

Assessment of Teachers' Performance and the Spiral Progression Approach in Mathematics

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Abstract:- This study assesses the performance of Mathematics Teachers in teaching the subject adapting the spiral progression approach. With the recent implementation of K to 12 curriculum based on RA 10533 or the Philippine Enhanced Basic Education Act, the need to assess the performance of Mathematics teachers arise and must be addressed. Through cluster sampling technique, 36 Mathematics classroom teachers and 21 principals in 10 clusters were identified as respondents on this investigation. This study used the descriptive and exploratory data analysis applying the multivariate principal component analysis to determine the extent of effects of the variables measured to the Mathematics teachers' teaching performance by means of the new spiral progression approach. Results revealed that Mathematics teachers' years of service or teaching, numbers of seminars and trainings attended, teaching loads and even their ages affect their level of teaching performance in Mathematics while gender and educational attainment has a minimal effect on their teaching performance while utilizing spiral progression approach and various pedagogies in delivering the content knowledge. Furthermore, the Mathematics teachers nowadays have poor level of instruction and mastery of content using spiral progression approach. Hence, policy on Mathematics teachers' selection and recruitment and trainings to be implemented must be revisited and should focus on these needs. Intensive enhancement program annually to these field teachers must be implemented conscientiously.

Keywords:- *Effective Mathematics teachers, Spiral Progression Approach, Mathematics level of Performance, Mathematics Teaching Instruction.*

I. INTRODUCTION

In the Philippines as K to 12 or also known as the Enhanced Basic Education was implemented by the Department of Education (DepEd), numerous modifications were made from the contents and standards, methods and ways of developing the concepts to the spiral progression curriculum in all learning areas had been highlighted. This dynamism in the 21st century necessitates educators to keep abreast with global educational shifts most especially to Mathematics and the Mathematics teachers. For instance, in the Trends in International Mathematics and Science Study (TIMSS) in 2008, Philippines still ranked very low in Science and Mathematics. With this, Department of Education took the initiative to transform the educational system in the country to align the quality of graduates to the

International Qualification Framework (IQF). Hence, this study would assess the performance of teachers in teaching the new paradigm of Mathematics utilizing spiral progression approach.

Mathematics teachers' qualification ranked as the most reliable predictor of students' achievement in Mathematics (Cooney & Wiegel, 2003). The level of students' understanding on Mathematical concepts from the basic to the most abstract depends on teachers' abilities to simplify those concepts and be able to relate it to real life experiences. According to DepEd Order No. 7, s. 2015 entitled Hiring Guidelines for Teacher I Position, DepEd recognizes that the success of any education system relies in the competence of its teachers. Hence, one of the primary issues the Department aims to address through its comprehensive implementation of the K to 12 Basic Education Program is the need for highly competent teachers in public elementary and secondary schools most especially in teaching Mathematics and its various domains of learning. As reported in the Department of Education (2003), mathematics teachers' attributes in teaching new methods and learning updated tools and resources, show high effect in a child's education. As hypothesized by Reyes in 1999, a Filipino Mathematics teacher must possess multiple skills such as content, classroom management, instruction, and assessment in his or her field to assess appropriately the competencies acquired by learners in Mathematics. Teachers in current mathematics education reforms attempt to establish classrooms in which students engage actively and cooperatively in exploration and discussion to solve rich problems and reason mathematically (National Council of Teachers, 2000). According to Barbour (2007) Mathematics Curriculum has two goals including critical thinking and problem solving. These goals were achieved appropriately through the implementation of spiral progression in Mathematics. The features of the K to 12 curriculum implementations include the strengthened Science and Math education that follows a spiral progression. The use of spiral progression avoids disjunctions between stages of schooling and allows learners to learn topics and skills appropriate to their developmental and/or cognitive stages. The spiral progression is also believed to strengthen retention and mastery of topics and skills as they are revisited and consolidated with increasing depth and complexity of learning in the succeeding grade levels (Quijano and Technical Working Group on Curriculum, 2012). This helps learners organize their knowledge, connect what they know, and master it (Bruner 1960).

Furthermore, the top and high performing countries such as Australia, Brunei, England, Finland, Japan, Taiwan, Thailand, Singapore, New Zealand, USA utilize and emphasize on connections across topics and disciplines of scientific literacy and numeracy through its adaptation of the K to 12 Program in each country (Tan, 2012). Studies have shown that in mathematics instruction, especially at the high school level, remain overwhelming teacher – centered, with greater emphasis placed on lecturing than on helping students to think critically and apply their knowledge to real – world situations (Cobb, et al, 2007). According to Stodolsky and Grossman (2008) most high school mathematics teachers see mathematics as a rigid and fixed body of knowledge, and think that their responsibility is to transmit this knowledge to their students (1995, as cited in Staples, 2007, p. 165). Through the new adopted curriculum, cooperative learning method in teaching mathematics was highlighted. Cooperative Learning puts premium on active learning achieved by working with fellow learners as they all engage in a shared task. The mathematics curriculum allows for students to learn by asking relevant questions and discovering new ideas. Discovery and Inquiry-based learning (Bruner, 1961) support the idea that students learn when they make use of personal experiences to discover facts, relationships and concepts (Davidson, 1990). According to reviews of research presented by Sharan, et al., (2009), research has shown positive effects of spiral progression in academic achievement, self – esteem or self – confidence of learners, intergroup relations including cross – face friendships, social acceptance of mainstreamed children, and ability to use social skills and even to employment.

The challenges in teaching Mathematics nowadays have been added due to its spiral progression. Mathematics teachers must teach various genre of Mathematics in one school year. As stipulated in each curriculum guide for example first year must focus on Numbers and Number Series, Measurement and Patterns and Algebra, Geometry and Statistics and Probability. These topics created a domino effect to the lessons of the succeeding years. Therefore, Mathematics teacher must review and upgrade too their skills in teaching the said lessons. This is to ensure vertical articulation and seamless progression of competencies (Corpuz, 2012). The increased need for a well-prepared Mathematics teacher is critical (Veneri, 2009). Furthermore, there is an increasing need for highly qualified Mathematics teachers as described by the current K to12 implementation of standards utilizing progression approach in Mathematics. Thus, these needs must be addressed and handled. With the various literatures reviewed by the researcher, most of these studies focused on the subject itself, the teachers' competence to teach the subject and the manner on how to implement the curriculum appropriately as recommended in the K to 12 curriculum focusing on Mathematical strategies. None if these researches correlate the performance of Mathematics teachers to the newly implemented spiral progression and the significant challenges met by the teachers while delivering the competencies to their students.

Hence, this study aims to assess the Mathematics teachers' performance, perceptions and the impact of spiral progression in teaching and learning Mathematics. Moreover, this study determines the extent of effect of the Mathematics teachers profiles to their levels of teaching performance exploiting the spiral progression approach in handling Mathematics classes with varied contents and competencies.

II. CONCEPTUAL OR THEORETICAL FRAMEWORK

This section presents the conceptual construct of the study. This is primarily anchored on the Theory of Proficiency in Teaching Mathematics by Alan H. Schoenfeld and Jeremy Kilpatrick which is supported by the Hay Mcber's Model of an Effective Teacher, and Jerome Bruner's Theory of Learning as basis of the Spiral Progression Approach.

The Theory of Proficiency states that in order to understand the success or failure of a problem-solving attempt in Mathematics, one needs to know about the individual's: knowledge base, problem-solving strategies, metacognitive actions, beliefs and practices. The set of categories represents a set of goals in Mathematics namely: (1) Instruction, (2) Classroom Procedures and Management, (3) Student and Teacher Interaction. **Instruction** pertains to both the implicit and explicit teachers' knowledge and utilization of varied strategies and methods in achieving learning goals (Cobb, 2007). Additionally, according to Rosenshine (1995), instruction is a purposeful guidance of the learning process. It is complex and vitally important to classroom activity, but must be considered in the context of desired student learning (including overlapping objectives taught to objectives tested). It is the manner and the process of imparting essential knowledge and varied skills since learners are becoming more diverse. The second is **Classroom procedure and management** is an effective process, routine and discipline to create an environment conducive for learning and motivate the learners to maintain high levels of on-tasks behaviors (Brophy, 2003). This is in one way or another produces graduates with the sense of adaptability and sense of direction to learning. Lastly, the **Student-Teacher Interaction** refers to the positive and educational encounter of the learners and teacher to achieve the same learning goals.

According to Hay Mcber (2012) there are 3 broad dimensions that combine and complement effective teaching, which lead to students to progress. The characterizations of an effective Mathematics Teaching are as follows:(1) **Teaching Skills**. This pertains to the mastery of the Mathematics teachers to the subjects, their appropriate teaching methods for their subjects and curriculum areas, and the way learners learn best. Thus, Mcber's (2012) would like to point out that Mathematics teachers, to be able to teach effectively that leads to learners' progress, must specifically possess these key aspects: Teachers' must know students' management/discipline, methods and strategies, assessment, and time and resource management. The second

characteristic of an effective Mathematics teacher is the (2) **Professional Characteristics**. These traits include how they do their job, reflecting their style, and values towards teaching bringing out the goodness in teaching. The professional characteristics defined by Hay Mcber’s (2012) consist of 5 clusters namely: professionalism, leading, planning and setting expectations, thinking and relating to others. And lastly is the (3) **Classroom Climate**. Hay McBers’ model stated that effective teachers create an environment that maximizes all learners’ opportunities and motivation to learn. Teachers must create a sense of security and order in the classroom, and equal opportunities to participate for all diverse learners’.

The researcher believed that the Hay Mcbers’ (2012) model of effective teaching is fitted in this study in such a way that when a teacher possesses all these 3 broad dimensions and their sub domains makes a teacher ready to teach and transfer meaningful learning to all learners with diverse needs, especially in learning and enhancing Mathematical skills.

With the notion of spiral curriculum, the researcher utilized Jerome Bruner’s Theory of Learning as Basis of the Spiral Progression Approach. Discovery Learning is a learning method that encourages students to ask questions and formulate their own tentative answers, and to deduce general principles from practical examples or experiences in learning Mathematics. There are three principles associated with Discovery Learning Theory such as: (1) Instruction must be concerned with the experiences and contexts that make the student willing and able to learn. This determines the readiness of learners to learn concepts, ideas and skills in Mathematics. This posits that students learn best by building on their current knowledge. (3) Instruction should be designed to facilitate extrapolation and or fill in the gaps. This can be done by going beyond the information given. And lastly (3) Instruction must be structured so that the student can easily grasp it. The structure being emphasized here is the spiral organization of lessons in Mathematics. The summary of these understanding is shown in figure 1 below.

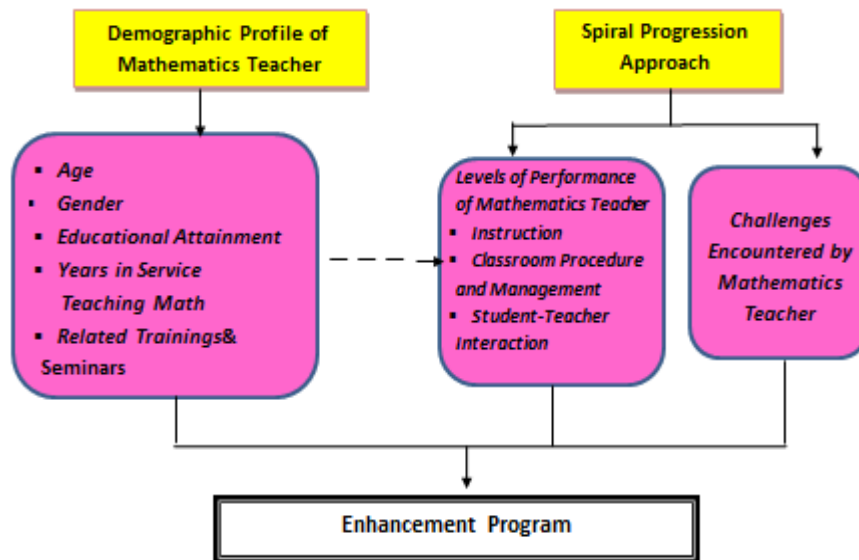


Figure 1. Conceptual Framework

III. RESEARCH DESIGNS AND METHODS

This study utilized a descriptive and an exploratory method of research in analyzing the datasets using multivariate principal component analysis to assess the level of Mathematics teachers’ performance in teaching the subject. This was a descriptive study because the researcher described the profile of Mathematics teachers and their levels of performance and discussed in details the challenges a Mathematics teacher encountered in his or her teaching or delivering the competencies of the subject in the spiral progression approach.

Moreover, the locale of this study was the Danao City Division specifically with 44 secondary schools wherein 7 of which were Integrated Schools and there were 21 secondary schools in operation. In Danao City Division, a

number of Mathematics teachers had various concerns and challenges met while implementing the new curriculum most especially in teaching Mathematics. A number of Math teachers had to handle various genre of Mathematics to thousands of learners. Some of the teachers were struggling to learn on the new competencies. In reality, they just skipped some difficult lessons in order to proceed to the easy ones and be able to finish the curriculum implementation tool provided by the Department of Education on the specified time.

Furthermore, the respondents of this study were all secondary school principals regardless of gender from Danao City Division. They served as assessors to Mathematics teachers’ skills in teaching since principals or school heads serve as the head leader that guides these teachers during the implementation and evaluation of their

performances in various domains of teaching. They had significant role also in the academe to collaborate and assess all the teachers’ performance of the new curriculum since one of their tasks is classroom supervision wherein they need to observe their teachers during the delivery of the lesson. A cluster sampling technique was utilized by the researcher in determining the respondents of the study since the schools in the division are grouped into various clusters depending on its locality. All schools in Danao City Division are clustered into ten (10) and each cluster is composed of elementary and secondary schools depending on its location or nearest barangay. From the clusters, thirty-six (36) Mathematics teachers and 21 principals were identified as respondents on this study.

In addition, the instruments used in the study is a researcher-made questionnaire which was validated through a dry-run process for reliability and validity purposes with Cronbach alpha of 0.89 which means that the tool is highly

reliable. A language and content experts reviewed the tool also. The tool has three (3) parts. Part I determines the Profile of the teachers in terms of necessary parameters needed in the study. Part II is the Mathematics Teachers’ Performance in the area of Content Instruction, Classroom Procedures, Routines and Management, and lastly in terms of Teacher-Student Interaction while learning Mathematics. The last part of the tool surveys the challenges encountered by Mathematics Teachers in teaching while adapting spiral progression approach. The combined content of this research tool aims to appropriately assess Mathematics teachers’ performance on the newly implemented curriculum in each of its present components.

IV. RESULTS AND DISCUSSIONS

After thorough processes, collation, and interpretation of the gathered data, the following were the results and findings of this undertaking:

Table 1. Gender, Age, and Highest Educational Attainment Profile of Mathematics Teachers

GENDER	Highest Educational Attainment	AGE		
		Early Adulthood	Middle Adulthood	Late Adulthood
Male	Collegiate	4	2	
	Masters			
	Doctorate	1		
Female	Collegiate	22	5	1
	Masters		1	
	Doctorate			

Note: n = 36

With the table above, it is noted on the datasets presented that young female teachers with collegiate level outnumbered the male teachers in middle or late adulthood with masters or doctorate degree. It has been very evident that most of the Mathematics teachers teaching Mathematics competencies in various schools are young and still adaptable to various changes in the Mathematics curriculum. This result implies that most teachers hired to be part of the teaching force in public schools are in early adulthood and still very eager to impart changes in the Mathematics curriculum. Furthermore, with young adults with collegiate level in a school teaching Mathematics, it creates wholesome, creative, innovative and up-to-dated learning experiences of students because they are willing to embrace and learn changes and implement them rightly in the system without any hesitations.

With the table above, it is noted on the datasets presented, 55.56 percent of the teachers are experienced teachers in the field in which they are serving the institution for four years to ten years and eight or 22.22 percent of the Mathematics teachers are either novice or seasoned teachers. These findings imply that most of the Mathematics teachers would like to stay in the institution and serve the school as Mathematics teachers even up to their retirement.

This reveals that even with the paper works and loaded works in educating young minds and with various behavioral problems among students in school premises, teachers happily continue their service and years of teaching Mathematics subject reaching to those years presented in the table above. This implies that they have the passion in teaching and greater commitment on what they ought to do in their profession. Experienced teachers have a positive relationship to the students’ achievement.

Table 2. Years of Service in Teaching Mathematics

Number of Years Teaching Mathematics	Frequency	Percentage
Seasoned	8	22.22
Experienced	20	55.56
Novice	8	22.22

Note: n = 36

Table 3. Profile of Mathematics Teachers’ Teaching Loads

Number of Teaching Loads	Frequency	Percentage
4	8	22.22
3	12	33.33
2	10	27.78
1	6	16.67

Note: n = 36

As reflected on the table 3above, it has been determined that 12 or 33.33 percent of the Mathematics teachers in the Division of Danao City was teaching four loads throughout the year and only six or 16.67 percent of the Mathematics teachers were teaching only one load throughout the school year. This distribution of loads implied that Mathematics teacher had either few preparations in teaching to be able to organize their lessons best. The lesser the teaching preparation a teacher may have, the higher his or her teaching performance due to ample time in preparing the plan, instructional materials, thinking of appropriate learning activities and to master the content.

Table 4. Profile of Mathematics Teachers' Trainings and Seminars Attended

Number of Seminars and Trainings Attended	Frequency	Percentage
0-2	2	5.56
3-5	20	55.56
6-8	14	38.88

Note: n = 36

Table 4 presents the frequency of seminars and trainings attended by Mathematics teachers related to teaching Mathematics or content delivery in Mathematics subject. It has been reflected that 2 or 5.56 percent of the Mathematics teachers attended 0 to 2 seminars and training within the school year and 20 or 55.56 percent of the teachers handling the Mathematics subjects were able to attend 6 to 8 seminars in the entire school year. It means that a number of teachers had personal reasons why they could not attend some seminars and trainings prescribed by the division which somehow are acceptable. However, some Mathematics teachers devotedly attended also the seminars and trainings given by the Division for them to widen their horizons of understanding and skills in teaching the Mathematics subjects. These seminars and training were bound to be effective and essentials for teachers to be up-to-dated with the necessary competencies in teaching the subject.

As mentioned by Mcber (2012) to be able to teach Mathematics effectively, a teacher must specifically possess key concepts from trainings and various seminars to know students' management discipline, master the contents, methods and strategies, time and resource management.

Table 5. Mathematics Teachers' Level of Performance as reported by the Principals

Mathematics Teachers' Level of Performance	WM	StDev	DE
Instruction	3.12	0.060	Good
Classroom Procedure and Management	3.13	0.597	Good
Student-Teacher Interaction	3.53	0.528	Very Good
Overall	3.26	0.395	Very Good

Note. n = 36. WM – Weighted Mean.StDev- Standard Deviation.DE - Descriptive Equivalent. ; 1.00 – 1.74 = Poor; 1.75 - 2.49 = Fair; 2.50 – 3.24 = Good; 3.25 – 4.00 = Very Good

As depicted in the findings, the level of performance of Mathematics teachers in terms student and teacher interaction is very good as evidenced by the grand mean of 3.53 with a standard deviation of 0.528.

More specifically, Mathematics teachers encouraged well the students to participate in any Mathematical or logical discussion to arrive at accurate answers. They always allow and acknowledge students questions during and after discussion and accept various answers leading them to develop and understand the concept better. They freely welcome queries and suggestions while the lesson was on progress. Furthermore, Mathematics teachers made use of different questioning technique to lead the students to class discussion participation. Discovery approach in delivering the lesson would ignite students to discover solutions on their own way. However, during actual discussion they forgot to communicate clearly and fluently the goals and objectives of the lessons utilizing spiral progression approach in Mathematics and students' acquisition of skills, which lead them to plan ahead the flow of the lesson. According to the principal the flow of the lesson in most Mathematics teachers were mostly deductive to easily learn the lesson and to really direct them to telling concrete concepts and understanding.

However, it is highly notable that Mathematics teachers have very low ability in terms of instruction in Mathematics using spiral progression approach. The school principals found out that the students have poor retention in the different competencies employing spiraling approach. This is due to teachers' aim to finish all competencies stipulated in the curriculum guide before the quarter ends. Some teachers would no longer provide more activities to enhance students' learning. Also, as reported, teachers had low level on encouraging learners to conduct simple research or action research employing the Statistics and Probability lesson since in the first place Mathematics teachers didn't know how to even conduct simple or action research as an application of the Statistics and Probability lesson. The teachers had to study still the content of the statistics and probability domain before applying it to real world tasks. The mathematical knowledge required of mathematics teachers is extensive. The tasks involved in teaching mathematics require "significant mathematical knowledge, skill, habits of mind and insight" (Ball et al., 2008: 399). With it, further training and content review must be done to the Mathematics teachers to refresh themselves in teaching the subjects.

Principal Component Analysis: Age, Gender, Highest Educational Attainment, Years of Teaching, Teaching Loads, Number of Trainings and Seminars Attended

This part indicates the resulting model using multivariate principal component analysis of the factors that

affects the performance of Mathematics teachers in the spiral progression approach in the aspects of Age, Gender, Highest Educational Attainment, Years of Teaching, Teaching Loads, Number of Trainings and Seminars Attended.

Table 6. Eigen Analysis of the Covariance Matrix

Eigenvalue	3.2312	1.0793	0.7732	0.4734	0.3536	0.0893
Proportion	0.539	0.180	0.129	0.079	0.059	0.015
Cumulative	0.539	0.718	0.847	0.926	0.985	1.000

Table 6 revealed that the first eigenvector or principal component characterizes 53.9% of the total variance as shown in the result. This finding then is sufficient enough to represent the aspects of age, gender, highest educational attainment, years of teaching, number of teaching loads,

number of trainings and seminars attended affecting to the performance of Mathematics teachers employing spiral progression approach in delivering all the lessons in the Mathematics learning area.

Table 7. PCA Results on Age, Gender, Highest Educational Attainment, Years of Teaching, Teaching Loads, Number of Trainings and Seminars Attended.

Variable	PC1	PC2	PC3	PC4	PC5	PC6
AGE	0.447	0.303	0.252	-0.335	0.633	0.364
GENDER	0.200	-0.661	0.713	0.104	-0.027	-0.046
HEA	0.276	-0.604	-0.564	-0.487	0.061	-0.002
NO. OF LOADS	0.433	-0.117	-0.320	0.777	0.132	0.273
YEARS OF TEACHING	0.524	0.220	0.001	0.028	0.012	-0.822
SEMINARS AND TRAININGS	0.471	0.210	0.084	-0.187	-0.760	0.339

Utilizing the results on principal component analysis, the index on the level of extent of the factors determined in the study greatly affects the level of Mathematics performance incorporating the principle of spiral progression approach in teaching. This can be modeled by the equation as:

$$\text{Componential Factor Index} = 0.447 \text{ Age} + 0.200 \text{ Gender} + 0.276 \text{ Educational Attainment} + 0.433 \text{ Number of Teaching Loads} + 0.524 \text{ Years of Service} + 0.471 \text{ Number of Seminars and Trainings Attended.}$$

The resulting model implies that years of service a teacher renders to teaching profession enhances his or her teaching profession in terms of mastery of content and delivery of instruction in new paradigm or approach in teaching Mathematics to high school students. Also, as a Mathematics teacher, the number of seminars and trainings designed and required to be attended by the Math teachers aligned to their needs in the teaching world were found to be significant to increase their level of performance. There is now appreciation of attending various trainings and seminars related to Mathematics teaching since it aids the teachers to improve their performance and most especially

this is one way of attaining Continuing Professional Development (CPD) units for renewal of professional license nowadays. Moreover, the age and the number of teaching loads contribute too to have a very satisfactory level of teaching performance of the Mathematics teachers. Others who don't want to come out in their comfort zone of teaching like a teacher teaching algebra for 10 years already were forced to learn and relearn other genre of Mathematics such as number sense, geometry and statistics and probability. As part of the implementation process, all teachers in each year level must undergo rigorous trainings and seminars to be informed and be able to understand how to implement the curriculum using the new approach, which was found to be effective. However, the educational attainment and the gender aspects of a teacher have minimal effect on Mathematics teachers' teaching performance in the subject. So regardless of educational background and gender, a Math teacher will become effective as a teacher in the subject. Stereotyping a teacher with Doctorate degree can teach the subject better than those with collegiate and masters degree is now a wrong notion.

The Challenges Encountered by the Mathematics Teachers

In the implementation of the K to 12 curriculum, the mathematics teachers of Danao City Division faced some challenges in adapting the spiral progression approach in terms of content instruction, classroom management and student-teacher relationship.

On instruction, the teachers encountered problems in delivering the lesson in Mathematics with mastery of the learning content most especially those teachers with longer years of teaching experience prior to the implementation of the new curriculum. Most respondents answered during the interview that they had greater difficulty in teaching probability. A number of teachers mentioned on the difficulty in proving the triangle congruence, triangle inequalities and transversal. They also have difficulty in simplifying abstract concepts in Mathematics in all domains and relate those abstract concepts to students' experiences and its real application to their own life. Teachers failed to make use of localization and contextualization principles in leveling the understanding of students in Mathematics, which is supposed to be done as mandated in R.A. 10533, or Enhanced Basic Education Act.

In terms of classroom management in public school setting, the teacher- student ratio is one of the problems faced by the teacher. According to some teachers, managing the class during group activities is tough due to the classroom size and class density. Aside from that, many students' were not motivated and not focused on their studies due to some internal and external factors. Retention among students on recent lessons in Mathematics is deteriorating due to lack of interest of the subject. Most of the teachers find it hard to encourage their students to attend mathematics class regularly most especially those students who hate or with math phobia. So, it is a great challenge to the mathematics teachers to vary their teaching strategies in order to suit the learning styles of the students for them to love the subject.

Lastly, the challenges encountered by Mathematics teachers on student and teacher relationship since teaching must be relational were commonly dreaded on the subject teacher due to the subject difficulty. The connection between the students and the teacher is vital in the success of the teaching learning. Most mathematics teachers are branded as strict and hard to deal with. Student-teacher relationships in junior high school typically become more distant due to time spent during the discussion. Teachers will just spend an hour to their students daily. Hence, the amount of time available for building relationships with individual students drops significantly. Teachers can no longer provide good and immediate interventions to students who have difficulties learning the lessons. They have difficulty in extending time in explaining the lessons to be well understood most especially to the slow ones.

With the above-mentioned challenges encountered by the Mathematics teachers, it is very important to address and give solutions to their difficulties in order to increase the

academic performance as well as to boost teachers' confidence in delivering the lesson to the students to produce globally competitive graduates in the area of Mathematics.

V. CONCLUSION

With the prevalent need to assess and review the performance of Mathematics teacher in spiral progression approach in teaching Mathematics, it is substantial to note that years of service teaching mathematics, teachers' engagement on different intellectual gatherings and discussions on teaching Mathematics, teaching loads contribute positively to a high level of teaching performance in Mathematics following the principles of spiraling in mathematical contents and delivery. Teachers' quality and training are essential factors to promote a good society to ensure quality in teaching and to enable the acquisition of knowledge and skills to be sufficient for students to become actualized individuals. Hence, the policy of Mathematics teachers' selection, recruitment and in designing seminars and training programs in the department or division has to be revisited. Strengthen the teachers to implement the K to 12 Mathematics curriculum in the country appropriately following the spiral progression approach.

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