

**Excellent Math Teachers through the Eyes of Future Math Teachers: Basis for Developing a New Paradigm**

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**Abstract**

Different descriptions are given to teachers from different people from different times and places. Academicians have their own share also in describing the teachers in terms of their own sets of standards. This study explored how future mathematics teachers viewed excellent mathematics teachers should be like to carry out their task as math teachers. Thematic analysis was used in this qualitative study to report the themes formed. Their descriptions were reported in themes and a new paradigm was developed as a result of the students' descriptions. Comments from 41 mathematics major students under the Faculty of Education of St Theresa International College were collated and analyzed by thematic analysis. The study revealed that future mathematics teachers described excellent mathematics teachers as Content Experts, Relationship-BUILDER, Knowledge about the learners, Enthusiastic, Academically Optimistic, Authoritative, Role Model, Facilitator, Motivator & Innovator, and Problem-Solver. Surprisingly, as future math teachers, the respondents declared that being a problem-solver has a lesser degree of importance compared to the rest of the indicators. As an output, this study suggested a new paradigm for excellent mathematics teachers. However, the paradigm has to be subjected to further study and validation. These characteristics indicate the image of a good teacher in their beliefs which are related to many different orientations from personal traits of teaching.

**Keywords:** excellent teachers; new paradigm; future math teachers

## 1. Introduction

Any form of extra efforts to attain a higher level of competence in the field of teaching, often, requires a certain degree of appreciation. In most cases, experts tend to look into some criteria to classify the characteristics or qualities of a person.

Teachers are no different to this expertly-sanctioned practice wherein their classroom performances are being judged and studied for the improvement of one's performance and for lifting the students' achievements to a higher level. The quality of work that teachers are giving to their sworn duty, in most cases, surely influence students' achievement. This view is widely shared, as Rice stated: 'Teacher quality matters. In fact, it is the most important school-related factor influencing student achievement.' (2003, v).

Hattie's study (as cited in Rice, 2003) made mentioned of the same thought that 'Excellence in teaching is the single most powerful influence in students' achievement.' To this effect there are teachers who are regarded as good, best, and even great teachers in the eyes of the students and their supervisors based on some standards but not too often about excellent teachers.

Excellent teachers are, operationally, the ones who are at par or always exceeding beyond what is supposed to be the standards. They are those who do everything to get their students' attention and bringing their students to a certain degree of excellence. Excellent teachers are those who are willing and able to transform any educational process into a meaningful student-centered setting. However, in reality, being an excellent teacher is very hard to classify as there are no, categorically, clear criteria on what to expect to be an excellent teacher.

According to the Meriam-Webster dictionary, excellent is defined as 'very good of its kind; eminently good'. With this definition, one can think of a high caliber performance when a teacher is regarded as excellent.

In this context, this study would like to look into the characteristics of excellent mathematics teachers based on the description of the future mathematics teachers of St Theresa International College, Nakhonnayok, Thailand.

## 2. Research Question

An open-ended question was given to the students of the researcher during one of the sessions with the researcher during their regular class schedule. Below was the question given to the future mathematics teachers:

How will you describe an excellent math teacher?"

## 3. Framework

Teachers are regarded as the most important element in the teaching and learning process. As such it is just but right to give importance on how students see their teachers while performing their main role as facilitators of learning. Cacmak's study (as cited in Aclao, Abasolo, Villacora, & Manego, 2014) said that teachers are the facilitators of learning in a two-way communicative process called teaching. They are regarded as the one who have a depth understanding of the subject matter, with caring attitude towards the students, and the ones who have the classroom control to maintain the effective transition of learning.

With the new trends and challenges in the field of education, teachers need to cope up with these trends that are happening not only in the day to day activities but more so in their respective classroom activities. There is a belief that once a teacher has the needed skills and attributes then that is the time that a teacher can be regarded as effective or being considered as an excellent teacher. Moreover, teachers who are equipped themselves with the new trends and knowledge can successfully and effectively carry out their duties as teachers. Equipping oneself with the needed skills and attributes for an effective teacher will surely make the works of a teacher easier and more so will help the students to achieve their greatest potentials. This is in agreement of what an Indian philosopher as quoted by Haider, Ali & Jalal, Shafia (2018) once said: "The true teacher is he who can immediately come down to the level of student, transfer his soul to the students' soul and see through and understand through his mind. Such a teacher can really teach none else"

Identifying the attributes of the excellent teachers is very important as they enable the young adolescents to achieve their greatest potentials (Thornton, 2010). Exemplary teachers and academic leaders, described as 'expert teachers', 'excellent teachers', and 'lead teachers', are capable to promote better teaching and learning practices (Tengku et al., 2018).

In the study of Hutchings, Mansaray, Minty, Moreau and Smart (2009) as cited by Tengku (2018) excellent teachers are expected to share knowledge, skills and expertise with other teachers aside from their roles as facilitators of learning in their respective classrooms. Arnon & Reichel's study (cited by Aclao et al., 2014) pointed out that ideal teachers have two important components to be considered, and these are professional knowledge and appropriate personality. However, according to Simendinger et al., Hammer et al., Exley, Arikan et al., as cited by Aclao et al (2014), it is a strenuous job to define excellence in teaching because it linked with the observable and technical aspects of the profession. Orit (2016) is in agreement to this by citing the study of Dwyer & Stufflebeam (1996); Hilton, Assunção Flores, & Niklasson (2013); White (1991) that it is difficult to evaluate an excellent teacher since there are many definitions as to what constitutes teaching excellence.

However, in looking into the quality of teaching, Ibad (2018) said that the faculty must be made aware of the importance of students' views. Students have an important role as partners in the learning community (Steh & Kalin, 2012). In the study of Steh & Kalin (2012), they pointed out that the students' involvement in the quality assessment should be regarded as full participation, because this involvement generates an authentic partnership (Alaniska and Eriksson 2006). Giving value on students' experiences with a teacher, as partners in the learning process, will create circumstances which lead to quality learning (Nightingale and O'Neil, 1994). According to Leinhardt (1988) the character of the environment is dependent on the personality of the teacher. Thus, it is just proper to give more importance, as it is indispensable, the role of students as active co-designers of the studies (Steh & Kalin, 2012).

The studies being reviewed were about exemplary teachers and leaders in general form; and the role of students as authentic partners in the learning process. However, it failed to mention any descriptors for excellent math teachers as perceived by future mathematics teachers. The study therefore aimed to develop a general descriptors of excellent math teachers and to develop a new paradigm.

#### **4. Objective of the Study**

Generally, this study was conducted to find out what excellent mathematics teachers should be like according to the future mathematics teachers who are currently under the Faculty of Education of STIC taking Mathematics as their field of specialization.

This study is aimed to carry out the following specific objectives:

1. To present the students' description towards excellent mathematics teachers as themes
2. To develop a new paradigm of an excellent mathematics teacher

### 5. Methodology

Qualitative method of research was employed in this study and employing thematic analysis in analyzing the students' descriptions of an excellent math teacher. The descriptions were reported as themes and a new paradigm was developed based on the students' descriptions. According to Braun & Clarke (2006), a flexible technique in analyzing data is through thematic analysis, a quick and easy technique for new qualitative researchers to learn.

Students' answers from the question "How will you describe an excellent math teacher?" given during one of the regular classes were the basis for the data of this study. 41 Thai College students from five levels, Year 1 to year 5, whose first language is Thai were asked to answer based on their own perceptions. The respondents are of varying perceptions since there were students who are already in their internship level while others were just at the beginning of their quest to become a Math Teacher. The study was conducted at the middle of the second term of academic year 2019 – 2020 in St Theresa International College, Nakhonnayok, Thailand.

The researcher used a qualitative method of research in order to look into the students' descriptions of what an excellent math teacher should be. This is to ascertain what meanings should be ascribed to the descriptions through the views of the respondents of the study (Denzin & Lincoln, 2005). Moreover, the study examines forms of experiences and their knowledge based on the inner or original experiences of the participants and the theory they learned as education students of St. Theresa International College.

### 6. Results and Discussion

The analysis yielded nine themes from the students' descriptions of an excellent math teacher:

## Theme 1: *Content Expert*

Knowledge of the subject matter is very important to carry out the most important job of a teacher, that is teaching. According to Ball, L.D., Thames, M.H., Phelps, G. (2008), content knowledge is crucially important to the improvement of teaching and learning.

While the knowledge of the teacher plays a vital role in the teaching and learning process, to be a competent teacher involves more than just knowledge. Skills, attitudes, and motivational variables also contribute to the mastery of teaching and learning (Guerriero, 2014).

Aclao, et. al (2014) on the other hand pointed out that mastery of the subject matter and pedagogical knowledge and skill will make an instructor a content expert. Teachers' methodological competence and skills will lead one to apply innovative teaching methods that will influenced the students to become an active and competent person (Mynbayeva,A., Sadvakassova, Z., & Akshalova, B., 2017)

Improving the professional knowledge of teachers will surely help to be more competent in facing the students and in carrying the task of a teacher. Teachers with improved professional knowledge will be of great help in transforming schools and for increasing the quality of the whole system. As Ellerani, P, Gentileb, M. (2013 ) puts it, "the culture of lifelong learning is connected with students' improvement". Thus, by working with their colleagues in professional learning communities, teachers may improve their professional knowledge through engaging in continual dialogue and by examination of their practice and student performance to develop and enact more effective instructional practices (*ibid*). Aclao, et al (2014) in his study suggested that knowledge of the subject matter, pedagogical knowledge and skills will make a teacher a content expert.

Accordingly, pedagogical knowledge and skills and being a lifelong learner will make a teacher a content expert. Content expert has the following descriptions according to the great majority of the future math teacher:

"Knowledgeable about mathematics."

"Able to build up content or modified for students to understand and can communicate

the content correctly."

"have extensive mathematics knowledge"

“Sound knowledge of Mathematics”

“math teacher should have an extensive understanding of math.”

“have knowledge”

“Teacher should has knowledge and understanding about lesson to teach”

“For me an excellent math teacher is who has knowledge and abilities to solve all math problems.”

“I think excellent with teacher is teacher who can describe any problem or any questions for their student.”

“Can teach content that students do not understand.”

“A great teacher for me is a knowledgeable person”

“An excellent math teacher is someone who is knowledgeable and good at math.”

“An excellent math teacher is a teacher who has good math ability”

“Teacher should teach follow students’ knowledge”

“Math teacher has understanding of mathematics.”

“Explain clearly”

“math teacher should teach students to understand mathematics deeply”

“Able to teach students to understand the content”

“Teacher can explain the math that students can understand easy.”

“make students understand what they teach.”

“An excellent math teacher is people who are always ready to learn new things, never stop developing themselves, always practice in order to be a professional at mathematics.”

“Modern”

“Constant learning”

“Developing the potential of being a teacher.”

“Constantly learning”

“Excellent math teacher is the people who study all the time. Study the new thing in the world and use the knowledge that study to apply the lesson.”

“Always seeking new knowledge”

“Has a variety of teaching strategies to adapt to the learners.”

“Has techniques of teaching.”

“Should engage students to learn by using various types of material to help them to teach students more easier.”

“Is able to use strategies for students to think, analyze find answers quickly”

“Has teaching skills on how to teach their students to deeply understand in math, not only remember.””

“Is a teacher who can teach students in a variety of ways, whether traditional teaching, classroom teaching, or one-on-one teaching, or teaching in a new style that uses various electronic technology to help in teaching and learning. For maximum efficiency.”

“Has techniques that make students to understanding in lesson and can do the quiz.”

“Uses strategies or teaching methods that encourage children to think, analyze, find answer by guiding them.”

“Has the ability to fully transfer knowledge to children and make them easier to understand.”

“Has new techniques in teaching. Mathematics is proven formula. Teachers have to have after understanding easier than before.”

“Prepares techniques for each kind of students because they don’t have the same level of knowledge.”

“has a tutorial method that easy to understand.”

“Gives questions and show how to find that, give activity to do in classroom, give extra points.”

“Makes students not feel prejudice with math and myself.”

“Makes math easy to use and easy to understand by teaching student by their skill.”

“Can teach students effectively in mathematics.”

“Will make the lesson /classroom that interested for student.”

“Makes learning content interesting.”

“Has the ability to teach students knowledge and understanding of mathematics.”

“Doesn’t make students confuse in lesson.”

“Has an activity sometime.”

“Must have a lot of knowledge in teaching children and have techniques for teaching children to understand as well because each child is not similar. Therefore, teacher must understand children.”



**Theme 2: *Relationship-Builder***

It appears in this study that excellent mathematics teachers are viewed by future mathematics teachers as relationship – builder. Building a good and trusting relationship between teachers and students is a good start to establish a safe, positive and productive learning environment. According to Labaree (2000), there is a need in developing a caring relationships between teacher and students in order to develop an in-depth understanding on the students’ learning needs and abilities; “they also need to establish an emotional link to motivate the student to participate actively in the learning process”(p.229). Building genuine trustworthy relationships between teachers and students is of crucial importance in relation to the student capacity to learn (Raider-Roth, 2005).

Positive relationship with students is believed to be beneficial to students and teachers. According to Hargreaves (2000) one of the most important sources of enjoyment of, and motivation for, teaching is the positive relationships with students. In the same vein, Hussain,N., Nawaz, Nasir, "Nosherwan Kiani" & Hussain,M., (2013) declared that positive teacher-student relationship increases the confidence level of the students, produces mutual respect and obedience. In the same vein, Prozesky D. R. (2000) pointed out that teachers need to cultivate an open and trusting relationship with their students to be effective in teaching.

According to the future mathematics teachers, excellent math teachers are described by the following:

"can be asked when students don't understand"

"Friendly"

"When students have problem can help, advice and solve the problem."

" a good adviser"

"When students have problem can help, advice and solve the problem."

"Listen to students"

"The teacher will not force the child to do various things, but will manage and be a consultant for the child"

"They can advise the students"

"Do not close their (student) way to think"

"Caring"

"Teachers must support students in various fields."

"Excellent teacher is caring"

“They have a caring attitude their students and are always ready to support those who are having problems.”

“Must listens to students’ problems and encourage students.”

**Theme 3: *Knowledge about the learners***

Students in a classroom are always different from one another in a variety of ways and they learn in different ways (Prozesky D. R. ,2000). It is imperative that Knowledge of Diverse Learners (KDL) is essential for effective teaching (Abd Rahman,F., Scaife, J., Aini Yahya, N & Ab Jalil, H. 2010).

Knowledge about the learners becomes equally important, particularly when one interrogates the platitude that children and youth are recognized as a vital resource for the continued development of a nation and the hope for it future (Wilhelm van Rensburg, 2007). Understanding of the children’s abilities and interests and the way how these students respond to different situations should be highly considered to address the diverse learning needs of the students. Abd Rahman, F (2010) cited the study of Gay (2003) that said that the need to address the diverse learning needs of the students prompted many educators to believe that awareness of and sensitivity to diverse learners have become even more important. With understanding and appreciation for diversity, successful teachers will be able to make effective decisions that allow them to respond to their students in appropriate ways especially in the application of different teaching strategies (*ibid*).

To the students, excellent mathematics teacher is one who:

“should develop knowledge and understanding of children about topic studies and can take students to successful in future.”

“knows the ability of student then set the lesson appropriately to each student.”

“should understand when students solve the problem by other way and teach him how to do it with that way.”

“should focus on all of students not only on the intelligent student.

“Asks every student, take care equally. Not think that if one understand that mean everyone understand too.”

“tries to connect to talk or ask when students understand or do not understand.”

“focuses not only on the content being taught but also on the students.”

“pays attention to the students”

“need to understand the characteristics of the learners”

“will listen to student first and must understand the student”

“Understands students and remember the characteristics of each students.”

“able to recognize when a student is having a bad day or needs some encouragement“

“focuses not only on the content being taught but also on the students.”

#### **Theme 4: *Enthusiastic***

According to Robert (1970), enthusiasm means a thorough preparation and vigorous presentation that will lead to converting the most hostile group of students to a harmonious class. For being enthusiastic in class, it will break down all the barriers and enables teacher to convey ideas with ease.

Murray (1983) as cited by Wood (1998) defined teacher enthusiasm as consisting of the following expressive teaching behaviors: (1) speaking in a dramatic or expressive way, (2) variation in pitch and volume, (3) vocal inflection, (4) smiling or laughing while teaching, (5) moving about while lecturing, (6) gesturing with hands or arms, (7) exhibiting facial gestures or expressions, (8) eye contact, and (9) humour. In the same vein, Gábor et al., (2015) said that students of those teachers who scored high on such behaviors as “stimulating”, “energetic”, “mobile”, “enthusiastic”, and “animated” have high achievements; and the frequency of teachers’ movement, gestures, variation in voice, and eye contact were also positively related to the achievement of pupils. Thus, teachers who are enthusiastic will produce motivated students and can be translated to high achievements for students. The following illustrate an excellent mathematics teacher as enthusiastic:

“humorous, students will not be stressed”

“can make any joke or any game in class for student attention.”

“Always have enthusiasm”

“Good teachers must be enthusiastic about teaching work”

“Make their class happiness.”

“Excellent math teacher should be fun”

“have more energy to teach students”

“Teaching is not boring”

### Theme 5: *Role Model*

It appears that excellent mathematics teachers are considered as role models of the future mathematics teachers. Role model as defined by Kaawa (2009) as cited by Aclao (2014) is:

“a person who possess the admirable traits one would like to have and influences other individuals to be better.”

According to Bashir, S., Bajwa, M., Rana, S., (2014) teachers leave a long-lasting impact on the lives of their students, and the those who are considered as the greatest teachers inspire students towards greatness. Bashir, et al (2014) added that teachers are our most influential and life-changing role models.

“Teacher’s pleasing personality is a part of the students’ description of an excellent instructor.

Aclao, et al, (2014) in his study declared that teacher’s pleasing personality is part of the description of being an excellent teacher. He further stressed that teachers who come to school early, compassionate to their students, diligent and passionate about their profession are described as good. In addition, adolescents with identified role model received higher grades and had higher self-esteem. He also identified some good effects of having an identified role model to include reduced risk behavior; more positive academic outcomes; decreased aggressive behavior, anxiety and depression.

“Role models greatly affect in the development of resilience among African American adolescents reared in a home with negative nonparent adult behavior. Adolescents with an identified role model received higher grades and had higher self-esteem, reduced risk behavior; more positive academic outcomes; decreased aggressive behavior, anxiety and depression

In this study, the future math teachers description for an excellent math teacher as role model is in agreement to Lunenberg, Mieke & Korthagen, Fred & Swennen, Anja. (2007) that excellent math teachers should “walk your talk” and be good examples of the views they are trying to promote to the students.

“The teacher must be a good example to students, whether posing, dressing, talking, and communicating.”

“good looking.”

“be a good model for students.”

“Diligent and attentive to teaching.”

“Excellent teacher should have a lesson plan of teaching.”

“Teacher should have plan to do in teaching students.”

### **Theme 6: *Academically Optimistic***

Goleman as cited by Yerkes (1999) defined optimism as an emotionally intelligent attitude, one of a set of abilities which has helped individuals persist when confronting frustration or resistance. In the education sector, teachers who believe that they "can make a difference, that students can learn, and academic performance can be achieved" are collectively called as academically optimistic teachers and that teacher's academic optimism is made up of teacher efficacy, teacher trust in students and parents, and teacher academic emphasis (Donovan, 2014).

Teacher's academic optimism according to Woolfolk Hoy et al. (2008,) as cited by Donovan (2014) is defined as follows:

“A teacher's positive belief that he or she can make a difference in the academic performance of students by emphasizing academics and learning, by trusting parents and students to cooperate in the process, and by believing in his or her own capacity to overcome difficulties and react to failure with resilience and perseverance.”

Woolfolk Hoy et al. (2008) writes the essence of an optimistic disposition when dealing with students as it is a welcoming nature when dealing with parents, and a willingness of a teacher to go above and beyond to help students. Academic optimism according to Donovan (2014) is a school-level characteristic that is significantly related to student achievement, even after controlling for socioeconomic status.

Academically optimistic excellent math teachers according to the future math teachers are described below:

“When teach the student will have attitude think positive.”

“Does not make students hate or dislike math more than today.”

“Positive attitude”

“good attitude”

“positive thinking”

“Teacher can make all students love math.”

“make the student love to learning mathematics.”

### **Theme 7: *Authoritative***

Creating an effective teaching-learning process depends on the teacher’s classroom management approach (Snowman & Biehler, 2003). According to Walker (2009) for teaching to be effective, teachers should consider and manage effectively the interplay between the academic and social dimension of classrooms. Plax, Kearney, McCroskey & Richmond (1986) once wrote, teacher’s classroom management prosocial techniques will likely to increase student perceptions of the teacher immediacy, which in turn results in greater affective learning.

Authoritative teachers according to Walker as cited by Gulfem Cakır, S. (2015) are teachers who:

“Employ positive instructional practices within a highly controlling and nurturing context”

Thus, in such environment, students have the chance to see and internalize the rationales underlying classrooms. In addition, the students will follow the rules on their own initiative (McCaslin & Good, 1992).

To the future math teachers, an excellent authoritative math teacher are teachers who:

“should be a good manager to manage their classroom in a good position and appropriate”

“Have rules of teachers and students”

“Should be able to control the children to focus on one point.”

“Teacher can control students in class.”

### Theme 8: *Facilitator*

To be effectively teach the students, teachers need not only the knowledge on what to teach but also how to teach. Students as respondents of this study viewed excellent math teacher as someone who is a facilitator of learning. A teacher who is a facilitator of learning is someone who will give directions and help lead the students towards the development and enhancement of their full potential towards the attainment of the goal. A facilitator selects the most appropriate technique for a context (Mann, 2011).

According to Aclao, et al (2014), a facilitator selects the appropriate technique for a context and effectively manages group interaction towards the attainment of the goal. A facilitator knows different methods and strategies that are helpful in the maximization of students' leaning (*ibid*).

The following described the excellent math teacher as facilitator:

“Do not tell formula only but should teach nearly students' activity in life then ask question to students to be closer topic and get formula by themselves.”

“Teaching is not telling everything. Telling everything will make students cannot do anything by themselves. Students will cannot think anything and wait teacher find the way every time.”

“Teacher provide student to do homework by myself.”

“Should adapt the lesson into current situation to link mathematics to real life to help student to see the important of mathematics”

### Theme 9 *Motivator and Innovator*

Motivation and innovation are another factors that teachers need to carry out their task. Motivation, according to Freeman, Alston & Winborne (2008), is about students' beliefs on their competence, the “quality of task engagement,” as well as “goals or reasons for learning,” and the duration, intensity and direction of academic behaviors. Innovation on the other hand, signifies renewal, rejuvenation from inside, rather than novelty (Girard,1990) while Randi & Corno (1997) defines innovation as to change something into something new. In addition, innovation has been valued historically as a means toward progress and modernization (*ibid*).

A teacher may be considered as a motivator if students' feelings of competence is the result of the teacher's effort in influencing the students positively, particularly for students who may struggle academically. Thus, alleviating students' self-efficacy through praises and encouragements (Aclao, et. Al, 2014). In the same vein, a teacher may become an innovator if instructional innovations can be uniformly implemented and that faithful implementation will result in improved teaching and learning (Randi & Corno, 1997).

A motivator and innovator math teacher is being described below by the future math teacher as follows: ,

“Has new ideas, create ideas.”

“Motivates students want to learn mathematics”

“Is a good motivator.”

“Should be a good motivator to motivate the students to know the importance of mathematics and make mathematics to be more fun, not a boring class.”

### **Theme 10: *Problem Solver***

Training individuals who can solve problems is one of the aims of instruction. For this reason, according to Zeynep BaharÖzdoğan, ElifSeyitoğlu, BülentGüven (2011) future teachers should have problem solving skills. A teacher who are equipped with problem solving skills whether learned during their university days or as a result of their continuing education will eventually become a problem solver. Being a problem solver is very important especially if one is a mathematics teacher. The future mathematics teachers as respondents of this study believed that an excellent math teacher should possess good problem-solving skills.

According to Zeynep BaharÖzdoğan, ElifSeyitoğlu, BülentGüven (2011), an art of solution in the process of problem solving can be used as a method for teaching mathematics. “Heuristics” as proposed by Polya, a Hungarian mathematician, a four-step approach to include “understanding the problem, devising a plan, carrying out the plan and looking back” is appropriate to develop a suitable strategy in solving a problem. A mathematics teacher who knows the approach will surely help their students develop a suitable strategies to solve a problem as the teacher himself is a good problem solver.

An excellent mathematics teacher who is a problem solver is described below:



“Have steps in solving problem about math.”

“An excellent math teacher is who can solve and describe all math problems that they assign the students to do”

“Can do equation to a certain extent or all.”

*A New Paradigm of an Excellent Mathematics Teacher*

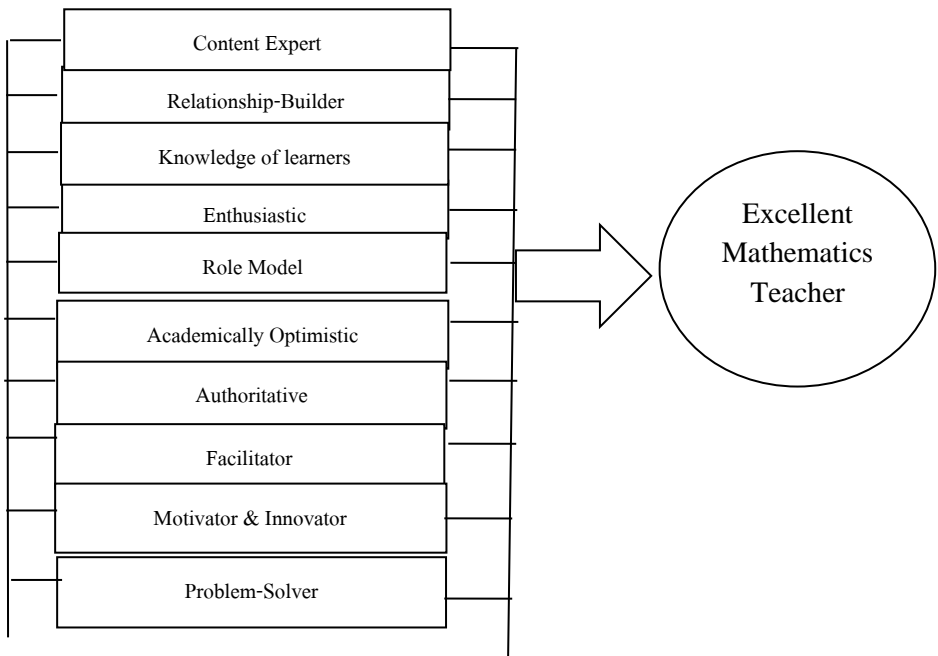


Figure 1. A New Paradigm of an Excellent Mathematics Teacher

The results of the analysis of this study motivated the researcher to design a new paradigm for an excellent Mathematics Teachers (Figure 1). The paradigm suggests that in order to become an excellent mathematics teacher one has to be Content Expert, Relationship-BUILDER, and Knowledge about the learners, Enthusiastic, Academically Optimistic, Authoritative, Role Model, Facilitator, Motivator & Innovator and Problem-Solver. The ten indicators are grouped as one, although they are placed inside their own boxes, indicating they are equally important to each other. The line that bind them

together shows the interrelatedness of the concepts but the concepts are arranged according to the degree of importance as declared by the future teachers. Surprisingly, as future math teachers, the respondents declared that being a problem-solver has a lesser degree of importance compared to the rest of the indicators. It is found out that being a motivator and innovator is somewhat even more important than being a problem-solver.

However, as a whole, to be an excellent mathematics teacher one has to equip himself with these nine indicators should he desire to be at the top and a great contributor of students' achievements. The finding suggests that Content Expert, Relationship-Builder, Knowledge about the learners, Enthusiastic, Academically Optimistic, Authoritative, Role Model, Facilitator, Motivator & Innovator and Problem-Solver comprise the qualities that a math teacher should consider to be considered as excellent.

The respondents were in unison in declaring that mastery of the subject matter, pedagogical knowledge and skill, and being a lifelong learner will make a math teacher excellent (content expert). They also declared as agreed by Prozesky D. R. (2000) that teachers need to cultivate an open and trusting relationship with their students to be effective in teaching (Relationship-Builder).

Another important finding suggests that knowledge about the learners plays a vital role in the classroom since students in a classroom are always different from one another in a variety of ways and they learn in different ways (Prozesky D. R. ,2000). , Gábor et al., (2015) on their part said that students of those teachers who scored high on such behaviors as “stimulating”, “energetic”, “mobile”, “enthusiastic”, and “animated” have high achievements; and the frequency of teachers' movement, gestures, variation in voice, and eye contact were also positively related to the achievement of pupils. Thus, teachers who are enthusiastic will produce motivated students and can be translated to high achievements for students.

An excellent math teacher, according to the future math teachers, should also be academically optimistic since this characteristic is significantly related to student achievement. Creating an effective teaching-learning process depends on the teacher's classroom management approach (Snowman & Biehler, 2003). According to Walker (2009) for teaching to be effective, teachers should consider and manage effectively (authoritative) the interplay between the academic and social dimension of classrooms.

Future mathematics teachers further declared that math teachers should be role models as agreed by Bashir, S., Bajwa, M., Rana, S., (2014) that teachers leave a long-lasting impact on the lives of their students, and those who are considered as the greatest

teachers inspire students towards greatness. Bashir, et al (2014) added that teachers are our most influential and life-changing role models.

Aclao, et al, (2014) also declared that a motivator is someone who can alleviate students' self-efficacy through praises and encouragements. In the same vein, a teacher may become an innovator if instructional innovations can be uniformly implemented and that faithful implementation will result in improved teaching and learning (Randi & Corno, 1997).

An excellent math teacher, is a facilitator, who can choose different methods and strategies that are helpful in the maximization of students' leaning (Aclao, et al, 2014); is a teacher who knows the approach in solving a problem, thus helping their students develop suitable strategies to solve a problem as the teacher himself is a good problem-solver.

### **7. Conclusion & Recommendation**

This study provided us a rich information of what an excellent math teacher should be like. The findings provided us a ground to believe that an excellent mathematics teacher should possess the nine indicators: Content Expert, Relationship-BUILDER, and Knowledge about the learners, Enthusiastic, Academically Optimistic, Authoritative, Role Model, Facilitator and Problem-Solver.

With this finding, we can conclude that if a teacher possesses the aforementioned indicators, then obviously a teacher can easily promote and maintain a quality instruction in everyday undertaking as a teacher. One should be a Content Expert, a Relationship-BUILDER, Knowledgeable about the learners, Enthusiastic, Academically Optimistic, Authoritative, a Role Model, a Facilitator and a Problem-Solver in order to be considered as an excellent teacher.

The indicators clearly provided a picture of excellence as each indicator is important to one another. Emphasis should be made on the importance of each indicator to one another and not to emphasize only one. With the focus shifted to the nine indicators, excellence would be achieved and students will greatly benefit from it.

It is to this reason that the researcher believed that the nine indicators be considered in framing up the curriculum for future mathematics teachers who are

studying in St. Theresa International College. The paradigm presented clearly reflects the indicators of what an excellent mathematics teacher should be. However, this needs further study and validation through a follow-up study in the future.

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