strong agreement of the students on the level of motivation in terms of their focus and productivity.

The level of students' motivation in terms of positive attitude gained a weighted mean score of 4.32 and a standard deviation of 0.85 and was verbally interpreted as *very high* among the respondents. This implies that the students approach their learning with optimism, enthusiasm, and willingness to embrace challenges.

Students were excited about the journey of learning and personal development and maintained focus and view setbacks as opportunities to learn and grow.

Level of Students' Performance in Mathematics

In this study, the major findings for the level of students' performance in mathematics in terms of formative test and summative test were shown below.

The following tables show the statements, mean, weighted mean, standard deviation, remarks, and verbal interpretation.

Table 13 ***Level of Students' Performance in Mathematics in terms of Formative Test and Summative Test***

Raw Score	Students' Performance					
	Formative			Summative		
	f	%	Verbal Interpretation	f	%	Verbal Interpretation
25-30	0	0%	Advance	62	61%	Advance
19-24	0	0%	Proficient	24	24%	Proficient
13-18	34	34%	Approaching Proficiency	15	15%	Approaching Proficiency
7-12	61	60%	Developing	0	0%	Developing
0-6	6	6%	Beginning	0	0%	Beginning
Total	101	100%		101	100%	
	Mean = 11.36 SD = 2.59		**Developing**	Mean = 24.44 SD = 4.98		**Proficient**

Table 13 illustrates the level of students' performance in mathematics in terms of formative test and summative test. In formative test, 34 out of 101 students got a score ranging from 13 – 18 with descriptive value of *Approaching Proficiency*. 60% or 61 students got the score ranging from 7 – 12 with a descriptive value of *Developing* while 6 students got a score 6 and below with a descriptive value of *Beginning*. The students' performance in mathematics in terms of formative test gained a mean score of 11.36, interpreted as *Developing* level of performance in mathematics. This implies that the students are making progress and beginning to grasp some of the concepts and skills being taught, but still have room for improvement.

In summative test, 62 out of 101 students got a score ranging from 25 – 30 with descriptive value of *Advance*. 24% or 24 students got the score ranging from 19 – 24 with a descriptive value of *Proficient* while 15 students got a score ranging from 13 – 18 with a descriptive value of *Approaching Proficiency*. The students' performance in mathematics in terms of summative test gained a mean score of 24.44, interpreted as *Proficient* level of performance in mathematics. This implies that the students have demonstrated a solid understanding and the mastery of the mathematical concepts and skills assessed by the test.

Educators should integrate formative assessment strategies into instruction, provide timely and specific feedback, and encourage student involvement in the assessment process to improve performance in summative tests

Difference in Students' Performance in Mathematics with the Use of Home-School Link

In this study, the major findings for the significant difference in students' performance in mathematics in terms of formative and summative test with the use of Home-School Link were shown below.

The following tables show the statements, mean, weighted mean, standard deviation, remarks, and verbal interpretation.

To test the significant difference on the Use of Home-School Link as a supplementary learning material on mathematics performance in terms of formative and summative test, data were treated statistically using Minitab 14 using a t-test.

There is a significant difference observed in students' performance in mathematics in terms of formative test and summative test with the use of Home-School Link. This explains the p-values obtained which are less than the significance alpha (0.05), hence there is the presence of a significance.

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Table 14 ***Difference in Students' Mathematics Performance in terms of Formative Test and Summative Test with the use of Home-School Link***

Students' Performance	Mean	Difference	N	*t-value*	*p*
Formative Test	11.36	13.08	101	33.63	0.000*
Summative Test	24.44				

*Note: * p < .05.*

Table 14 presents the test difference in students' performance in mathematics in terms of formative test and summative test with the use of Home-School Link.

Effect of the Use of Home-School Link on the Students' Motivation

In this study, the major findings for effect of the use of the Home-School Link on the students' motivation were shown below.

The following tables show the statements, mean, weighted mean, standard deviation, remarks, and verbal interpretation.

To test the significant effect of the use of Home-School Link on students' motivation, data were treated statistically using Minitab 14 using the t-test.

Table 15 shows the results of the statistical analysis of the significant effect the use of Home-School link on students' motivation.

The supplementary learning material components, such as objectives, key concepts, examples and assessment, all show a statistically significant positive effect on students' goal clarity and focus and productivity (p = 0.000; 0.001). This implies that the components and characteristics of the Home-School Link led to a significant improvement of students' goal clarity and focus and productivity towards learning.

Table 15 ***Effect of the Use of Home-School Link on the Students' Motivation***

Home-School Link			Students' Motivation			
			Interest	Goal Clarity	Focus and Productivity	Positive Attitude
Components	Objectives	t-value	2.31	2.61	3.81	1.74
		p-value	0.011*	0.004*	0.000*	0.041*
		N	101	101	101	101
	Key Concept	t-value	2.04	2.36	3.53	1.50
		p-value	0.021*	0.009*	0.000*	0.067
		N	101	101	101	101
	Example	t-value	1.34	1.70	2.93	0.80
		p-value	0.090	0.045*	0.001*	0.212
		N	101	101	101	101
	Assessment	t-value	1.38	1.74	2.96	0.85
		p-value	0.083	0.042*	0.001*	0.197
		N	101	101	101	101
Characteristics	Design	t-value	1.71	2.04	3.22	1.18
		p-value	0.044*	0.021*	0.000*	0.118
		N	101	101	101	101
	Clarity	t-value	2.15	2.46	3.65	1.59
		p-value	0.016*	0.007*	0.000*	0.056
		N	101	101	101	101
	Appropriateness	t-value	1.53	1.86	3.05	1.00
		p-value	0.064	0.032*	0.001*	0.157
		N	101	101	101	101
	Usefulness	t-value	2.34	2.64	3.80	1.80
		p-value	0.010*	0.004*	0.000*	0.036*
		N	101	101	101	101

*Note: * p < .05.*

Effect of the Use of Home-School Link on the Students' Mathematics Performance

To test the significant effect of the Use of Home-School Link as a supplementary learning material on mathematics performance in terms of Summative Test, data were treated statistically using Minitab 14 using t-test.

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Table 16 ***Effect of the Use of Home-School Link on the Students' Performance in Mathematics in terms of Summative Test***

Home-School Link			Students' Performance Summative Test
Components	Objectives	t-value	18.17
		p-value	0.000*
		N	101
	Key Concept	t-value	18.18
		p-value	0.000*
		N	101
	Example	t-value	18.30
		p-value	0.000*
		N	101
	Assessment	t-value	18.29
		p-value	0.000*
		N	101
Characteristics	Design	t-value	18.22
		p-value	0.000*
		N	101
	Clarity	t-value	18.18
		p-value	0.000*
		N	101
	Appropriateness	t-value	18.25
		p-value	0.000*
		N	101
	Usefulness	t-value	18.14
		p-value	0.000*
		N	101

*Note: * p < .05.*

Table 16 shows the results of the statistical analysis of the significant effect on the use of Home-School link on students' mathematics performance in terms of summative test.

This implies that the components of the learning material led to a significant improvement of students' performance in mathematics.

Besides, the Home-School Link's characteristics such as design, clarity, and appropriateness, all show a statistically significant positive effect on students' performance in mathematics in terms of summative test (p = 0.000). This implies that the characteristics of the learning material has a significant influence on the improvement on students' performance in mathematics.

4. CONCLUSION AND RECOMMENDATIONS

Based on the findings above, the following conclusions were hereby drawn:

1. There is a significant difference in students' mathematics performance in terms of formative test and summative test with the use of Home-School Link. Thus, the null hypothesis was rejected. This means that the students' mathematics performance in summative test was better than formative test.
2. The use of the Home-School Link as a supplementary learning material significantly affect the students' motivation. Thus, the null hypothesis was rejected. This imply that the use of the Home-School Link had a positive effect on the students' motivation.
3. A significant effects of the use of the Home-School Link as a supplementary learning material on students' performance in mathematics in terms of summative test was noted. Thus, the null hypothesis was rejected. This means that the Home-School Link is an effective tool to elevate the level of students' motivation and increase students' mathematics performance.

In the formulated conclusions from the findings, it was recommended that:

1. Mathematics teachers may integrate the use of Home-School Link into their discussion of mathematics concepts that will support the needs of students to have mastery of the topic and boost their self-confidence to participate.
2. Mathematics teachers are encouraged and may develop more Home-School Link Material in different topics not only in second quarter topics but in other fields of Mathematics.
3. Future researchers may conduct studies regarding supplementary learning materials in mathematics, because this will help the education sector to see the importance of supplementary learning materials in the curriculum implementation.

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