Competencies of Mathematics Teachers in the Province of Batangas, Philippines: Basis for Direction on Continuing Education for the K to 12 Curriculum

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Abstract *– Teaching competencies of the senior high school Mathematics teachers in the three key cities in the Province of Batangas, Philippines were assessed. It looked into their personal and professional profile along with their teaching competencies which includes dedication to teaching, knowledge of subject matter, classroom organization and management, instructional organization and management, instructional implementation, and monitoring student progress and potential. Comparison of responses among administrators and mathematics teachers were also considered. Results of which were used as basis for direction on continuing education that can be pursued for the successful implementation of K to 12 Curriculum. The study used the descriptive method of research. Questionnaire was used as the main data gathering instrument. A total of 47 teachers and 25 administrators participated in the study. Frequency/ percentage, weighted mean, and comparison of means were used to statistically treat the data. Majority of the Mathematics teachers were female, married, and affiliated to Batangas City Division while most of them were in age bracket of 29-35, have master's unit, teaching for 10 years and above and have attended at least 1-5 related seminars for the last 3 years. Generally, the mathematics teachers are competent in monitoring student progress and potential but less competent in terms of instructional implementation as assessed by two groups of respondents. Same was found when mathematics teachers were grouped according to their profile variables. The researcher recommended possible directions on continuing education that could be pursued by the mathematics teachers thereby enhancing their competencies to ensure successful implementation of K to 12 Curriculum.*

Keywords *– continuing education, K to 12 Curriculum, Mathematics teaching, mathematics teaching competencies*

INTRODUCTION

Education is never static. Mathematics Education as one of the areas in education is not spare from this phenomenon. The world of Mathematics teaching is undergoing dramatic changes. Pressures for reform coming from different sectors have come and one of the results to these pressures is the implementation of K to 12 Curriculum. Undeniably, teachers and teacher educators have shown willingness to find better ways to teach all subjects including mathematics, but learning new ways is rather difficult. Each generation of students and teachers has seen changes in the content of school courses and the approaches used in teaching. The present generation is not spared from changes brought about by various national and global frameworks such as the K to 12 Reform, ASEAN Integration, globalization, and the changing character of 21st century learners necessitate the improvements of the teaching standards. Significant changes have been noted in the content and emphasis of Mathematics Education. But no matter what, the emphasis is more on the teacher component of the Mathematics instruction than on any other aspect of the program. Akiba and Liang [3]. Quality education is base for the development of any nation. To achieve quality education the competent teachers are necessary Naz [18] and to realize this educational goal, education institution needs to employ Mathematics teachers who possess the required professional characteristics of ideal teachers that could meet the criteria set by the Philippine Professional Standards for Teachers.

A professional Mathematics teacher is one who helps the students develop in them the love for numbers and make use of them with ease and confidence. This expectancy would require of the teacher proficiency and competence in number manipulations and problem

solving. This will require him to analyze, assess, relate, and implement existing mathematics curricula and develop new ones. As such, he or she is expected to devise, plan, organize, orchestrate, and carry out mathematics teaching. This also includes creation of rich spectrum of teaching and learning situations; assessment, selection and creation of teaching materials; inspiring and motivating students; discussing curricula; and justifying teaching and learning activities with students [21], and [8]. All of those mentioned competencies can only be possible if the mathematics teachers possesses the following characteristics; dedication to teaching, knowledge of subject matter, classroom organization. and management, instructional organization and management, instructional implementation, and monitoring student progress and potential [19], [13] and [19]

Part of his competency as a mathematics teacher is personality development. Thus, he/she is expected to acquire such virtues like patience, punctuality, justice, fairness, neatness, broadmindedness as well as open-mindedness. He/She cultivates a wholesome sense of humor, always aware of the objectives of education as well as the objectives of his institution [8] [21] He/She incorporates all these qualities in teaching mathematics.

Finally, a competent mathematics teacher must know how to teach. He should be a practitioner about effective teaching, just as he has a good command of the medium of instruction. He explains the lessons well [21], and [8]. There is no substitute to education just as there is no substitute to competent Mathematics teachers. These realizations could probably be one of the reasons why the Professional Regulation Commission requires Continuing Professional Development (CPD) units prior to the renewal of Professional License for Teachers and it is at this point that every mathematics teachers needs continuing education.

Continuing education is a more formal, episodic, and visible expression of the sustained desire for learning that provides professional life [10]. Continuing education should not be misconstrued to be synonymous with trainings and seminars unless such undertaking is given in a series of focused lessons forming definite unified and coherent learning tasks. Thus, a three-day seminar in teaching Mathematics outside of a series cannot be classified as continuing education. It is just a seminar. On the other hand, a program that constitutes a series of lessons based on varied learning task forming a unified discipline may be called a form of continuing education.

In the field of Mathematics Education, there is no enough program on continuing education toward professionalization of Mathematics teaching. Graduate degree courses in Mathematics Science and Mathematics Education are the only ones that is commonly called continuing education program in the discipline. This apparent lack of opportunities for continuing education in mathematics has encouraged the researcher to determine the need for it to meet the education requirements of the 21st century learners. Thus, findings of the study can be instrumental to both the school administrators and mathematics teachers that they are heading to the right direction on the continuing education that they are going to pursue which in turn will benefit the direct beneficiary of these efforts which are the students.

It is on this context that the present study was premised on Bruner's Constructivist Theory [11] According to this theory, what determines the level of intellectual development is the extent to which the child has been given the appropriate instruction together with practice or experience. Likewise it can also be anchored on the Valence Theory of Vroom [26] which implied that teachers develop themselves invariable, students are developed as well.

OBJECTIVES OF THE STUDY

The study determined the personal and professional characteristics of the teacher respondents in terms of age; sex; civil status; academic preparations; years in teaching Mathematics; number of related seminars and trainings attended for the last 3 years, and division affiliation. It also appraised the teaching competence of the mathematics faculty with respect to dedication to teaching; knowledge of subject matter; classroom organization and management; instructional organization; instructional implementation; and monitoring student progress and potentials.

Further, it compared the mathematics teaching competencies of faculty when they are grouped according to profile variable which was used to determine the direction on continuing education that may be pursued by the mathematics teachers to enhance their competencies.

METHODS

The study used the descriptive method of research as it attempts to determine the present condition of the mathematics teaching competencies of teachers in the senior high school in the Division of City Schools in the Province of Batangas, Philippines which was used as

basis for direction on continuing education for the K to 12 Curriculum that was proposed by the researcher.

A total of 72 respondents which involved the entire population participated in the study. Hence, no sampling technique was involved. The study used the researcher made questionnaire as the main data gathering instrument which aid to verbally interpret the data. Dry run was conducted to determine the reliability of the items. The computed Cronbach's Alpha of .988 indicates that the items in the questionnaire are of good internal consistency and are reliable.

The survey instrument used in this research consists of two parts: The first part dealt with the personal and professional characteristics of the teacher. Frequency and percentage was used to answer the first objective. To assess the mathematics teaching competencies, the respondents were asked to answer the survey questionnaire. Using Likert scale of five, they were asked to check (/) the column that corresponds to their answer. Weighted Mean is employed to answer the second objective using following scale and interpretation: 5-4.50 Highly Competent, 4.49-3.50 = Competent, 3.49-2.50 = Moderately Competent, 2.49-1.50 = Fairly Competent, and 1.49-1.00 = Incompetent. To determine possible differences on the mathematics teachers' teaching competencies when they are grouped according to profile variable, comparison of means were used.

Two sets of respondents' namely the administrators and the mathematics teachers were asked to participate in the survey. Utmost confidentiality was ensured and the respondents were assured that the data that could be gathered are strictly for academic purposes only.

RESULTS AND DISCUSSION

Personal and Professional Characteristics of the Teacher Respondents.

Table 1 shows the distribution of teacher respondents in terms of age. It can be gleaned from the table that most of the respondents which consists of 18 or 38.3 percent belongs to age bracket of 29-35. It was followed by 13 or 27.7 percent that belongs to age bracket of 22-28.The next group was composed of 8 or 17.0 percent that belongs to age bracket of 36-42, there are also 5 or 10.6 percent that belongs to age bracket of 43-49 and there are only 3 or 6.4 percent that belongs to age bracket of 50 and above. It could mean that mathematics teachers in the division of city schools are relatively young; this result could probably because some of the aged teachers have already retired while others considered teaching outside the country or considered other career for a greener pasteur. As confirmed by the mathematics teachers, there are some of their colleagues who went to other countries to teach and they receive salary which is five to six times higher.

Table 2. Distribution of the Teacher Respondents in terms of Sex

Sex	Frequency	Percentage
Male	20	42.6
Female	27	57.4
Total	47	100

Table 2 exhibits the distribution of teacher respondents in terms of sex. As based on results majority of the teacher respondents are female which consists of 27 or 57.4 percent while there are only 20 or 42.6 percent who are male. Result confirms that regardless of specialization, teaching profession is still a female dominated profession.

Table 3. Distribution of the Teacher Respondents in terms of Civil Status

Civil Status	Frequency	Percentage
Single	18	38.3
Married	27	57.4
Widow/ Widower	1	2.1
Legally Separated	1	2.1
Total	47	100

Table 3 reveals the distribution of the teacher respondents in terms of civil status. Result showed that majority are married which consists of 27 or 57.4 percent, 18 or 38.3 percent who are single, and there is 1 or 2.1 percent who is widow and 1 or 2.1 percent who is legally separated. It could be gleaned from the table that majority of the teachers are married. It could probably be attributed to the fact that majority of the respondents belonged to age group of 29-35 which based on observation is the marrying age nowadays.

Table 4. Distribution of the Teacher Respondents in terms of Educational Attainment

Educational Attainment	f	%
College Graduate	10	21.3
With Masters Unit	18	38.3
Master's Degree	14	29.8
With Doctorate Units	3	6.4
Doctorate Degree	2	4.3
Total	47	100

Table 4 presents the distribution of the teacher respondents in terms of educational attainment. As can

be gleaned from the table that most of the respondents have earned their master's units as shown by 18 or 38.3 percent, there are also 14 or 29.8 percent who have earned their master's degree, but there are also 10 or 21.3 who just earned their college degree. Further, there are 3 or 6.4 percent who have doctorate units and 2 or 4.3 who already earned their doctorate degree. Result may imply the teachers' awareness on the need to improve their teaching qualifications. This result could also be attributed to the new policy of the Philippine Regulatory Commission about continuing professional development to meet the requirement to ensure teachers upgrading and continuous self-improvement which is critical to the retention and improvement of any teacher in the classroom Oluremi, [20] which was also stipulated at the DepEd ORDER No. 42, s.2017. To some, they confessed that they are compelled by their administrator to study. But for others, they said that they want to be promoted to a higher rank and one of the minimum requirements for promotion is educational advancement in terms of enrolment to graduate studies.

Table 5. Distribution of the Teacher Respondents in terms of Number of Years in Teaching

Number of Years in Teaching	Frequency	Percentage
1-3	5	10.6
4-6	11	23.4
7-9	11	23.4
10 years and above	20	42.6
Total	47	100

Table 5 conveys the distribution of the teacher respondents in terms of number of years in teaching. As can be gleaned from the table most of the respondents are teaching for 10 years and above as reflected by 20 or 42.6 percent, but it was found out that the entire 20 years were not necessarily spent teaching in the senior high. Some of them are from higher educational institutions that were displaced due to the implementation of K to 12 Curriculum. There are 11 or 23.4 percent who are already teaching for4-6 years 11 or 23.4 percent who are teaching for 7-9 years, and 5 or 10.6 percent who are teaching for 1-3 years. These results may imply that most of the teachers are not new in the profession which could probably mean that they are enjoying what they are doing.

Table 6 shows the distribution of the teacher respondents in terms of related seminars attended for the last 3 years. It was revealed that most of the teachers attended at least 1-5 seminars for the last 3 years as shown by 17 or 36.2 percent, 13 or 27.7 percent attended at least 6-10, 11 or 23.4 percent attended at least 11-15 and there are 6 or 12.8 percent who has attended 16 and above related seminars for the last 3 years.

Table 6. Distribution of the Teacher Respondents in terms of Number of Related Seminars Attended for the Last 3 Years

No. of Seminars Attended	f	%
1-5	17	36.2
6-10	13	27.7
11-15	11	23.4
16 and above	6	12.8
Total	47	100

Result showed that the teachers are at least exposed to seminars related to their field of specialization. This could probably be attributed to the open-mindedness of the teachers and effort of the administrators of each school to provide the teachers the needed training for their personal and professional development. As stressed by Akiba and Liang [3], teachers' continuous engagement in professional learning activities is critical for improvement of their knowledge, instruction, and student learning [26].

More so, professional development must first enhance teacher knowledge and skills, then create improved classroom teaching, which finally raises students achievement. Further, it must potentially serve a variety of purpose such as remediating weaknesses in the skills and knowledge of incoming teachers, keeping teachers up to date on emerging developments in the field, or addressing the needs of such specific students. Furthermore, Hightower, Delgado, Wittenstein, Seller, and Swanson, (2011) [14] reiterated that high-quality professional development must deepen subject matter knowledge, provide enough time for teacher learning, connect existing knowledge with new knowledge, actively engage teachers, and involve teams of educators learning together. As such, teachers need training according to professional standards against which their performance can be measured [18].

Table 7. Distribution of the Teacher Respondents in terms of Division Affiliation

Division	Frequency	Percentage
Batangas	26	55.3
Lipa	14	29.8
Tanauan	7	14.9
Total	47	100

Table 7 illustrates the distribution of respondents in terms of division affiliations. As can be gleaned from the table, majority of the respondents are from Batangas City Division as shown by 26 or 55.3 percent, followed by Lipa City Division as shown by 14 or 29.8 percent and 7 or 14.9 from Tanauan City Division. This result could be attributed to the fact that the numbers of teacher respondents are proportionate to the number of schools that offers senior high school for each division.

Table 8 presents the assessment of administrators and teachers in terms of the mathematics teaching competencies of teachers' in terms of dedication to teaching. It was revealed that the mathematics demonstrated their dedication to teaching as reflected by the same composite mean value of 4.20 from the administrators and teachers verbally interpreted as competent. This could mean that from the point of view of the two groups of respondents they both saw the selfless characteristics of teacher to impart knowledge and efforts to walk an extra mile for the welfare of each students. Commitment to teaching is a crucial factor to contribute to the achievement of students [4]

Table 8. Teaching Competencies of Mathematics Teachers in Terms of Dedication to Teaching

Dedication to Teaching – selfless characteristics of teacher to impart knowledge and walk an extra mile for the welfare of each student	Admin WM	VI	Teachers WM	VI
Develops one's own competency as a Mathematics teacher.	4.21	C	4.28	C
Possesses a positive attitude about life and in teaching Mathematics	4.40	C	4.51	HC
Spends time for community outreach	3.74	C	3.62	C
Accepts responsibility of students outcome	4.34	C	4.38	C
Seeks professional development such as in service courses, projects, and conferences in Mathematics area	4.30	C	4.17	C
Finds, implements, and shares new instructional strategies	4.23	C	4.21	C
Knows areas of personal strengths and weaknesses	4.32	C	4.36	C
Uses reflection to improve mathematics teaching and needs for development	4.02	C	4.13	C
Sets high expectations for personal classroom performance	4.15	C	4.11	C
Keeps oneself updated about new developments and trends in mathematics research practice.	4.26	C	4.26	C
Composite Mean	**4.20**	**C**	**4.20**	C

Legend: 5.00-4.50 HC- Very Competent ; 3.50-4.50 C- Competent

Table 9 exhibits the respondent's assessment on the teaching competence of teachers in terms of knowledge of subject matter. As based on result, it was revealed that the teachers are competent as shown by the composite mean value of 4.26 and 4.19 from the administrators and teachers respectively.

Table 9. Teaching Competencies of Mathematics Teachers in Terms of Knowledge of Subject Matter

Knowledge of Subject Matter – teachers clear understanding of subject matter and how to impart that subject matter with students in a way that they come to own it and understand deeply	Admin WM	VI	Teachers WM	VI
Analyses, assesses, relates to, and implements existing Mathematics curricula and syllabi and construct new ones.	4.23	C	4.32	C
Masters Mathematics modes of thought	4.30	C	4.21	C
Communicates within and about Mathematics.	4.32	C	4.23	C
Detects, formulates, delimitates and specifies Mathematical problems, pure or applied	4.30	C	4.04	C
Integrates topics discussed in the lesson and relates them to concepts previously learned by the students in the same course	4.30	C	4.30	C
Analyzes and builds Mathematical modes and utilizes different kinds of representations of Mathematical entities.	4.30	C	4.02	C
Relates the subject matter to other pertinent topics	4.30	C	4.23	C
Raises problems and issues relevant to the topic(s) of discussion	4.26	C	4.23	C
Is able to handle symbol language and formal Mathematical system	4.09	C	4.11	C
Balances variety and challenge in students activities	4.19	C	4.19	C
Composite Mean	**4.26**	**C**	**4.19**	C

Legend: 3.50-4.50 C- Competent

It could mean that these teachers are proficient in the technical competencies of teaching and they are fluent in a multilayered set of social skills that students recognize and respond to, which leads to greater learning which according to Attakorn Tayut, Pisitthawat, and Kanokorn, [7] characterized finest and competent teacher. Moreover, teacher's subject matter knowledge influenced the performance student's at all levels. The deeper subject matter knowledge makes a teacher capable to teach the subject with full command and the teacher can give more details to explain the subject [23].

Table 10 shows the respondents assessment on the teaching competence of mathematics teachers in terms of classroom organization and management. It could be gleaned from the table that the mathematics teachers are competent as shown by the composite mean value of 4.24 and 4.30 from the administrators and teachers

respectively. This was validated by the administrators in terms of teachers' ability to handle routine tasks promptly, efficiently, and consistently and their ability to organize classroom space efficiently.

Table 10. Teaching Competencies of Mathematics Teachers in Terms of Classroom Organization and Management

Classroom Organization and Management– teachers' ability to organize and manage the classroom in accordance with the goals and objectives of specific learning institutions.	Admin WM	VI	Teachers WM	VI
Orchestrates smooth transitions and continuity of classroom momentum	4.17	C	4.26	C
Organizes multi-task properly	4.21	C	4.09	C
Is aware of all the activities in the classroom	4.21	C	4.36	C
Anticipates potential problems	4.19	C	4.17	C
Uses space, proximity, or movements around the classroom for nearness to spot trouble and to encourage attention	4.21	C	4.34	C
Handles routine tasks promptly, efficiently, and consistently	4.36	C	4.30	C
Organizes classroom space efficiently	4.30	C	4.23	C
Interprets and responds to inappropriate behavior promptly	4.23	C	4.32	C
Implements rules of behavior fairly and consistently	4.26	C	4.40	C
Uses appropriate disciplinary measures.	4.28	C	4.51	HC
Composite Mean	**4.24**	**C**	**4.30**	C

Legend: 5.00-4.50: HC- Very Competent; 3.50-4.50: C- Competent

It could mean that from the point of view of the administrators the mathematics teachers were able to manifest what Parsonsons [22] claims about competent teachers who assert bringing experienced teachers into the classroom to assist in the development of classroom management skills through goal-setting, feedback and praise also has been shown to be effective in enhancing teaching skills and in improving student academic performance. The most obvious reason for this assertion is that, effective classroom management sets the stage for teaching and learning [12].

Table 11 shows the respondents assessment on the teaching competence of mathematics teachers in terms of instructional organization. Results revealed that the mathematics teachers are competent as revealed by the mean value of 4.23 and 4.27 verbally interpreted as competent from the administrators and mathematics teachers respectively. It could mean that from the administrators' point of view they found the Mathematics teachers to be competent since they are very able to plan and design instruction. According to Knight [14] instruction that is well planned moves students from their current level of competency toward explicit criteria for success. It could mean that from the two groups of respondent they found the mathematics teachers to be able to implement quality instructions.

Table 11. Teaching Competencies of Mathematics Teachers in Terms of Instructional Organization

Instructional Organization – complex activity that involves careful preparations and planning of teaching objectives and activities.	Admin WM	VI	Teachers WM	VI
Focuses classroom time on teaching and learning	4.30	C	4.45	C
Links instruction to real-life situations of the students	4.17	C	4.26	C
Devises, plans, organizes, orchestrates and carries out Mathematics teaching	4.15	C	4.21	C
Makes use of aids and tools and relates these to Mathematics	4.23	C	4.28	C
Maintains momentum within and across lesson	4.26	C	4.26	C
Orients the classroom experience toward improvement and growth	4.30	C	4.23	C
Carefully links learning objectives and activities	4.30	C	4.30	C
Organizes content for effective presentation	4.23	C	4.26	C
Considers student's attention span and learning styles when designing lesson	4.19	C	4.26	C
Develops objectives, questions, and activities that reflect the higher and lower level of cognitive skills appropriate for the content needed by the students on a regular basis.	4.19	C	4.23	C
Composite Mean	**4.23**	**C**	**4.27**	C

Legend: 3.50-4.50: C- Competent

Table 12. Teaching Competencies of Mathematics Teachers in Terms of Instructional Implementation

Instructional Implementation – teachers ability to take responsibility in teaching and to make sure that the students learn	Admin WM	VI	Teachers WM	VI
Employs different techniques and instructional strategies, such as hands-on-learning	4.36	C	4.30	C
Handles different representations of Mathematical entities	4.17	C	4.00	C
Stresses meaningful conceptualization, emphasizing the student's own knowledge of the world and his learning environment	4.13	C	3.96	C
Stresses students responsibility and accountability	4.21	C	4.26	C
Teaches meta cognitive strategies to support reflection on learning process	4.17	C	3.98	C
Emphasizes higher order thinking skills in mathematics	4.20	C	4.32	C
Varies question type to maintain interest and momentum	4.21	C	4.28	C
Is able to reason out Mathematically	4.32	C	4.28	C
Varies instructional strategies, types of assignments, and activities	4.32	C	4.17	C
Leads, directs, and paces student activities	4.30	C	4.30	C
COMPOSITE MEAN	**4.24**	**C**	**4.18**	C

Legend: 3.50-4.50 : C- Competent

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Table 12 illustrates the respondents' assessment on the teaching competence of mathematics teachers in terms of instructional implementation. Results revealed that the mathematics teachers are competent as revealed by the composite mean value of 4.24 and 4.18 verbally interpreted as competent from the administrators and mathematics teachers respectively. It could mean that from the two groups of respondent they found the mathematics teachers to be able to implement quality instructions. According to Kaplan and Owings [13] quality teachers must possess content knowledge and they must have studied instructional ideas and practices which in turned increased students achievement.

Table 13. Teaching Competencies of Mathematics Teachers in Terms of Monitoring Student Progress and Potential

Monitoring Student Progress and Potential- teachers ability to monitor student learning as feedback for them about what strategies are working, which students need more targeted assistance, and what content needs to be revisited	Admin WM	VI	Teachers WM	VI
Clearly explains homework	4.45	C	4.55	C
Relates homework to the content under study and to student capacity	4.19	C	4.28	C
Identifies, assess, and characterizes student learning outcomes and competencies	4.15	C	4.28	C
Discusses grades, comments and homework in class	4.32	C	4.51	C
Thinks possible misconceptions that may occur during instruction and correct students on these misconception	4.23	C	4.43	C
Gives clear, specific and timely feedback	4.26	C	4.45	C
Re-teaches students who did not achieve mastery and offers tutoring to students who seek additional help	4.04	C	4.11	C
Uncovers, interprets and analyzes students learning of Mathematics as well as their notions, beliefs and attitudes towards Mathematics	4.11	C	4.04	C
Monitors and assess students progress	4.32	C	4.49	C
Knows and understand students as individuals in terms of ability, achievement, learning styles and needs.	4.36	C	4.40	C
COMPOSITE MEAN	**4.24**	**C**	**4.35**	C

Legend: 3.50-4.50 : C- Competent

Table 13 shows the respondents assessment on the teaching competence of mathematics teachers in terms of monitoring student progress and potential. Results revealed that the mathematics teachers are competent as revealed by the composite mean value of 4.24 and 4.35 verbally interpreted as competent from the administrators and mathematics teachers respectively. This result could probably be attributed to the teachers' ability to provide meaningful and related homework to their students, discuss how they grade their assignment, and give meaningful comments if necessary [1]. According to Safer and Fleischman [24], when teachers use systematic progress monitoring to track their students' progress their students achieve better. Results also finds connections from the AIR's [5] convictions about competent teachers. They believe that competent teachers help learners to achieve their goals. They must discover how to navigate the demands of the classroom teachers since it is a fact that even those teachers who have had the benefit of strong teacher preparation may face a number of challenges for which they may not feel adequately prepared.

In summary, competent teachers are those who can conduct their lessons very well and manage their classes effectively. They derive competence from both their years of experience as well as continuous professional development efforts [26]. They are focus on student success and maintain focus on teaching and learning and they are learning-oriented [11]. They demonstrate sensitivity towards the personal needs of fellow teachers. And they help and support colleagues in terms of their professional growth.

Table 14. Comparison of Teaching Competencies When the Mathematics Teachers are Grouped according to Profile Variables

Profile	DT	KSM	COM	IO	II	MSPP
age	4.26	4.24	4.33	4.35	4.24	4.41
sex	4.20	4.22	4.30	4.29	4.21	4.38
Civil Status	4.27	4.14	4.39	4.14	4.13	4.28
Educational Attainment	4.26	4.39	4.38	4.41	4.32	4.49
Years in Teaching	4.23	4.20	4.32	4.28	4.19	4.32
Number of Seminars Attended	4.22	4.23	4.31	4.28	4.20	4.37
Division Affiliation	4.24	4.24	4.35	4.33	4.23	4.38

Table 14 reveals the comparison of teaching competencies when the mathematics teachers are grouped according to age. Generally, the table revealed that in terms of age (4.41), sex (4.38), educational attainment (4.49), years in teaching (4.32), number of related seminars attended (4.37), and division affiliation (4.38), the teachers are more competent in terms of monitoring student progress and potentials. It could mean that the teachers have the ability to properly monitor how their students are making progress on their day to day lessons and classroom activities thereby

giving them the chance to identify the student's potential which in turn may help the students unfold their potential. It could be that they know and understand students as individuals in terms of ability, achievement, learning styles and needs [11]. On this note, they can use these information to re-teach students who did not achieve mastery which also enables them to offer tutoring to students who seek additional help. This results could probably be attributed to the government policy of no students will be left behind. In doing so, teachers must be keen and conscientious to monitor how their students are making progress which they can use as baseline information on how they can help their students to perform better. As reiterated by Parsonson [22] teachers have been found to be the single most important factor influencing student achievements. Therefore, they must have the ability to create an environment that is fair, understanding, and accepting of students diverse ideas, experiences, and backgrounds. Also, according to Naz [18] and Balagtas [8] teachers must considered students' individual needs. They must provide varieties of learning activities, allocate extra time for weak students and challenging tasks for brilliant students. They must motivate students to participate in class, express their ideas, and promote individual and team work. Teachers must be competent in using different techniques in classroom for student better comprehension.

On the other hand, it was also revealed from the table that the mathematics teachers are less competent to properly implement the instruction in terms of sex (4.21), civil status (4.13), years in teaching (4.19), number of related seminars attended (4.20), and division affiliation (4.23) which should not be the case. Things being equal, regardless of sex, civil status, years in teaching, number of related seminars attended, and division affiliation mathematics teachers must have the capacity to efficiently and effectively deliver instruction. As confirmed by Boyd et al., [9] that greater teaching experience will produce students with higher achievement. Also, according to Agharuwhe [2] professional development positively relates to students' achievement [26]. In this case, attendance to related seminars and enrolment in graduate programs can be an option. This was confirmed by Naz [18] who recommended that teachers might be trained according to professional standards

4. Direction on Continuing Education that maybe Pursued by the Mathematics Teachers

It is a fact that teachers in general must engaged themselves in continuing education. Based on the result of the study the following strategies/activities are directions on continuing educations that could be confidently pursued by the mathematics teachers knowing that these directions can bring out the best in them which in turn could also bring out the best in students.

- Seminar on Teacher's Technological Pedagogical Content Knowledge
- Enrolment in Graduate School Programs That Dealt with Mathematics Teaching and/or Mathematics Education
- Attendance to Seminars and Conferences, and Workshops Related to Innovative Teaching for Effective Mathematics Teaching and/or Mathematics Education
- Expose Mathematics Teachers in the World of Research

CONCLUSION AND RECOMMENDATION

Since most of the mathematics teachers are relatively young, have masters unit, teaching for 10 years, and have attended at least 1-5 seminars only for the last three years, the proposed directions on continuing education is deemed significant to them. The implication is, greater teaching experience will produce students with higher achievement. Likewise, since professional development positively relates to students' achievement; the more teachers will develop professionally the more their students will prosper [3]. Applying the Expectancy Valence Theory-the implication is that- teachers develop themselves invariable, students are developed as well [26].

Further, mathematics teachers in the senior high school in the division of city schools in the Province of Batangas were competent in the six areas of identified teaching competencies. They can capitalize on this strength because no matter what, the emphasis is more on the teacher component of the Mathematics instruction than on any other aspect of the program Parsonsons, [22]. For effective teaching learning process the competent teacher is considered as a key [6]

Furthermore, since mathematics teachers were found to be competent in terms of monitoring student progress and potential they must capitalize on this aspect to ensure that no students will be left behind. According to Safer and Fleischmen [24] students learn more when teachers uses student progress monitoring. Therefore, teachers can adjust instruction to improve student learning which they can base on the result of their monitoring to reteach the material, or provide additional opportunities for the

student to practice certain skills for them to be able to achieve better [11].

On the other hand, teachers must put extra efforts on how to properly address instructional implementation where they found to be less competent. It is implied that instruction which is well planned moves students from their current level of competency toward explicit criteria for success [12]. which is exactly expressed in Bruner's Constructivist Theory[11]. - what determines the level of intellectual development is the extent to which the child has been given the appropriate instruction together with practice or experience

Finally, since the proposed directions on continuing education that could be pursued by the mathematics teachers are believed to respond in K to 12 Curriculum it is recommended to be reviewed and be considered for implementation.

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