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MATHINIK AS MOTIVATIONAL STRATEGY IN ENHANCING ENGAGEMENT LEVEL OF PUPILS

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ABSTRACT

Mathematics is one of the most challenging subjects to teach and learn in the field of education. Pupils often regard this as difficult and confusing. Moreover, the COVID- 19 pandemic has greatly affected pupils' engagement to learn. It has been observed that some pupils lack interest and willingness to perform in Mathematics.

Research has established that recognition is an effective strategy to encourage students' passion for learning. With this, the researcher decided to carry out this study which is focus on MATHinik as motivational strategy in enhancing engagement level of pupils. This study will explore the impact of awards to improve pupils' engagement and analyze the overall effectiveness of this innovative teaching strategy. It will also help in the development of educational goals and in the teaching- learning process.

The researcher utilized a qualitative research design since the use of observation was employed in the study. Personal records of the adviser at the same time supported the findings of the study. Frequency, t-Test, and weighted mean were used to statistically treat the data.

Meanwhile, the respondents of this study were 43 Grade Five pupils of Looc Elementary School. Findings of the study revealed that the learners guided with the implementation of MATHinik performed better in Mathematics than the learners not guided with MATHinik. It is

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just simply implies that MATHinik has a greater impact in learning Mathematics and an effective motivational strategy to enhance learners' engagement level. Also, there is a significant difference on the learners' engagement after MATHinik has been implemented. Action plan was designed also to maximize the use of MATHinik. The researcher will continue to use this learning enhancement strategy and may inspire other fellow teachers to adopt this project after observing its success in increasing learning outcomes.

Keywords: *motivational strategy, learners' engagement level*

CONTEXT AND RATIONALE

Mathematics is one of the most challenging subjects to teach and learn in the field of education. Pupils often regard this as difficult and confusing. Moreover, the COVID- 19 pandemic has greatly affected pupils' engagement to learn. It has been observed that some pupils lack interest and willingness to perform in Mathematics.

Lack of interest in learning Mathematics results in low achievement. Interest is one of the attitudinal and influential variables that are predictors of students' achievement in learning or avoidance of learning Mathematics (Singh et al., 2002). Studies have shown the trend of poor performance in Mathematics in many parts of the world (Mazana et al., 2020; Mbugua et al., 2012; Ndume et al., 2020; Sa'ad et al., 2014). The trend of poor performance is associated with students' low interest in studying Mathematics. Students feel the subject is boring. Factors such as teachers' lack of innovative pedagogies, the subject's broad content

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and students' inadequate practices amplify students' low interest in learning (Shoaib and Saeed, 2016). Pedagogical innovations in facilitating learning play a central role in addressing the challenges of students' low interest and achievement in the subject.

Peteros et al. (2020) assert that recognizing and awarding students for their improved performance helps them boost their confidence and interest in the subject. An enjoyable learning environment significantly impacts students' interest in studying Mathematics and improves their performance (Mazana et al., 2019). Despite the expected positive results from implementing the innovation to promote interest to learn Mathematics and improve performance, Maass et al. (2019) warn that implementing innovation in the classroom is a challenging and demanding activity that requires teacher's commitment and motivation.

As stated in Department of Education Order No. 36, s. 2016, one of the numerous ways teachers and schools can give students encouraging feedback and affirmation is by awarding prizes and recognition. This can boost students' self-esteem, self-awareness, and enthusiasm for studying.

Due to their significant impact on students' morale, motivation, and self-efficacy, these awards and recognition are already part of the Philippine basic education curriculum.

According to Hamalik (2012:184), reward provision is an effective strategy to develop pupils' interests. Children's enthusiasm in learning and doing something could be piqued by the reward. Giving awards serves as a show of gratitude for doing well.

Every facet of a student's school life is impacted by receiving honors and recognition, including attendance, academic performance, and other areas. In today's educational system,

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where schools are constantly under pressure to increase test results, responsibility, and accountability, it is crucial to encourage students' passion for learning.

In light of this, the teacher provided awards to encourage the pupils to study more and participate in Mathematics. This kind of innovation tremendously aided the teacher's ability to keep track of and assess the learners' performance.

With this thought in mind, the researcher came up with this study entitled "MATHinik as Motivational Strategy in Enhancing Engagement Level of Pupils" in order to maximize its effectiveness on learners' performances. Under this motivational strategy, researcher sought to enhance learners engagement level of pupils in learning Mathematics.

INNOVATION, INTERVENTION, AND STRATEGY

Through conducting the study, the researcher came up with motivational strategy that will help teachers in enhancing engagement level of pupils in learning Mathematics. The use of MATHinik has been proven to be an effective intervention to cater the difficulty being experienced by the teachers and learners. Pupils' lack of interest and willingness to perform in Mathematics were clear evidences of the issues and the challenges which needed to be addressed ahead of time.

During the 1st quarter of the S.Y. 2023- 2024, pupils' level of engagement was low as shown by the data gathered by the teacher. But right after the implementation of MATHinik, the researcher found out that there was increased in the number of pupils who acquired high

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performance level. The performance of the respondents has improved after exposure to MATHinik.

Under MATHinik, the researcher gave awards to the best performers and top scorers in class based on the lesson for that particular week to recognize their efforts and hardwork. The pupils were given tangible and non- tangible rewards. Ribbon and certificate were tangible rewards awarded to them quarterly with their parents. Meanwhile, they also received non-tangible rewards such as praises and feedback like "Very Good", "Awesome work", "Keep it up!" These rewards somehow boost their engagement and performance in Mathematics.

As a result of this motivational strategy, the pupils' performance level has increased from 2nd quarter up to the last quarter based on the personal records of the researcher during its implementation. This proved that the innovation strategy applied by the teacher has been proven to be effective. Therefore, it is deemed necessary to sustain the full implementation of MATHinik.

ACTION RESEARCH QUESTIONS

This study is primarily focused on MATHinik as Motivational Strategy in Enhancing Engagement Level of Pupils.

Specifically, this study sought to answer the following questions:

1. What is the pupils' engagement level before and after implementing MATHinik?
2. Is there a significant improvement in the engagement level of pupils after implementation of MATHinik?

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3. What action plan may be designed to further maximize the benefits of using MATHinik as motivational strategy in enhancing engagement level of pupils in Mathematics?

ACTION RESEARCH METHODS

This research paper assessed MATHinik as Motivational Strategy in Enhancing Engagement Level of Pupils for the academic year 2023-2024.

Participants and/or other Sources of Data and Information. This action research employed the 43 Grade V pupils from Looc Elementary School.

Data Gathering Methods. The researcher utilized a qualitative research design since the use of observation was employed in the study. Personal records of the adviser at the same time supported the findings of the study. This has been used to have a clear picture of an action plan which will surely maximize the use of MATHinik.

In the article written by McNeill (2018), descriptive research was defined as a methodology that is not exclusive to market researchers but one that can apply to a variety of research methods used in healthcare, psychology, and education. At its core, descriptive research sought to describe the characteristics or behavior of an audience. While it's not grounded in statistics, and usually leans towards more qualitative methods, it can include quantifiable data as well.

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Ethical Consideration

Ethical considerations were ensured throughout the conduct of this study. The participants were given informed consent. They were also asked to volunteer for the study understanding all the rights of withdrawal and refusal. During the implementation of MATHinik, the researcher asked the consent and approval of the parents and guardians to use the images and photos of their child to be posted on the researcher's personal account. This is done to recognize pupils' outputs and for documentation purposes only.

The researcher used statistical treatments such as

1. **Frequency.** It is defined as the arrangement of data shows the frequency of different values or group of values of variables. In statistics, it refers to the number of occurrences of statistical result.
2. **t-Test.** This was used to determine if there was a significant difference in the learners' engagement level before and after implementing MATHinik.
3. **Weighted Mean.** This was used to quantify the data on the respondents' agreement on thejr engagement level.
4. **Scoring of the Responses.** The responses were scored according to the responses scale indicated in the questionnaire. Each response scale contained the value scale or score, a range of weighted mean and verbal interpretation

Scale	Range	Interpretation
5	4.20- 5.00	Very High Engagement
4	3.40- 4.19	High Engagement

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3	2.60- 3.39	Moderate Engagement
2	1.80- 2.59	Low Engagement
1	1.00- 1.79	Very Low Engagement

The researcher used verbal interpretation to assess the engagement level of pupils in Mathematics. The highest score was ranged from 4.20- 5.00 with an interpretation of "Very High Engagement", the scale of 4 was ranged from 3.40- 4.19 with an interpretation of "High Engagement", the scale of 3 was ranged from 2.60- 3.39 with an interpretation of "Moderate Engagement", the scale of 2 was ranged from 1.80- 2.59 with an interpretation of "Low Engagement" and the lowest score was ranged from 1.00- 1.79 with an interpretation of "Very Low Engagement".

DISCUSSION OF RESULTS AND REFLECTION

This study explored the use of MATHinik. The outcomes of the study are presented here with. Discussion of the findings can be explained in detail as follows:

1. Pupils' Level of Engagement Before and After exposure to MATHinik

Table 1

Pupils' Level of Engagement

Before and After Implementing MATHinik

ENGAGEMENT LEVEL OF PUPILS	BEFORE		AFTER	
	Weighted Mean	Verbal Interpretation	Weighted Mean	Verbal Interpretation

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1.Take notes during Math class	2.25	Low Engagement	4.32	Very High Engagement
2.Use manipulatives or visual aids to help understand Math concepts	1.56	Very Low Engagement	3.17	Moderate Engagement
3.Work collaboratively with classmates on Math problems	3.53	High Engagement	4.11	High Engagement
4.Check work to make sure answers are correct	2.35	Low Engagement	3.78	High Engagement
5.Enjoy learning Mathematics	2.67	Moderate Engagement	3.08	Moderate Engagement
6.See connections between Mathematics and real- world situations	2.81	Moderate Engagement	4.45	Very High Engagement
7.Participate in class discussions about Mathematics	1.59	Very Low Engagement	4.06	High Engagement
8.Ask questions in Math class	1.80	Low Engagement	3.82	High Engagement
9. Volunteer to answer questions or solve problems on the board	2.63	Moderate Engagement	3.66	High Engagement
10.Complete Math assignments	2.82	Moderate Engagement	4.03	High Engagement
COMPOSITE MEAN	2.40	Low Engagement	3.85	High Engagement

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As can be gleaned on the table, the data shows that pupil's level of engagement is low as the composite mean is only 2.40 before MATHinik has been implemented. This stresses the fact that they are not motivated to learn and performed well in Mathematics.

However, after the researcher has implemented MATHinik, the learners' engagement level has been improved as it becomes 3.85 which was high engagement. This means that learners were motivated to learn because of the recognition given by their teacher.

In a sustained context, Wong et al. (2020) term self-directed learning as extending interest as students make meaningful internalization of the learning behaviour. Sa'ad et al. (2014) support the finding as they reveal that a lack of pedagogical innovations harms students' academic achievement. Recognizing the achievement boosts students' self-confidence; hence, it makes them free to make trials in solving problems, asking questions and urging the teacher to reteach some concepts they have not well mastered. This finding resonates with Peteros et al. (2020) that recognition boosts students' confidence and interest in learning Mathematics. Students with a high level of confidence are likelier to have high achievements in the subject (Hackett and Betz, 1989).

Wong et al. (2020) affirm that triggering interest involves facilitating an activity that elicits initial interest. In this study, award-winning and recognition triggered students' interests in participating actively in learning tasks and seeking assistance for improvement. The recognition, awards and good scores triggered students to engage in various activities. Students who developed an interest in learning Mathematics have significantly improved the subject's achievement.

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Moreover, offering rewards of any kind for each activity or task finished is one method for enhancing learner engagement (7 Successful Learner Engagement Strategies to Motivate Your Learners, 2022). It is believed that students will be more likely to participate in the series of activities when teachers recognize the efforts made by the students.

Looking at the assessment, as a whole, it explains that this motivational strategy truly helped teachers in enhancing engagement level of pupils.

The positive changes towards the behavior and engagement level of the pupils was also observed by the researcher during the implementation of MATHinik.

2. Significant Difference in the Learners' Engagement Level Before and After Implementing MATHinik

Table 2

Significant Difference in the Learners' Engagement Level Before and After Implementing MATHinik

	Mean	Std. Deviation	Critical Value	t-Statistics	Decision (Reject/ Accept Ho)	Verbal Interpretation
Treatment 1(Before)	2.40	1.03	-1.993	3.7867	Reject Ho	There is a significant difference.
Treatment2 (After)	3.85	2.29				

n = 43 α= 95%

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As shown in Table 2 indicated that there is significant difference before and after MATHinik has been implemented. Since the computed test statistics of 3.7867 is higher than the critical value of -1.993 at 95% level of significance, the researcher has to reject the null hypothesis that there is no significant difference on the learners' engagement level before and after MATHinik has been applied. It could be that learners became more motivated in learning Mathematics. This only means that using MATHinik is an effective strategy to enhance learner's engagement in Mathematics.

3. Plan of Action to Maximize the use of MATHinik

Table 3

Plan of Action to Maximize the Use of MATHinik

In order to maximize the use of MATHinik, an action plan is designed by the researcher. It includes the objectives, activities, person's involved, time frames as well as success indicator.

Objective	Activity	Person's Involved	Time Frame	Success Indicator
1. To conduct teachers, parents, and	1. Create a poster about the implementation of MATHinik	Researcher, School head,	1st week of the month	The partici pants of the program will

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pupils orientation program about the implementation of MATHinik.	to be posted in group chat or Facebook. 2. Have a discussion on how to use MATHinik. 3. Conduct meeting.	teachers, pupils, parents		be enlightened about the importance of using MATHinik
2. To gather proper data from pupils' performance and engagement level	1. Create rubrics. 2. Prepare a template for proper recording of outputs.	Researcher, School head, pupils parents	Year Round	Pupils' outputs were properly organized, implemen ted, and recorded on the template.
3. To recognize outstanding accomplishment of learners as MATHinik	1. Create certificates or ribbon 2. Organize a recognition event in the school to acknowledge learners' effort in accomplishing the tasks.	Researcher, School head, pupils parents	Quarterly Recognition	The learners develop a sense of pride of their achievement.

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4. To evaluate the implementation of MATHinik for improvement	1. Invite focal person so that this innovation can also be appreciated and assessed its effectivity. 2. Gather the M & E team for feedbacking.	Researcher, School head, teachers	Last week of its implementation	MATHinik has been improved based on the feedback gathered from the M & E team.

ACTION PLAN

This research paper analyzed MATHinik as Motivational Strategy in Enhancing Engagement Level of Pupils for the academic year 2023-2024.

To ensure the success of the study, the researcher prepared a work plan and timeline. The said work plan was presented in a table. For each activity, there is corresponding objective which guide in the preparation of the activity, the persons involved, and success indicator.

Objective	Activity	Persons' Involved	Time Frame	Success Indicator
1.Obtain approval to conduct the study	Write a letter of request.	School head, researcher	Last week of August, 2023	Request letter signed by the school head

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2. Seek an informed consent	Present and discuss the study in the meeting.	Parents, pupils, researcher	Second week of September, 2023	Parents agreed as indicated in the minutes of the meeting.
3. Conduct MATHinik	a. Orient the pupils and parents the importance of this activity b. Carry-out the activity	Researcher, Grade V pupils	Third week of September 2023 up to third week of May 2024	The plan was implemented.
4. Report results	Announce the results of the activity	Researcher, Grade V pupils, parents	Quarterly	Pupils' engagement increased and problems were addressed little by little.

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FINANCIAL REPORT

Below was the list of the expenses for the entire research conducted by the researcher:

ITEMS/MATERIALS	QUANTITY	COST OF ITEMS
Board paper (A4)	5 packs	Php250.00
Ink for printer	4 pcs	Php1000.00
Internet Connection		Php500.00
	TOTAL AMOUNT:	**Php1, 750.00**