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ENGAGING LEARNERS IN MATHEMATICS 2 ACTIVITIES THROUGH MARIS-PARES TECHNIQUE

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Abstract:
This study was conducted to increase pupils' level of engagement in Mathematics II. Due to the limited classroom interaction in the new normal set-up, learners have developed passive behavior in participating in different classroom activities. One of the subjects where pupils show poor engagement is Mathematics. Hence, we designed an intervention to improve the passive behavior of Grade 2 learners and increase their level of engagement in Mathematics. The data were obtained from the twelve (12) identified passive Grade 2 learners. Purposive sampling was employed in identifying the subjects of the study. Pre-observation was conducted to determine the level of engagement of the respondents, which was followed by the post-observation after the Maris-Pares Technique was implemented. Mean and t-test were used to treat the gathered data. Before the implementation of the intervention, the respondents were slightly engaged in Mathematics. The findings revealed that the Maris-Pares Technique contributes to the improvement of the Mathematics engagement of the respondents. Hence, the more the respondents are exposed to the Maris-Pares Technique, the higher the chance of their engagement in Mathematics activities.

Keywords: Maris-Pares Technique, pupil's participation, Mathematics II

1. Background of the Problem

The implementation of Online Distance Learning (ODL) is considered the most feasible learning system today, yet the most controversial. While it is true that through this learning modality, children are learning while being at home, many argue that children

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are more likely to develop undesirable learning attitudes and classroom behaviors. Moreover, brought about by the drastic and swift transition of the education system from face-to-face to the virtual teaching-learning process, many teachers are still in the process of acquiring online pedagogical skills and strategies to instill positive behavior in learners. However, effective instruction and the development of effective instructional environments have been demonstrated to decrease problem behaviors in students (Scott, *et al.* 2007)

Addressing the passive engagement of learners in classroom activities calls for immediate action, especially as the implementation of online distance learning is still ongoing. Teacher-student interaction inside a virtual space makes it more challenging for a teacher to address the passive engagement of learners towards classroom activities. Student engagement has become one of the desired outcomes of school in recent years because of its strong connection to student well-being. In an online article (Center for Teaching and Learning, 2021), it is stated that research has demonstrated that engaging students in the learning process increases their attention and focus, motivates them to practice higher-level critical thinking skills, and promotes meaningful learning experiences. Teachers who adopt a student-centered approach to instruction increase opportunities for student engagement, which then helps everyone to successfully achieve the course's learning objectives. Moreover, reiterated in the study of Devito (2016), evidence from previous research have shown decisive links between student engagement in learning and such outcomes as school dropout (Finn & Rock, 1997), substance use (Bond, *et al.* 2007), mental health, and academic outcomes (Bakker, Vergel, *et al.,* 2013). Hence, inappropriate engagement in classroom activities left unaddressed would also make an adverse impact on children's life outside the school. Neither passive nor aggressive engagement in classroom activities is not the key towards student outcomes but, active engagement is. In an online article by Dyer (2015), it is written that research has indicated strong correlations between student engagement (typically defined as attention to the area of focus, active participation in learning, and time on task) and student achievement. Therefore, to ensure learning for all students, opportunities to actively engage everyone in meaningful ways must be provided.

Mathematics is a vital part of learning for all children and is crucial to be taught during the early years of life because receiving a good grounding in math is an essential life skill. According to the journal of Sarama & Clements (2009), the early years are especially important for math development. Children's knowledge of math in these years predicts their math achievement for later years—and throughout their school career. It is reiterated in the study of Duncan *et al.* in press that what children know in math predicts their later reading achievement as well. Given these statements that early math learning predicts later math and reading achievement, it implies that math is a core component of learning and thinking. Research evidence supports this claim as findings reveal that introducing math to children from an early age helps to develop their understanding of all elements of problem-solving and reasoning in a broad range of contexts.

However, Mathematics is one of the most-hated subjects by the learners. Some students dislike math because they think it's dull. They don't get excited about numbers

and formulas the way they get excited about history, science, languages, or other subjects that are easier to personally connect to. They see math as abstract and irrelevant figures that are difficult to understand. In the study conducted by Gafoor & Karukkan (2015), among the 51 participants in their study, 88% of them chose Mathematics as the subject they most hated, and only 6% of them reported that they liked Math. There is a common belief that most students dislike Mathematics, due to an array of factors related to instruction and students' cognitive, affective and psychomotor attributes, subject matter, and the learning environment. In addition, major reasons to dislike mathematics were related to difficulty in understanding the subject matter, and teacher or instructional-related factors. For instance, Ukobizaba, Ndihokubwayo, and Uworwabayeho (2020) argued that teachers' mastery of the content and its effective delivery is not sufficient, but also showing care to students is among the factors that enhance students' interest in learning Mathematics.

Akin to this, teachers' attention is called out to design strategies that would increase learners' participation and engagement in Mathematics subject. One of the suggested techniques is through pairing. Pair work is suitable for all ages and subjects. It is a natural way for learners to talk and learn more. It gives them the chance to think and try out ideas. It can provide a comfortable way for students to work through new skills and concepts, and works well in large classes. In the study of Biju (2013) entitled *Benefits of Working in Pairs in Problem Solving and Algorithms,* he concluded that working in pairs positively affects performance and reading achievement for students of all levels, accommodates diverse students to the classroom, improves social and behavioral attitudes such as sense of control and self-responsibility in the students. In the same vein, McDonough (2004) stated that the use of pair and small group activities in L2 classrooms is supported both theoretically and pedagogically. The study was carried out in the Thai EFL context, trying to investigate whether the learners in pairs and small groups showed improved production of the target forms; the researcher also explored the learners' and practitioners' perceptions of using pair-work and small-group activities. The results indicated that the participants who had done the activity in pairs with more participation demonstrated improved production of the target forms. Hence, the researchers will try to address the learners' passive engagement in Mathematics 2 activities through the Maris-Pares Technique.

During the researchers' field study courses, they conducted initial observations on the behavior of Grade 2 pupils and noted that there were those who engaged in inappropriate engagement during classroom activities. The researchers discovered the adverse impacts of having overly active and passive learners in one virtual classroom among a group of Grade 2 pupils during Mathematics activities. The strength of the active learners made the passive ones remain silent and unengaged in different classroom activities. As a result, not all of the learners get to participate and contribute during the discussion.

The teacher in charge said that learners' inappropriate engagement with different Math activities is disruptive in class. Overly active learners tend to draw far more attention from teachers, whereas teachers may overlook inattentive students in spite of

the potentially profound effects of nonparticipation in class. Active learners usually do not give chances to others to participate in activities. On the other hand, trying to motivate the passive ones to participate takes time, especially in a virtual space.

With these observations made by the researchers, they have developed an intervention called the Maris-Pares technique. It is basically a pairing strategy, pairing together an overly active learner with a passive one during Mathematics activities.

To conclude, this study aimed to improve the engagement of Grade 2 pupils during Mathematics activities in a virtual space. It sought to encourage both the active and passive learners to interact and collaborate with their peers in order to build social support from each other while still enjoying mathematics activities. It also benefits learners by developing an interest in mathematics subjects that will drive learners to create interesting and meaningful learning experiences.

2. The Strategy or Intervention

The Maris-Pares Technique is an intervention to engage all learners – both active and passive – in Mathematics activities. The strength of the active learners will fill the gaps of the passive. Active learning theory will be employed in this intervention. This technique works in a group consisting of passive and active learners. From that group of learners, they will participate in a particular activity that will be assigned, identifying what they have to do and what not to do. In this technique, learners are encouraged to participate in collaborative activities and can build social support from each other, assured that all learners will participate.

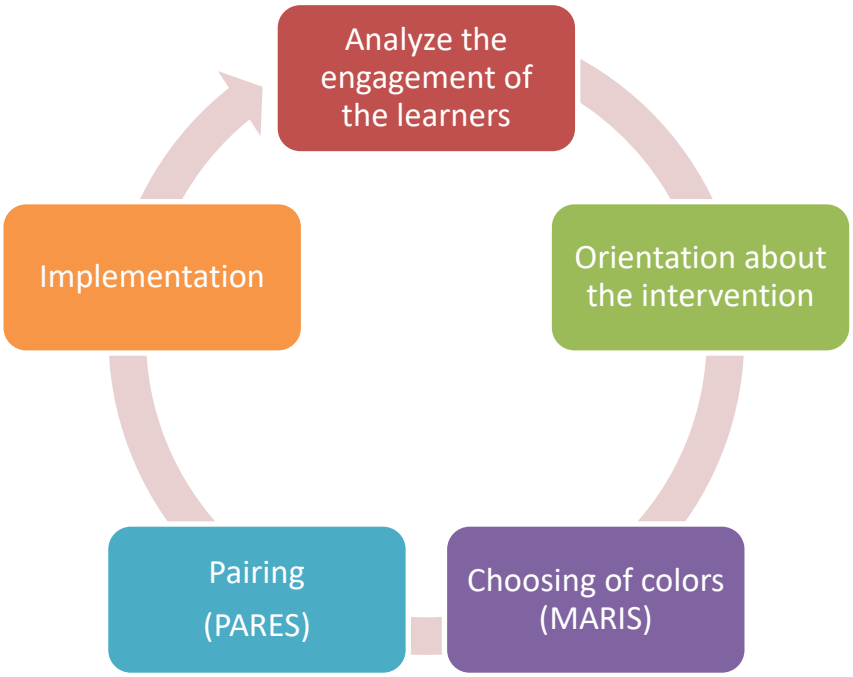

Figure 1: The Maris-Pares Cycle

3. Procedure

Phase I: Analyze the engagement of the learners
Before the activity, the researchers analyze the participation of the Grade 2 pupils in a series of certain activities. The researchers observe who is active and who is passive in participating in these activities.

Phase II: Orient the learners about the intervention
The researchers will orient the learners about the intervention, which is the Maris-Pares Technique, wherein the Grade 2 pupils will be grouped based on the color they chose and based on their level of participation (active or passive).

Phase III: Choosing of colors
The researchers let the Grade 2 pupils choose the color they want.

Phase IV: Pairing
The researchers group the pupils (by pair) based on their participation and based on what color they chose.

Phase V: Implementation
During this phase, the Maris-Pares Intervention is now being implemented and being used in the discussion.

Phase VI: Analyze the engagement of the learners
After the activity, the researchers analyze the performance or the participation of each pair to determine if there is an improvement. The researchers then analyze whether the strength of the active learners filled the gaps of the passive ones.

4. Action Research Questions

This action research aimed to improve the engagement of Grade 2 pupils of Mariano Marcos State University-Laboratory Elementary School for the Academic Year 2021-2022 in Mathematics 2 activities through the Maris-Pares technique. Likewise, this research determined whether or not the Maris-Pares technique is effective as an intervention program to improve the engagement of learners in Mathematics 2 activities.

Specifically, the study sought to answer the following questions:

1) What is the level of engagement of Grade 2 learners in Mathematics 2 activities before the intervention of the Maris-Pares technique?
2) What is the level of engagement of Grade 2 learners in Mathematics 2 activities after the intervention of the Maris-Pare technique?
3) Is there a significant difference in the level of engagement of learners after they have been exposed to the Maris-Pares technique?

5. Action Research Methods

This section details the research methods used to obtain the study's results. It covers the research design, setting, participants, instruments, data collection procedures, ethical considerations, and data analysis techniques.

5.1 Research Design

There were two instruments used in this action research in order to answer the research questions. The researchers utilized descriptive analysis and a paired t-test in evaluating and interpreting the collected data.

Descriptive analysis was used in interpreting the gathered data from the result of the researcher-made rating scale on the student level of engagement in mathematics activities. This analysis was conducted before and after the implementation of the Maris-Pares technique.

After gathering all the data, the before and after results of the rating scale were evaluated using the statistical test called the paired t-test. It measured and identified whether or not there was a significant difference in the level of engagement of the Grade 2 pupils after they had been exposed to the Maris-Pares technique.

5.2 Research Setting

This study was conducted during the 2nd quarter of the 2021-2022 academic year at Mariano Marcos State University's Laboratory Elementary School (Laoag Campus) through online. The researchers, undertaking their field study courses at this location, observed firsthand the issues that prompted this research. Data were collected through observation of recorded and synchronous online classes and conducting informal interviews with the Grade 2 pupils as well as with their resource teachers.

5.3. Research Participants

The data used in this research were obtained from the Grade 2 pupils of Laboratory Elementary School of Mariano Marcos State University, Second Semester of the School Year 2021-2022. These Grade 2 pupils consist of 2 sections (Grade II – Masinop and Grade II – Masinop) whom the researchers observed during their Field Study 2 Course. Data were collected from their synchronous and recorded online classes in Mathematics, as well as these learners' individual and by-pair outputs. Moreover, feedback coming from their teachers and advisers was also documented.

5.4. Research Instrument

A researcher-made rating scale was used before the intervention of the Maris-Pares technique. This instrument was used in assessing the behavior of the learners during their Math activities. After being exposed to the Maris-Pares technique, the Grade 2 pupils were again rated using the same rating scale constructed by the researchers. The rating scale utilized was composed of 20 items, with four (4) leading indicators:

a) participation in class;

b) quality of comments;
c) behavior; and
d) listening skills

The tool was validated and was rated "Valid" with a mean score of 4.49. This result indicates that the instrument used is appropriate as a tool in assessing the engagement level of the Grade 2 learners.

In gathering additional and detailed information about the obtained results, interview questions were asked to the pupils as well as to the resource teacher using a researcher-made interview guide.

5.5 Data Collection Methods

To formally conduct the study, the researchers first obtained permission from the University Dean to proceed with the action research. Following this approval, they prepared a formal letter addressed to the Principal of the University Laboratory School. Upon receiving consent, the researchers then sent a letter to the parents, subject teachers and advisers of Grade 2-Masinop and Grade 2-Matipid learners. Those involved were likewise briefed on the process for implementing the intervention.

The collection of data was made possible through analyzing the results of the researcher-made rating scale.

A researcher-made rating scale was used before the intervention of the Maris-Pares technique. This instrument was used in assessing the behavior of the learners during their Math activities. The researchers analyzed the results of the observation checklist to identify which of the learners were passive. After being exposed to the Maris-Pares technique, the Grade 2 pupils were again rated using the same rating scale constructed by the researchers.

The results of the analysis and assessment were tabulated and interpreted. In gathering additional and detailed information about the obtained results, interview questions were asked of the pupils as well as the resource teacher using a researcher-made interview guide.

5.6 Ethical Considerations

This study adhered strictly to the following ethical considerations: Before implementation, all participants received complete information about the study's purpose, procedures, voluntary nature of participation, and the confidentiality of collected data.

Prior to implementation, formal letters seeking permission to conduct the study were sent to all relevant participants – teachers, advisers, and parents of the Grade 2 learners. Permission was granted. Moreover, the participants were encouraged to express any concerns or dissatisfaction to the school administration, anonymously or directly, or to contact the researchers directly. Contact information was provided.

The researchers clarified that the study would involve eight sessions: four for pre-assessment and four for post-assessment, all conducted exclusively during math activities.

To uphold confidentiality, the names of the kindergartners were excluded from the results discussion. Additionally, photographs taken during the study were stored securely, with faces blurred to protect the children's identities.

5.7 Data Analysis

Descriptive analysis was used in interpreting the gathered data from the result of the researcher-made rating scale on the student level of engagement in mathematics activities. This analysis was conducted before and after the implementation of the Maris-Pares technique.

Interval of Scores	Descriptive Interpretation
4.5 – 5.00	Highly Engaged
3.5 – 4.49	Engaged
2.5 – 3.49	Moderately Engaged
1.5 – 2.49	Slightly Engaged
1.0 – 1.49	Not Engaged

After gathering all the data, the before and after results of the rating scale were evaluated using the statistical test called paired t-test. It measured and identified whether or not there was a significant difference in the level of engagement of the Grade 2 pupils after they have been exposed to the Maris-Pares technique.

6. Discussion of Results

This chapter presents the results of the different methods of data collection related to evaluating the effectiveness of engaging learners in Mathematics 2 activities through the Maris-Pares technique. Likewise, in-depth discussions of these results will be presented in this chapter, which is primarily divided into three sections:

a) the level of engagement of Grade 2 learners in Mathematics 2 activities before the intervention of the Maris-Pares technique;
b) the level of engagement of Grade 2 learners in Mathematics 2 activities after the intervention of the Maris-Pare technique; and
c) the level of engagement of learners after they have been exposed to the Maris-Pares technique.

6.1 The Level of Participation of Learners in Mathematics 2 Before the Intervention

The following data presents the result of pupils 'participation in Mathematics 2 activities for four sessions of pre-observation in both Grade 2 – Masinop and Grade 2 - Matipid. Towards the end of this session is the overall level of participation of Grade 2 learners before the intervention.

The result of the participation of Grade 2 – Masinop gained a mean score of 1.39 which indicates that the learners were "not engaged" during the conduct of Mathematics activities while the Grade 2 – Matipid in their Mathematics 2 obtained a mean score of

1.87, with the descriptive interpretation of, "slightly engaged". The overall mean score of the participation of both Grade 2-Masinop and Grade 2-Matipid in their Mathematics 2 activities before the implementation of the Maris-Pares Technique is 1.63, which has a descriptive interpretation of "slightly engaged". This result shows that the learners were not well-engaged in the conduct of Mathematics 2 activities before the implementation.

Table 1: Overall level of participation of learners in Mathematics 2 before the conduct of the intervention

Section	Session				Mean	Descriptive Interpretation
	1st	2nd	3rd	4th		
Masinop	1.38	1.42	1.46	1.29	1.39	Not Engaged
Matipid	2.00	2.00	1.46	2.00	1.87	Slightly Engaged
Overall					**1.63**	**Slightly Engaged**

Legend:

Range of Mean	Descriptive Interpretation
4.5 – 5.00	Highly Engaged
3.5 – 4.49	Engaged
2.5 – 3.49	Moderately Engaged
1.5 – 2.49	Slightly Engaged
1.0 – 1.49	Not Engaged

During the pre-observation sessions, researchers noted a concerning trend among the learners: they were reluctant to respond to questions, even when posed with the most basic yes-or-no inquiries. This was accompanied by visible signs of boredom, with only the PowerPoint presentation as the instructional material. Many students exhibited shyness and anxiety when their names were called, further inhibiting their participation. Session after session, the researchers identified poor internet connection as a significant factor hindering Grade learners' participation in online Mathematics activities. This issue highlights the crucial role of a conducive learning environment, particularly in virtual settings. Learners who were observed to have struggled with unreliable internet connections struggle to engage in discussion, complete activities, and even feel compelled to leave the virtual classroom due to frustration with the technical limitations. Takase *et al.* (2019) discuss students' perceptions of teaching factors that demotivate their learning during lectures. Their study highlighted the negative impact of a lack of learning resources, both within and outside of class time. Students expressed frustration with insufficient equipment to participate in lecture and laboratory activities, which significantly hindered their learning progress. This study implies that when it comes to equipment used in the teaching-learning process in a virtual setting, ensuring a stable and reliable internet connection plays a crucial role for effective participation.

6.2. The Level of Participation of Learners in Mathematics 2 After the Intervention

The following data presents the level of engagement of Grade 2 learners in Mathematics 2 activities for 4 classes/sessions. Towards the end of this section is the overall level of participation of learners in Mathematics 2 activities after the intervention.

Table 2 presents the overall level of participation of learners in Mathematics 2 after the conduct of the intervention. Findings reveal that Grade 2-Masinop got a mean score of 3.15, which indicates that the learners were moderately engaged, while the Grade 2-Matipid got a mean score of 4.02, with the descriptive interpretation of "engaged" after the Maris-Pares Technique was implemented. The overall mean score of Grade 2-Masinop and Grade 2-Matipid of 3.58 gives a descriptive interpretation of moderately engaged.

Table 2: Overall level of participation of learners in Mathematics 2 after the conduct of the intervention

Section	Session				Mean	Descriptive Interpretation
	1st	2nd	3rd	4th		
Masinop	1.67	2.29	3.92	4.71	3.15	Moderately Engaged
Matipid	3	3.79	4.58	4.71	4.02	Engaged
Overall					**3.58**	**Moderately Engaged**

Legend:

Range of Mean	Descriptive Interpretation
4.5 – 5.00	Highly Engaged
3.5 – 4.49	Engaged
2.5 – 3.49	Moderately Engaged
1.5 – 2.49	Slightly Engaged
1.0 – 1.49	Not Engaged

The result of the improvement on the level of participation of Grade 2 learners in Mathematics activities conforms with the study of Nguyen (2013) wherein he concluded that working in pairs positively affects performance for students of all levels, improving at the same time their social and classroom behavioral attitudes. In the same vein, McDonough (2004) stated that the use of pair and small group activities in L2 classrooms is supported both theoretically and pedagogically. The results of his study indicated that the participants who had done the activity in pairs with more participation demonstrated improved production of the target forms. Hence, the researchers of this study addressed the learners' passive engagement in Mathematics 2 activities through the Maris-Pares Technique.

5.3. Difference Between the Level of Participation of Learners in Mathematics 2 Before and After the Intervention

Table 3 presents the computed p-value derived from the data collected before and after the intervention. The result indicates a significant difference in the level of participation among Grade 2 learners in Mathematics activities when comparing the two time points.

Specifically, the analysis revealed highly significant differences following the implementation of the Maris-Pares Technique as an intervention.

Table 3: Computed p value based on the data before and after the intervention

	Before Intervention	**After Intervention**
Mean	1.63	3.58
Difference	1.96	
t-Value	2.36462	
p Value	0.00191	

*significance at 0.05 probability level

As the computed p value (0.00191) is much lower than the significance probability level, the null hypothesis (Ho) is rejected. Hence, the alternate hypothesis (Ha) is accepted wherein there is a significant difference in the level of engagement of learners after they have been exposed to the Maris-Pares Technique.

This finding suggests that the Maris-Pares technique effectively enhances participation in Mathematics activities, indicating its potential as a valuable intervention for improving student engagement in the classroom. The marked increase in the mean participation score from 1.63 to 3.58 further underscores the positive impact of this instructional strategy on learner involvement.

7. Reflection

This action research was conducted to increase the level of engagement of Grade 2 pupils in Mathematics activities through an intervention called the Maris-Pares Technique. The study sought to answer pupils' level of engagement in Mathematics 2 activities before the implementation of the intervention, and after the implementation of the intervention and the significant improvement in pupils' level of engagement in Mathematics 2 activities. In the conduct of this study, the Grade 2 pupils participated in synchronous classes where the Maris-Pares intervention was implemented. Before the implementation of the intervention, 4 sessions of synchronous classes in Mathematics 2 were observed, wherein the level of engagement of the pupils was interpreted.

The result of the participation of Grade 2 – Masinop gained a mean score of 1.39, which indicates that the learners were "not engaged" during the conduct of Mathematics activities while the Grade 2 – Matipid in their Mathematics 2 had a mean score of 1.74 with the descriptive interpretation of, "slightly engaged". The overall mean score of the participation of both Grade 2-Masinop and Grade 2-Matipid in their Mathematics 2 activities before the implementation of the Maris-Pares Technique is 1.63, which has a descriptive interpretation of "slightly engaged". This result shows that the learners were not well-engaged in the conduct of Mathematics 2 before the implementation.

Findings reveal that Grade 2-Masinop got a mean score of 3.15, which indicates that the learners were moderately engaged while the Grade 2-Matipid got a mean score of 4.02, with the descriptive interpretation of "engaged" after the Maris-Pares Technique

was implemented. The overall mean score of Grade 2-Masinop and Grade 2-Matipid of 3.58 gives a descriptive interpretation of moderately engaged.

The overall mean score of the pupils' engagement in Mathematics 2 activities before the implementation was 1.63, resulting in a descriptive interpretation of "slightly engaged". Following the implementation of the Maris-Pares Technique in Mathematics 2 activities, the overall mean score came out to be 3.58, giving a descriptive interpretation of "moderately engaged".

Based on the results and findings, the researchers concluded that the use of the Maris-Pares Technique could help learners with passive behavior increase their engagement in Mathematics activities. It is easier for the learners to retain their concentration and engagement in conducting classroom activities with the help of the motivation they gain from their peer/pair/buddy-buddy. This being said, these learners, in no time, will get to be active in participating in different Mathematics activities, leading to better academic performance.

8. Recommendations

With the findings of the study showing that the Maris-Pares Technique is an effective intervention in increasing the level of engagement of learners, the researchers suggested recommendations for teachers, parents, and future researchers.

The teachers are suggested to use the Maris-Pares Technique not only in the conduct of Mathematics activities, but also in tasks across subject areas. Furthermore, teachers can use the Maris-Pares Technique not only in virtual/online classes but also inside an actual classroom context in a face-to-face mode of classes. Teachers should apply the Maris-Pares Technique in teaching complex topics and should integrate a game-based approach in the use of the Maris-Pares Technique to help them better retain their concentration in the activities.

For the parents, the researchers recommend that they should implement the Maris-Pares technique inside their homes. They could implement this by initiating activities with their passive child partnered by the parents themselves or with their active sibling or peers. The best thing that parents can do is to motivate them to be active by giving them positive feedback for their positive behavior, integrating the reward system if necessary and practising the intervention often until the desired result is seen.

Lastly, the researchers recommend that this study be used by future action researchers in the same field of education in conducting research studies associated with teaching techniques.

Conflict of Interest Statement

The authors of the study, "Engaging Learners in Mathematics 2 Activities Through Maris-Pares Technique3", declare the absence of any conflict of interest related to the research's conduct, analysis, or dissemination of findings. The study's sole purpose was to objectively evaluate the effectiveness of the Maris-Pares Technique in improving Grade 2 learners' participation in Mathematics. The research design, data collection,

analysis, interpretation, and reporting were all conducted independently, free from external influence or bias.

No financial, professional, or personal relationships existed that could have potentially influenced the study's outcomes or created any conflict of interest, perceived or actual. The intervention and methodologies employed were developed and implemented with the explicit goal of improving young learners' classroom participation, ensuring that the results accurately reflect the observed changes in student participation.

All findings and interpretations presented are derived solely from the analyzed data. No external entities, organizations, or individuals had any vested interest in, or exerted any influence on, the study's results. The authors maintain a steadfast commitment to transparency and the highest standards of academic integrity throughout the entire research process.

Conflict of Interest Statement

The authors declare no conflicts of interest.

About the Author(s)

Ms. Crystal V. Limos, Engelyn D. Basilio, Lyra L. Dela Cruz, and Romely M. Burogsay are graduates of the Bachelor of Special Needs Education (BSNEd) program at the Mariano Marcos State University, College of Teacher Education (MMSU-CTE). With a strong foundation in child behavioral approaches and hands-on field experience, the authors bring specialized expertise in addressing diverse learner needs. Their research employs both qualitative and quantitative methods, including classroom observations, interviews, and surveys, to ensure a comprehensive understanding of learner behavior and participation. Their study aims to enhance learner involvement and promote meaningful engagement across varied educational settings, whether conducted virtually or face-to-face.

Professor May Flor C. Rivera, a faculty member in the Early Childhood and Special Needs Education Department at MMSU-CTE, brings expertise in early childhood education, inclusive education, and instructional materials design for young learners. Her research contributions are published on Google Scholar and ResearchGate, and her profile is available on the Mariano Marcos State University website. The authors' combined expertise strengthens this research and contributes to best practices in special education.

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