FACTORS AFFECTING THE ACADEMIC PERFORMANCE OF MORENO INTEGRATED SCHOOL'S JUNIOR HIGH SCHOOL LEARNERS IN MATHEMATICS

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Factors Affecting the Academic Performance of Moreno Integrated School's Junior High School Learners in Mathematics

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ABSTRACT

This action research aimed to determine the factors affecting the academic performance of Moreno Integrated School's Junior High School learners in Mathematics. The researcher utilized a descriptive-survey research design to address the action research questions and gain an in-depth understanding of the study. The respondents of this action research were ten (10) Mathematics teachers and one hundred (100) learners of Junior High School. Data were gathered through survey questionnaire utilizing Google form for those respondents with internet connections and distributed questionnaires for those who do not have an access to the internet.

Based on the result of this action research, the learners and teachers strongly agreed that the academic performance in Mathematics were affected by the learners' factors, teachers' factors, teaching strategies, and parental involvement with an average weighted mean of 3.09 *(learners)* and 3.33 *(teachers).* The result also showed that there were various factors identified by the researcher that affect the learners' academic performance in Mathematics.

As an output, the researcher created a handbook entitled “Pedagogies in Teaching Mathematics Effectively” that contributes to the development of remedial instructions that can be easily understood and assimilated by Mathematics teachers of Moreno Integrated School. This handbook contained two distinct parts. The first part described the four competencies (tailored-fit to Moreno Integrated School setting and based from the combined knowledge of selected Mathematics teachers in Junior High School). These competencies are: (1) knowledge of the content and structure of Mathematics; (2) knowledge of cognitive/developmental theories; (3) knowledge of diagnosing learners’ errors; and (4) knowledge of selecting instructional strategies appropriate for teaching Mathematics skills and concepts. The second part consisted of the development of pedagogies that will address the learners’ poor academic performance in Mathematics.

Understanding the academic performance of the learners is relevant and timely undertaking, the findings of this action research provide not only the data but an avenue to proposed an action plan and develop the level of intellect of the at-risk learners. To improve such, this requires the involvement of the teachers and parents to motivate the learners to perform well in Mathematics.

Key words: Academic Performance, Pedagogies, Learners’ and Teachers’ Factors, Mathematics

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CONTEXT AND RATIONALE

There are diverse conditions that affect learners in their academic exploration. One recent condition is the COVID-19 pandemic. This condition has created many challenges for teachers, learners, and parents as they transitioned into modular distance learning. Modular distance learning separates the learners and teachers by space or time. This separation makes learning in this modality an attempt to artificially present teachers in front of learners to realize the learning process. In this modality, printed learning materials studied independently by learners arranged in the form of modules. Each module has the most essential learning competency objectives that learners can acquire after learning it. The discussion in the module is designed to resemble a teacher's exposure when giving face-to-face classes. Further, the emotional effect induced by the COVID-19 emergency, regarded the two aspects of teaching Mathematics. First, without judging the suitability of this approach, related to the fact that teachers at the secondary level generally teach Mathematics in a formal way, using many symbols and formulas to illustrate mathematical ideas for their learners to see. Second aspect is that the way Mathematics is taught is also related to the learners to whom the teaching is addressed. Teaching Mathematics to learners involves a different approach to lessons as well as to the choice of topics. This is not only found in the modular distance learning and online learning but also in face-to-face modality.

Teachers are responsible in providing learners with equal opportunities to learn in school which is stipulated in the "No Filipino Child Left Behind Act of 2008"

which aimed to protect and promote the right of the citizens to quality education and to take appropriate steps to make such education accessible to all. The DepEd's mission, "*To protect and promote the right of every Filipino to quality, equitable, culture-based, and complete basic education where; Students learn in a child-friendly, gender-sensitive, safe and motivating environment. Teachers facilitate learning and constantly nurture every learner. Administrators and staff, as stewards of the institution, ensure an enabling and supportive environment for effective learning to happen. Family, community, and other stakeholders are actively engaged and share responsibility for developing life-long learners."* is also anchored to this act. One way of providing quality education is to provide equal opportunities for children to be educated regardless of sex, ethnicity, race, religion, and the like. Thus, the teacher allows learners to achieve maximum learning. That is why the teachers can promote healthy competition based on individual skills and abilities and not by groups.

The "Mathematics Framework for Philippine Basic Education" contains resources that will help curriculum developers, teachers, school administrators, and policymakers to design and implement mathematics curricula that empower learners to "learn to learn" and cause them to better understand and use Mathematics in their everyday life. The strategies are only for Grades 1 - 10, however, because of the progressive nature of the concepts, curriculum development can easily be extended to cover K - 12. It hoped that this framework will be widely used and applied by the various stakeholders and that together it will

work towards achieving the vision of scientifically, technologically, environmentally literate, and productive individuals through quality mathematics education. The current situation has changed the framework due to the implementation of different learning modalities. DepEd Order No. 12, s. 2020 entitled *"Adoption of the Basic Learning Continuity Plan for School Year 2020-2021 in Light of the Covid-19 Public Health Emergency"* has been implemented this school year. The department developed a Basic Education Learning Continuity Plan (BE-LCP) to respond to basic education challenges brought about by COVID-19. One of the principles of BE-LCP is to ensure learning continuity through K-12 curriculum adjustments, alignment of learning materials, deployment of multiple learning delivery modalities, and provision of corresponding training for teachers and school leaders, and proper orientation of parents or guardians of learners.

Republic Act No. 9155 (RA No. 9155), otherwise known as the Governance of Basic Education Act of 2001, mandates the Department of Education (DepEd) to formulate educational policies to improve the delivery of its services and achieve basic education outcomes. In line with this, DepEd implemented Republic Act No. 10533 (RA No. 10533) entitled "Enhanced Basic Education Act", also known as the K to 12 Program, which aims to equip Filipino learners with skills and competencies that address the demands of the 21st Century. Assessment plays an important role in determining the quality of basic education. In the context of the K to 12 Program, assessment results shall be used to look into the learners' performance so that relevant and responsive policies, programs, and/or reforms

can be introduced to further improve teaching and learning quality. Mathematics Literacy was assessed as the major domain in the 2003 and 2012 cycles of Programmed for International Student Assessment (PISA). The mean score for Mathematical Literacy of students in private schools was 395 points, significantly higher than the mean score of students in public schools with 343 points. The average score of students from private schools reached Proficiency Level 1, while the public-school average score fell below Level 1 proficiency. Hence, a typical student from a private school can answer straightforward Math problems, while an average student from a public school may have difficulty doing the same tasks. The average Mathematical Literacy score of Senior High School Students was 448 points, significantly higher than the average of 352 points attained by the Junior High School students. The mean score of Junior High School students fell below Level 1 Mathematics proficiency, whereas the mean score of Senior High School students reached Proficiency Level 2. Hence, SHS students can generally interpret and recognize situations in contexts that require no more than direct inference, while an average JHS student still struggles to answer basic and straightforward mathematical problems. The Mathematical Literacy assessment conducted by PISA is similar to the result of the Performance Level of the learners in Moreno Integrated School, as the locale of the study, Grade 7 has 83.75, Grade 8 has 82.00, Grade 9 has 83.00, and Grade 10 has 87.75 with an average performance level of 84.13 or “Satisfactory”. The performance level of the junior high school (Grade 7-10) is lower than the performance level of the senior high school of 85.33 or “Very Satisfactory”.

In many cases, learners have been found to approach Mathematics as procedural and rule-oriented. This prevents them from experiencing the richness of Mathematics and the many approaches that could be used to develop competence in the subject. A number of studies have explored the concept of factors affecting learners' performance in Mathematics with divergent views and findings. According to Lambdin (2009), mathematical demands on learners increase as they progress through school; they take up their adult lives at home and in the workplace. In order to function in a mathematically literate way in the future, learners must have a strong foundation in Mathematics. A strong foundation involves much more than the rate of application of procedural knowledge. Ontorio Ministry of Education report in 2004 shows that all learners should be able to understand, make sense of, and apply Mathematics; make connections between concepts and see patterns throughout Mathematics. The report shows that learners must be able to communicate their reasoning, the flexibility of thinking that will allow them to tackle new areas of Mathematics and be willing to continue in doing Mathematics.

The findings of Iheanachor (2007), indicate that there is a significant positive relationship between learners' academic achievement in Mathematics and teachers' background. Teachers who have good qualifications in Mathematics have their learners performing better in Mathematics. Tata (2014) did his study in Nigeria and came out with findings that students' negative attitude towards Mathematics, fear of Mathematics, inadequate qualified teachers and inadequate

teaching material were some of the causes of poor performance in Mathematics. Developing a positive attitude, motivation and proper guidance toward Mathematics and provision of relevant teaching materials could make learners perform better in Mathematics. The teacher's central role in promoting in-depth learning requires understanding and practicing some of the basic principles of conceptual learning in Mathematics. These principles include teaching general knowledge or generic concepts in the subject and helping learners improve their academic performance. Teachers can use a wide variety of activities and techniques such as discussion, stories, songs, role plays, visual illustrations, patterns seeking, using examples from real life, and use of analogy and explanations to help in building prerequisite knowledge and strengthen connections between what students already know about a concept and what they need to know (McLaren, 2010).

Teachers' knowledge about how learners think and reason about Mathematics is a key component of pedagogical content knowledge for the teachers of Mathematics. It informs instructional practices and guides instructional decision-making by providing an important lens through which to view and interpret how students respond to lesson activities generally and to assigned Mathematics tasks in particular. Accordingly, it drives instructional modifications and interventions that are responsive to learners' needs and result in improved learners' performance relative to quality mathematics standards (Jenkins, 2010). The in-depth learning approves, the intention to extract meaning produces active

learning processes that involve relating ideas and looking for patterns and principles on the one hand or holistic strategy, and using evidence and examining the logic of the argument on the other. The approach also involves monitoring the development of one's own understanding (Entwistle, 2000).

In Moreno Integrated school teachers applied different strategies in teaching Mathematics, but those were practiced in the traditional classroom setting during the face-to-face classes. Today that our educational system has transformed into modular distance learning, interventions should be applied to counter the negative effect of the pandemic to the teaching-learning situation based on the factors affecting the academic performance of the learners in Mathematics in the implementation of Modular Distance Learning. This motivates the researcher to determine the factors affecting the academic performance of Moreno Integrated School's Junior High School learners in Mathematics and to come up with pedagogical strategies which will fit to uncover the problem.

INNOVATION, INTERVENTION, AND STRATEGY

The researcher created a handbook entitled "Pedagogies in Teaching Mathematics Effectively" that contributes to the development of remedial instructions that can be easily understood and assimilated by Mathematics teachers of Moreno Integrated School. This handbook contained two distinct parts. The first part described the four competencies (tailored-fit to Moreno Integrated School setting and based from the combined knowledge of selected Mathematics

teachers in Junior High School). These competencies are: (1) knowledge of the content and structure of Mathematics; (2) knowledge of cognitive/developmental theories; (3) knowledge of diagnosing learners' errors; and (4) knowledge of selecting instructional strategies appropriate for teaching Mathematics skills and concepts. The second part consisted of the development of pedagogies that will address the learners' poor academic performance in Mathematics.

The innovation was used as basis of intervention of the teachers during the 3rd and 4th quarters which increased the academic performance of the learners. Prior to the distribution of the handbook, pilot testing and validation were conducted. The suggestions and recommendations during the Focus Group Discussion (FGD) and feedbacking were also accepted and included in the final output. Orientation and distribution of the handbook entitled "Pedagogies in Teaching Mathematics Effectively" was also conducted. Each teacher also received a copy of the handbook for the utilization and application of the content on the teaching and learning process.

According to the Mathematics teachers who utilized the handbook, the content is very useful and the enumerated pedagogies and techniques in teaching Mathematics are very effective even in the online classroom setting. As shown in the data (table 1), there is an increase in the performance of Grade 7 students of 2.5%, in Grade 8 students of 2%, in Grade 9 students of 3%, and in Grade 10 students of 2.5%.

ACTION RESEARCH QUESTIONS

This action research aimed to determine the factors affecting the academic performance of Moreno Integrated School's Junior High School learners in Mathematics.

Specifically, it sought to answer the following:

1. What is the mean performance level based on the academic performance of the Junior High School's learners of Moreno Integrated School in Mathematics during the 1st and 2nd Quarters of S.Y. 2020 to 2021?
2. What are the factors affecting the academic performance in Mathematics based on the level of agreement of the:
   a. learners; and
   b. teachers?
3. Is there a significant relationship between the factors and academic performance of Junior High School's Learners of Moreno Integrated School in Mathematics?
4. What pedagogical strategies can be used to address the learners' poor academic performance in Mathematics?

ACTION RESEARCH METHODS

The researcher utilized a descriptive-survey research design to address the action research questions and gain an in-depth understanding of the study.

Moreover, the researcher applied a descriptive-correlational research approach since it involves the collection of data to determine the significant difference between the views of the learners and teachers on the factors that lead to learners' poor academic performance in Mathematics.

a. Participants and/or other Source of Data and Information

The respondents of this action research were ten (10) Mathematics teachers and one hundred (100) learners of Junior High School (Grade 7 to 10) in Moreno Integrated School who attained fairly satisfactory grade of 75 – 79 and do not meet expectation with the grade of 74 and below on the 1st and the 2nd quarters SY 2020-2021 in Mathematics. The researcher used random and convenience sampling wherein respondents were selected randomly and based on the availability and willingness to take part in the study.

b. Data Gathering Methods

The researcher conducted a survey through google form for those respondents with internet connections and distributed questionnaires for those who do not have an access to the internet. A researcher-made questionnaire was utilized to gather the data. A pilot test prior to the actual data collection was completed to establish validity of the instrument. The survey questionnaire for learner respondents consisted of four-point Likert Scale to measure the factors affecting the academic performance of Moreno Integrated School's Junior High

School learners in Mathematics; while the questionnaire for teacher respondents consisted of two parts: (1) a four-point Likert Scale to measure the factors affecting the academic performance of Moreno Integrated School's Junior High School learners in Mathematics; and (2) to identify the teaching strategies of the teachers. The questionnaire was the primary source of data in determining the factors affecting the academic performance of Moreno Integrated School's Junior High School learners in Mathematics and identifying the pedagogical strategies to address the problem.

Approval of the letter of request to the school head of Moreno Integrated School was done prior to the conduct in the study. Parent's consent was also provided for the learners who take part of the study. The respondents responded based on their own free will without any influence from another person. Aside from the questionnaire, this study also employed structured interviews wherein the researcher provided the teacher respondents with pre-set questions and let them respond.

DISCUSSION OF RESULTS AND REFLECTION

This section presents the discussion of results based on the action research objectives.

1. Mean Performance Level of the Junior High School's Learners of Moreno Integrated School in Mathematics during the first and second quarters of S.Y. 2020- 2021.

Table 1
Mean Performance Level of JHS Learners in Math SY 2020-2021

Grade Level	QUARTERS						
	1st Quarter	2nd Quarter	MPL 1st & 2nd	3rd Quarter	4th Quarter	MPL 3rd & 4th	Increase
Grade 7	81	84	**84.5**	84	86	**85**	**2.5%**
Grade 8	80	82	**83**	82	84	**83**	**2%**
Grade 9	81	82	**83.5**	83	86	**84.5**	**3%**
Grade 10	86	87	**85.5**	88	90	**89**	**2.5%**

Table 1 shows the Mean Performance Level of the Junior High School Learners in Mathematics. The data revealed that the Mean Performance Level (MPL) in all grade levels in the 1st and 2nd quarters are less than the MPL in the 3rd and the 4th quarters. There is an increase of 2.5% in grade 7, 2% in grade 8, 3% in grade 9 and 2.5% in grade 10. It implies that there is an improvement on the academic performance of the Junior High School after giving interventions. The pedagogies used in the interventions were considered as the basis of the handbook.

The Mathematical Literacy assessment conducted by PISA is similar to the result of the Performance Level of the learners in Moreno Integrated School, as the locale of the study, Grade 7 has 83.75, Grade 8 has 82.00, Grade 9 has 83.00, and Grade 10 has 87.75 with an average performance level of 84.13 or "Satisfactory". The performance level of the junior high school (Grade 7-10) is

lower than the performance level of the senior high school of 85.33 or “Very Satisfactory”.

2. Factors Affecting the Academic Performance in Mathematics based on the Level of Agreement of the Learners and Teachers

Table 2 shows the level of agreement of the learners and teachers on the factors affecting the academic performance in Mathematics. The level of agreement on the learners’ factors revealed that the learners and teachers have strong agreement on the enumerated indicators *(nos. 1 – 6)* with a weighted mean of 3.05 *(learners)* and 3.37 *(teachers)*. On the indicated teachers’ factors *(nos. 7 to 14)*, the learners and teachers have also strong agreement with a weighted mean of 3.08 *(learners)* and 3.11 *(teachers)*. As to teaching strategies, both learners and teachers strongly agreed on the indicated factors *(nos. 15 and 22)* with a weighted mean of 3.18 and 3.42 respectively. In terms of parental involvement, the learners have agreed on the indicated factors *(nos. 23 to 25)* while the teachers have strong agreement with a weighted mean of 2.96 *(learners)* and 3.63 *(teachers).* In general, the learners and teachers strongly agreed that the academic performance in Mathematics were affected by the learners’ factors, teachers’ factors, teaching strategies, and parental involvement with an average weighted mean of 3.09 *(learners)* and 3.33 *(teachers)*

Table 2
Factors Affecting the Academic Performance in Mathematics based on the Level of Agreement of the Learners (n=100) and Teachers (n=10)

INDICATORS	Learners		Teachers	
	WM	**VI**	**WM**	**VI**
1. Learners' negative impression in Mathematics	2.85	A	3.44	SA
2. Learners' attitude and behavior in learning Mathematics	3.02	SA	3.22	SA
3. Learners' interest for and enjoyment of Mathematics	3.19	SA	3.33	SA
4. Learners' pre-requisite skills in Mathematics	2.99	A	3.33	SA
5. Learners' personal condition/nutritional status	3.06	SA	3.11	SA
6. Learner's study habit	3.17	SA	3.78	SA
7. Teaching Strategy	3.26	SA	3.22	SA
8. Teaching and learning resources	3.04	SA	3.11	SA
9. Teachers' preparation in the teaching process	3.10	SA	3.33	SA
10. Teachers' perception toward learners' learning	3.03	SA	3.22	SA
11. Teaching and learning time frame	3.07	SA	3.11	SA
12. Teachers' personality	3.17	SA	2.78	A
13. Teachers' feedbacking to learners	3.14	SA	3.11	SA
14. Teachers' willingness to assist through home visitation	2.84	A	3.00	SA
15. Cooperation between teachers and learners	3.28	SA	3.33	SA
16. Quality of teaching using Modular Distance Learning	3.18	SA	3.44	SA
17. Content and time in accomplishing the learning materials	3.10	SA	3.44	SA
18. Presentation of the lessons in the Self-learning modules	3.16	SA	3.11	SA
19. Understanding on the mathematical concepts and principles	3.17	SA	3.67	SA
20. Learning environment	3.21	SA	3.44	SA
21. Learning competencies in Mathematics	3.17	SA	3.56	SA
22. School's involvement in Mathematics education through collaboration with the school administrators, teachers, learners, and parents	3.19	SA	3.33	SA
23. Parents' involvement in learning process	3.00	A	3.33	SA
24. Home-related factors such as doing domestic works, taking care of siblings, family problem and etc.	3.11	SA	3.56	SA
25. Too much time spending in social media/online games	2.77	A	4.00	SA
Average WM	**3.09**	**SA**	**3.33**	**SA**

Legend:

WM *– Weighted Mean*
VI *– Verbal Interpretation*
n *- sample size*

Verbal Interpretation:

3.01 – 4.00 Strongly Agree (SA)
2.01 – 3.00 Agree (A)
1.01 – 2.00 Disagree (D)
0.01–1.00 Strongly Disagree (SD)

The result shows that there are various factors identified by the researcher that affect the learners' academic performance in Mathematics. The learners' attitude affects the learners' academic performance in Mathematics. This prevents the learners from experiencing the richness of Mathematics and the approaches that could be used to develop competence in the subject. Moreover, the teachers' attitude also strongly influences learners' achievement in Mathematics. The learners draw from the teachers' disposition to form their own attitude which may affect their learning outcomes. Positive teacher's attitude towards Mathematics was significantly related to high achievement of learners. Teachers' beliefs about Mathematics such as the usefulness and the way Mathematics should be learned, the difficulty or ease of Mathematics, as well as individual ability and beliefs also affect their attitude towards the subject and impact their performance.

The teaching strategies are key in enabling the learners to understand the underlying and key concepts of Mathematics. The teaching strategy used in teaching may vary from one section to another, depending on the information or skills being taught. A variety of strategies and methods are used to ensure that all learners have equal opportunities to learn. If the teaching strategy is not favorable for the learners to learn they will achieve less as compared to the other.

Parents serve as a role model and a guide in encouraging their children to pursue high educational goals and desires by establishing the educational resources on hand at home and holding particular attitudes and values toward their

children's learning. Parental influence on a child's performance in Mathematics plays a vital role in achieving the learning targets.

The findings of this action research were similar to the findings of Iheanachor (2007). The researcher found out that there is a significant positive relationship between learners' academic achievement in Mathematics and teachers' background. It reflects that teacher who have good qualifications in Mathematics have their learners performing better in Mathematics. In addition, Tata (2014) came out with findings that students' negative attitude towards Mathematics, fear of Mathematics, inadequate qualified teachers and inadequate teaching material were some of the causes of poor performance in Mathematics. Developing a positive attitude, motivation and proper guidance toward Mathematics and provision of relevant teaching materials could make learners perform better in Mathematics.

The teacher's central role in promoting in-depth learning requires understanding and practicing some of the basic principles of conceptual learning in Mathematics. These principles include teaching general knowledge or generic concepts in the subject and helping learners improve their academic performance. Teachers can use a wide variety of activities and techniques such as discussion, stories, songs, role plays, visual illustrations, patterns seeking, using examples from real life, and use of analogy and explanations to help in building prerequisite

knowledge and strengthen connections between what students already know about a concept and what they need to know (McLaren, 2010).

Teachers' knowledge about how learners think and reason about Mathematics is a key component of pedagogical content knowledge for the teachers of Mathematics. It informs instructional practices and guides instructional decision-making by providing an important lens through which to view and interpret how students respond to lesson activities generally and to assigned Mathematics tasks in particular. Accordingly, it drives instructional modifications and interventions that are responsive to learners' needs and result in improved learners' performance relative to quality mathematics standards (Jenkins, 2010). The in-depth learning approves, the intention to extract meaning produces active learning processes that involve relating ideas and looking for patterns and principles on the one hand or holistic strategy, and using evidence and examining the logic of the argument on the other. The approach also involves monitoring the development of one's own understanding (Entwistle, 2000).

3. Pedagogical strategies used to address the learners' poor academic performance in Mathematics.

The researcher created a handbook entitled "Pedagogies in Teaching Mathematics Effectively" that contributes to the development of remedial instructions that can be easily understood and assimilated by Mathematics teachers of Moreno Integrated School. This handbook contained two distinct parts. The first part described the four competencies (tailored-fit to Moreno Integrated

School setting and based from the combined knowledge of selected Mathematics teachers in Junior High School). These competencies are: (1) knowledge of the content and structure of Mathematics; (2) knowledge of cognitive/developmental theories; (3) knowledge of diagnosing learners' errors; and (4) knowledge of selecting instructional strategies appropriate for teaching Mathematics skills and concepts. The second part consisted of the development of pedagogies that will address the learners' poor academic performance in Mathematics.

Table 3

Acceptability among Mathematics Teachers

INDICATORS	WM	VI
Objectives		
The objective/purpose is aligned with DepEd standard, and is based on the result of this study.	3.45	Highly Accepted
Content		
The handbook is interesting, relevant, and has rigorous content.	3.65	Highly Accepted
It introduces multiple pedagogies/techniques in teaching Mathematics Effectively		
Process		
Various pedagogies encourage teachers to teach Mathematics effectively and let the learners work independently and collaboratively to promote in depth learning.	3.52	Highly Accepted
AVERAGE OVERALL WEIGHTED MEAN	**3.54**	**Highly Accepted**

Legend: WM – Weighted Mean
VI – Verbal Interpretation

3.00 – 4.00	Highly Accepted (HA)
2.00 – 2.99	Moderately Accepted (MA)
1.00 – 1.99	Accepted (A)
0 - .99	Not Accepted (NA)

The evaluation of the handbook was conducted to assess and measure its appropriateness or level of quality and standard. Evaluators which include the Master Teacher and Teachers of Mathematics in Moreno Integrated School were the one who examined the acceptability of the handbook.

The result revealed that the Mathematics Teachers of Moreno Integrated School found the handbook as Highly Acceptable (HA) with an average weighted mean of 3.54. It implies that the handbook is useful and effective in increasing learners' academic performance.

CONCLUSION

This action research aimed to determine the factors affecting the academic performance of Moreno Integrated School's Junior High School learners in Mathematics. The Result indicate that there are various factors affecting the academic performance of the students. Identifying such, will contribute to the increase of their academic performance in mathematics, in a sense that, if these factors are identified will lead to propose an action plan that will help to develop the level of intellect of at-risk learners.

Both students and teachers agreed that the academic performance in Mathematics were affected by the learners' factors, teachers' factors, teaching strategies, and parental involvement. From these identified factors the researcher took action and created a handbook that intends to contribute to the development

of remedial instruction that can be easily understood and assimilated by Mathematics teachers of Moreno Integrated School. This handbook was validated and the result concluded that utilizing this action research output and applying the intervention have imparted success in learning mathematics.

However, because of time constrain, the effectiveness of this handbook is still to be investigated in order to wider its scope, and be benefited not only mathematics learners but also the learners in other learning areas. Further, various factors affecting the academic performance in mathematics are still in investigation, identifying such is pivotal in developing pedagogical strategies that will help increase academic performance in mathematics.

RECOMMENDATION

The researcher recommends to continue use the research output – that means exposing teachers to various teaching strategies and students in various learning experiences especially the students during transition, this will help to achieve Junior High Schools' academic success in Mathematics. Also, it recommends to further study the effectiveness of the research output in order to wider its scope, and be benefited not only mathematics learners but also the learners in other learning areas. Further, in this time of pandemic various factors affecting the academic performance in mathematics are still in investigation, identifying such is pivotal in developing timely pedagogical strategies that will help increase academic performance in mathematics.

Reflection

This study agreed that understanding the academic performance of the learners is relevant and timely undertaking, the findings of this action research provide not only the data but an avenue to proposed an action plan and develop the level of intellect of the at-risk learners. To improve such, the researcher learned that it requires teachers and parents' involvement to motivate the learners to perform well in Mathematics.

During the conduct of the study, it was discovered that teachers play a vital role in the educational system. In fact, the researcher learned that teachers' education, training and work attributes serve as key factors for the learners' performance. Teachers are also the primary instruments in an excellent academic as well as non-academic performance of the learners. In addition, learners are motivated to initiate positive behavior if that behavior is seen resulting in praise. By these encounters, the researcher recognized that participation of teachers and the learners were the key elements in the success of the study. This time of pandemic where learners learn from home, researcher reflected that a conducive learning environment should also be prioritized as part of intervention in order to gain the proper leaning and skills.

ACTION PLAN

The result of this action research was the basis in crafting the output. The researcher created a handbook that intends to contribute to the development of remedial instruction that can be easily understood and assimilated by Mathematics teachers of Moreno Integrated School. The handbook was validated to measure the acceptability of the Master Teachers and Teachers of Moreno Integrated School. Suggestions and recommendations of the Master Teachers and Teachers of Mathematics in Moreno Integrated School were considered and included on the final copy of the handbook. The handbook was also presented to the mathematics teachers during the virtual Faculty Meeting – Math Department and introduced its content. Each Mathematics teacher was provided a copy of the hand book for their utilization.

The action plan presents the activities implemented from the crafting to the utilization of the output. The research findings were shared to the mathematics teachers during the Faculty Meeting – Mathematics Department. The output was also distributed to all Mathematics teachers.

Table 4

Action Plan

Activities/ Strategies	Time Frame	Persons Involved	Resource Requirement		Success Indicators/ Expected Output
			Source	Estimated Cost	
Crafting/Designing the handbook as an output of this action research	August to September, 2021	Researcher; Master Teachers; and Teachers of Mathematics in MIS	BERF	P 4,710.00	Draft of the handbook
Conduct pilot testing and measure the teachers' acceptability of the handbook	October 2021	Researcher; Master Teachers; Teachers of Mathematics			Result of the pilot testing and validation
Conduct focus group discussion and feedbacking of the result of pilot testing	Last week of October, 2021	Researcher; Master Teachers; Teachers of Mathematics			Final copy of the handbook
Orientation through Teacher's Conference of Mathematics Department and distribution of the handbook entitled "Pedagogies in Teaching Mathematics Effectively	November 11, 2021	Researcher; Master Teachers; Teachers of Mathematics			Successfully conducted the orientation and the distribution of the handbook
Utilization of the handbook and application of the content	SY 2021-2022	Researcher; Master Teacher; Teachers of Mathematics			Learners' academic performance in Mathematics

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FINANCIAL REPORT

Table 5

Financial Report

Activities	Cash Out	Balance
BASIC EDUCATIONAL RESEARCH FUND (BERF) FACILITY GRANT		**15,000**
Pre-Implementation Activities		
Crafting and Preparation of Action Research Proposal	3,448	11,552
Review/Submit the action research proposal		
Notarization of MOA		
Implementation Activities		
Data gathering	8470	3,082
Designing an action plan and creating an output that will address the problem		
Printing research output		
Post-Implementation Activities		
Dissemination/Utilization of output	3,082	0.00
Submission of completion report		

Prepared by:

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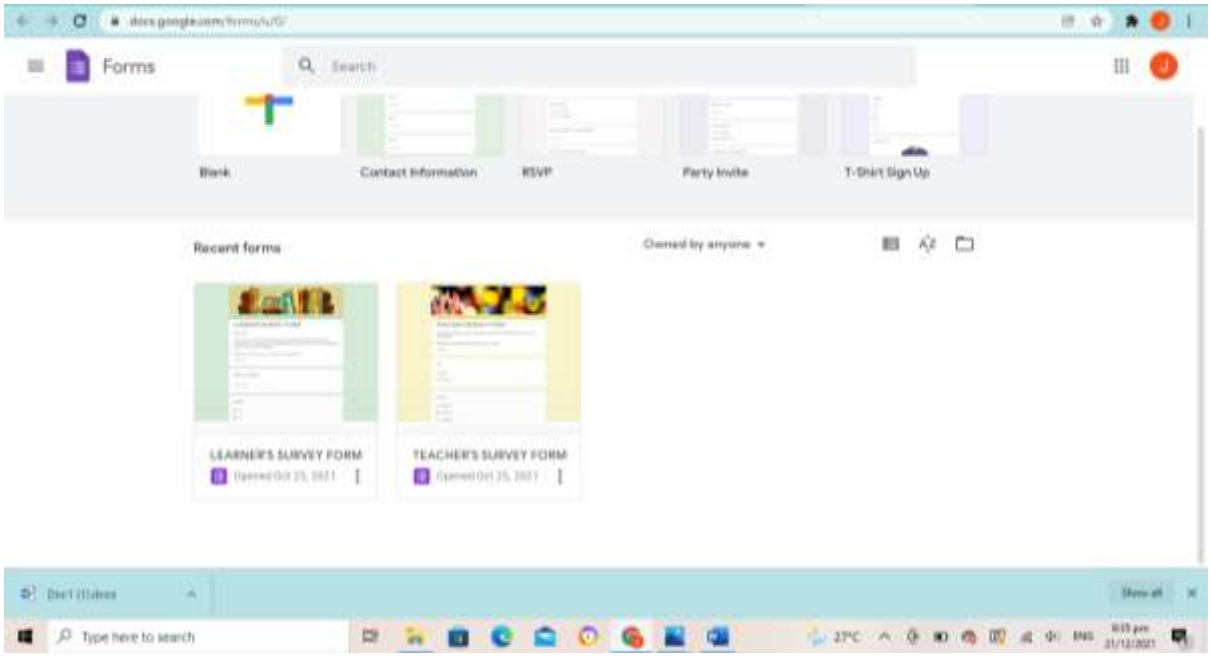
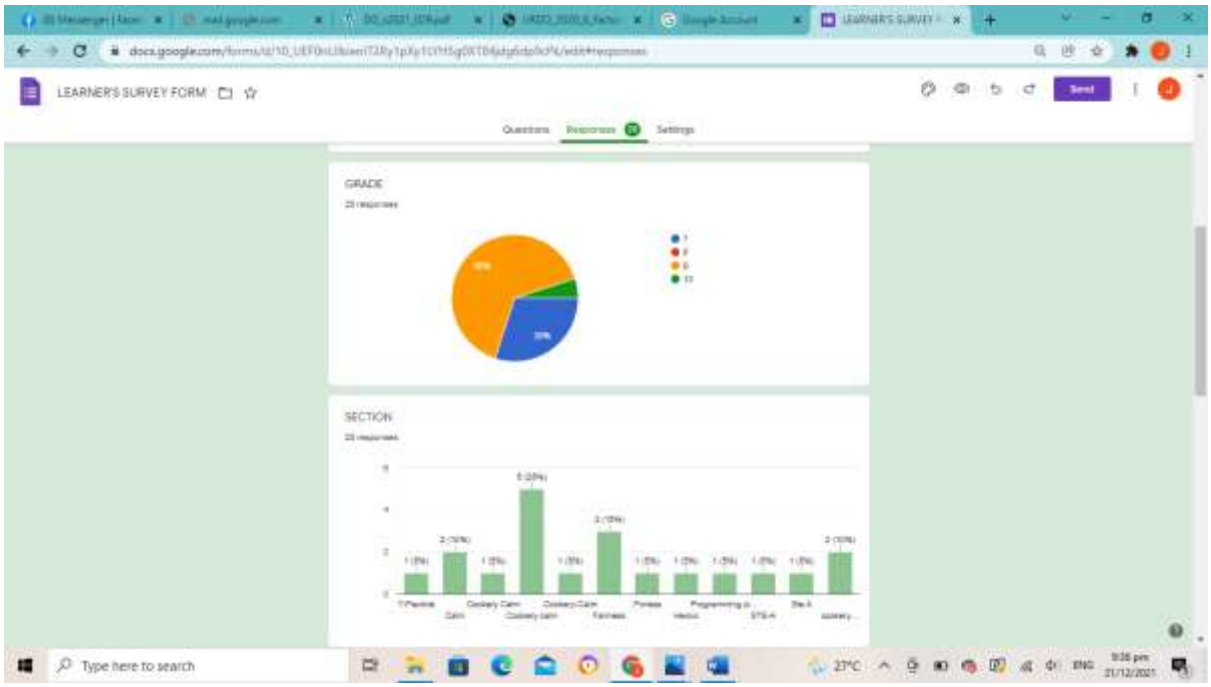
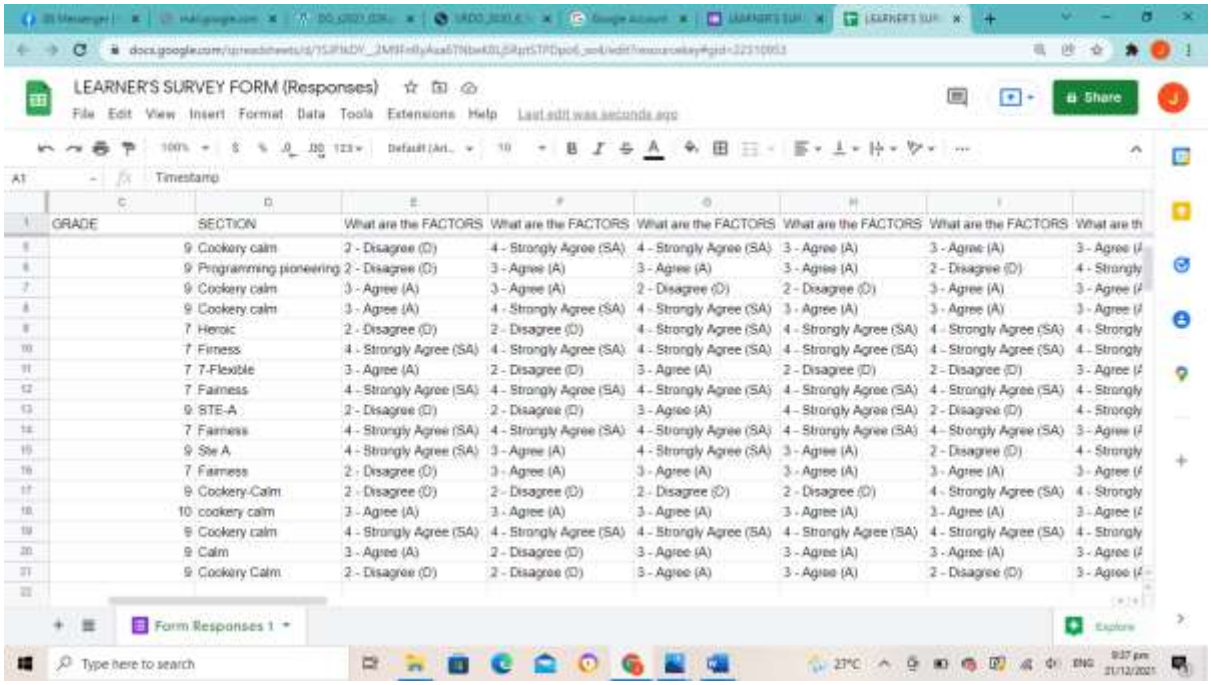
ANNEXES

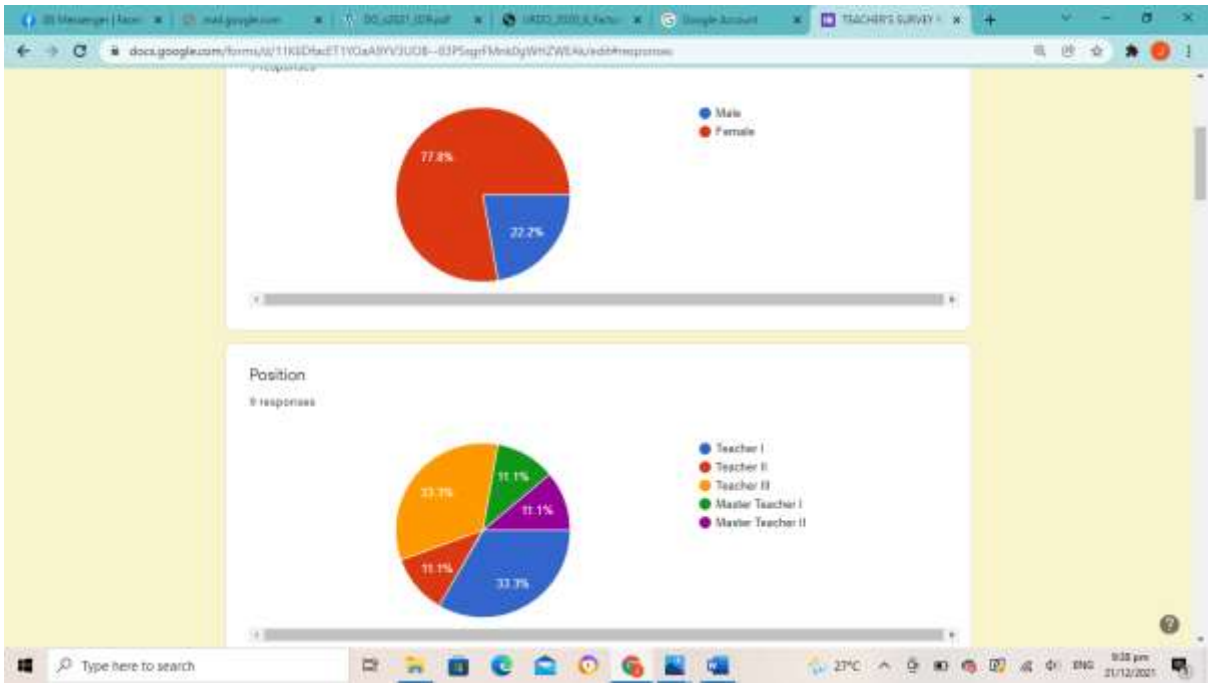
SAMPLE RESPONSES ON THE GOOGLE FORM

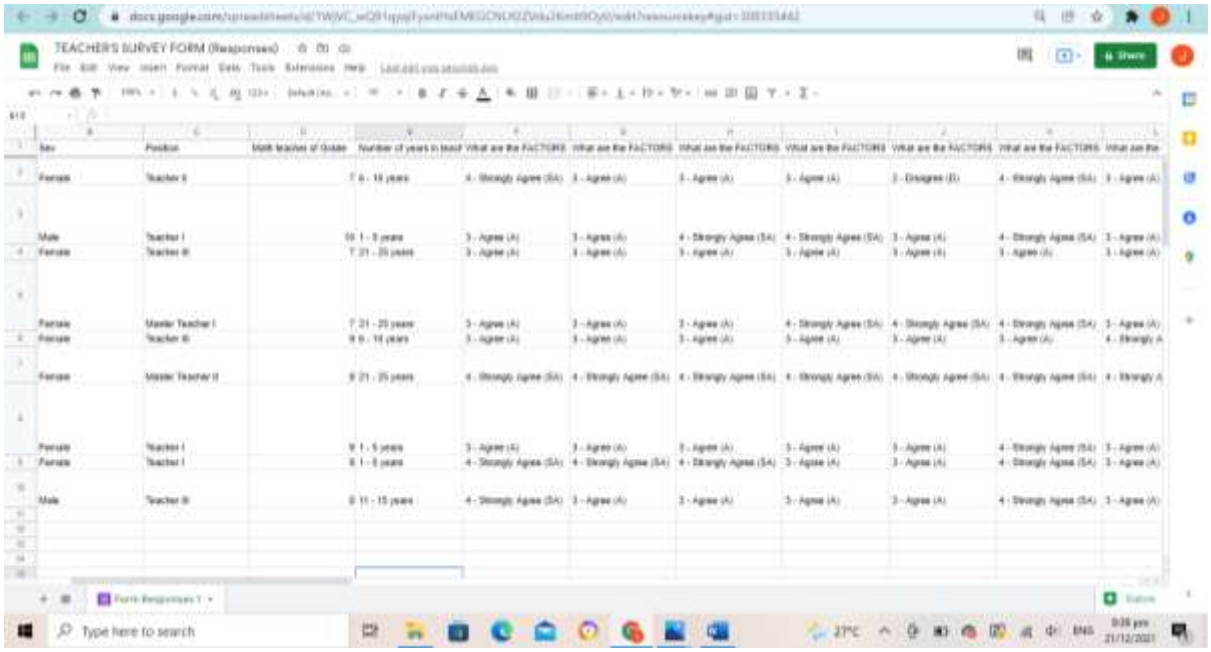






	C	D	E	F	G	H	I	
1	GRADE	SECTION	What are the FACTORS	What are the FACTORS	What are the FACTORS	What are the FACTORS	What are the FACTORS	What are th
5		9 Cookery calm	2 - Disagree (D)	4 - Strongly Agree (SA)	4 - Strongly Agree (SA)	3 - Agree (A)	3 - Agree (A)	3 - Agree (A
6		9 Programming pioneering	2 - Disagree (D)	3 - Agree (A)	3 - Agree (A)	3 - Agree (A)	2 - Disagree (D)	4 - Strongly
7		9 Cookery calm	3 - Agree (A)	3 - Agree (A)	2 - Disagree (D)	2 - Disagree (D)	3 - Agree (A)	3 - Agree (A
8		9 Cookery calm	3 - Agree (A)	4 - Strongly Agree (SA)	4 - Strongly Agree (SA)	3 - Agree (A)	3 - Agree (A)	3 - Agree (A
9		7 Heroic	2 - Disagree (D)	2 - Disagree (D)	4 - Strongly Agree (SA)	4 - Strongly Agree (SA)	4 - Strongly Agree (SA)	4 - Strongly
10		7 Fitness	4 - Strongly Agree (SA)	4 - Strongly Agree (SA)	4 - Strongly Agree (SA)	4 - Strongly Agree (SA)	4 - Strongly Agree (SA)	4 - Strongly
11		7 7-Flexible	3 - Agree (A)	2 - Disagree (D)	3 - Agree (A)	2 - Disagree (D)	2 - Disagree (D)	3 - Agree (A
12		7 Fairness	4 - Strongly Agree (SA)	4 - Strongly Agree (SA)	4 - Strongly Agree (SA)	4 - Strongly Agree (SA)	4 - Strongly Agree (SA)	4 - Strongly
13		9 STE-A	2 - Disagree (D)	2 - Disagree (D)	3 - Agree (A)	4 - Strongly Agree (SA)	2 - Disagree (D)	4 - Strongly
14		7 Fairness	4 - Strongly Agree (SA)	4 - Strongly Agree (SA)	4 - Strongly Agree (SA)	4 - Strongly Agree (SA)	4 - Strongly Agree (SA)	3 - Agree (A
15		9 Ste A	4 - Strongly Agree (SA)	3 - Agree (A)	4 - Strongly Agree (SA)	3 - Agree (A)	2 - Disagree (D)	4 - Strongly
16		7 Fairness	2 - Disagree (D)	3 - Agree (A)	3 - Agree (A)	3 - Agree (A)	3 - Agree (A)	3 - Agree (A
17		9 Cookery-Calm	2 - Disagree (D)	2 - Disagree (D)	2 - Disagree (D)	2 - Disagree (D)	4 - Strongly Agree (SA)	4 - Strongly
18		10 cookery calm	3 - Agree (A)	3 - Agree (A)	3 - Agree (A)	3 - Agree (A)	3 - Agree (A)	3 - Agree (A
19		9 Cookery calm	4 - Strongly Agree (SA)	4 - Strongly Agree (SA)	4 - Strongly Agree (SA)	4 - Strongly Agree (SA)	4 - Strongly Agree (SA)	4 - Strongly
20		9 Calm	3 - Agree (A)	2 - Disagree (D)	3 - Agree (A)	3 - Agree (A)	3 - Agree (A)	3 - Agree (A
21		9 Cookery Calm	2 - Disagree (D)	2 - Disagree (D)	3 - Agree (A)	3 - Agree (A)	2 - Disagree (D)	3 - Agree (A


Male
Female
77.8%
22.2%
Position
9 responses
Teacher I
Teacher II
Teacher III
Master Teacher I
Master Teacher II
11.1%
11.1%
33.3%
11.1%
33.3%
Type here to search
27°C
ENG
9:38 pm
21/12/2021


TEACHER'S SURVEY FORM (Responses)
Share
Type here to search
27°C
ENG
9:38 pm
21/12/2021

SAMPLE COMPUTATION

Factors Affecting the Academic Performance

1. Learners' negative impression in Mathematics	2.85	A	3.44	SA
2. Learners' attitude and behavior in learning Mathematics	3.02	SA	3.22	SA
3. Learners' interest for and enjoyment of Mathematics	3.19	SA	3.33	SA
4. Learners' pre-requisite skills in Mathematics	2.99	A	3.33	SA
5. Learners' personal condition/nutritional status	3.06	SA	3.11	SA
6. Learner's study habit	3.17	SA	3.78	SA
LEARNERS' FACTOR	**3.05**	**SA**	**3.37**	**SA**
7. Teaching Strategy	3.26	SA	3.22	SA
8. Teaching and learning resources	3.04	SA	3.11	SA
9. Teachers' preparation in the teaching process	3.1	SA	3.33	SA
10. Teachers' perception toward learners' learning	3.03	SA	3.22	SA
11. Teaching and learning time frame	3.07	SA	3.11	SA
12. Teachers' personality	3.17	SA	2.78	A
13. Teachers' feedbacking to learners	3.14	SA	3.11	SA
14. Teachers' willingness to assist through home visitation	2.84	A	3	SA
TEACHERS' FACTOR	**3.08**	**SA**	**3.11**	**SA**

15. Cooperation between teachers and learners	3.28	SA	3.33	SA
16. Quality of teaching using Modular Distance Learning	3.18	SA	3.44	SA
17. Content and time in accomplishing the learning materials	3.1	SA	3.44	SA
18. Presentation of the lessons in the Self-learning modules	3.16	SA	3.11	SA
19. Understanding on the mathematical concepts and principles	3.17	SA	3.67	SA
20. Learning environment	3.21	SA	3.44	SA
21. Learning competencies in Mathematics	3.17	SA	3.56	SA
22. School's involvement in Mathematics education through collaboration with the school administrators, teachers, learners, and parents	3.19	SA	3.33	SA
TEACHING STRATEGIES	**3.18**	**SA**	**3.42**	**SA**
23. Parents' involvement in learning process	3	A	3.33	SA
24. Home-related factors such as doing domestic works, taking care of siblings, family problem and etc.	3.11	SA	3.56	SA
25. Too much time spending in social media/online games	2.77	A	4	SA
PARENTS INVOLVEMENT	**2.96**	**A**	**3.63**	**SA**
Average WM	**3.09**	**SA**	**3.33**	**SA**