IMPROVING PRIMARY SCHOOL TEACHERS' COMPETENCES AND ATTITUDES TOWARDS MATHEMATICS EDUCATION IN CAMEROON

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Abstract
In Cameroon, primary school teachers recruited after training are assigned unduly to schools and classrooms serving the most educationally vulnerable children. Pupils' right to learn mathematics is directly connected to their teachers' opportunities to learn what is needed to teach well. A review of literature shows that without a good training, experience, positive attitude, instructional and text materials, enthusiasm and preparation of mathematics lessons, teachers are not able to provide effective learning experiences to pupils. Literature has also shown that teachers' subject-matter-knowledge can be described as knowing the ways of representing and formulating the subject matter and making it comprehensible to learners. Also, as teachers' instructional devices influence the process of learning, it is important to understand how teachers explain mathematics knowledge to students, what they emphasize and what they do not, how they apply the knowledge in life; and what methods they choose to help students understand. This study investigates primary school teachers' competence and the ways to improve their attitudes towards mathematics education in Cameroon.

Key words: Teachers' competence and attitudes, mathematics education, and mathematics achievement.

Introduction

Researchers believe that teachers' attitudes to mathematics can in some way influence their students' attitudes and mathematical learning. Many teacher educators think that developing positive attitudes toward mathematics should be an important aim in the education of primary school student teachers and teachers. Student teachers' attitudes are said to affect their approach to learning how to teach, the way they will teach in the future and the classroom ethos. Teachers are said to rely on memories of themselves as school students to shape their teaching practices. These memories are also said to affect what they learn from teacher education. Some student teachers find it difficult to take different approaches from the ones they observed as students. Teachers' attitudes to mathematics may influence their enthusiasm and confidence to teaching the subject. This in turn may affect the classroom philosophy and consequently affect their students' perceptions of mathematics (Goulding, Rowland & Barber, 2002; Amato, 2004).

Teachers model their attitudes and beliefs during their teaching. In most cases messages are conveyed without teachers' awareness. Yet the most direct influence of primary school teachers' negative attitudes to mathematics on their students' learning appears to be time allocation. Bromme and Brophy (as cited by Amato, 2004) point out that such teachers have been found to allocate more instruction time to subject-matter areas that they enjoy, and less to areas that they dislike. Low time allocation was found to restrict students' opportunities to learn. Therefore, teachers need to improve

their liking for mathematics and to be aware of the benefits of high time allocation especially for activities which have the potential to develop relational understanding.

Most of the attempts to help student teachers improve their attitudes to mathematics in teacher education involve improving their understanding of the subject. The integration between the re-teaching of mathematics and the teaching of mathematics pedagogy is said to be a way of improving teachers and student teachers' understanding and attitudes to mathematics. Most of the literature reviewed concerning such integration suggests re-teaching mathematics to teachers and student teachers by using the same methods that could be used to teach mathematics in a relational way to school students. To develop positive attitudes to mathematics in children, primary school teachers must learn how to set up learning experiences that are enjoyable, interesting and give the learner a sense of accomplishment. In order to be able to do this, the teachers must have had such experiences themselves (Bezuk and Gawronski, 2003).

Poorly prepared teachers are assigned disproportionately to schools and classrooms serving the most educationally vulnerable children. Also, students' right to learn is directly connected to their teachers' opportunities to learn what is needed to teach well. Without a good preparation, teachers are not able to provide effective learning experiences to socially disadvantaged students (Darling-Hammond, 1996). Teacher's subject-matter-knowledge can be described as knowing the ways of representing and formulating the subject matter and making it comprehensible to students. As teachers' instructional devices influence the process of learning, it is important to understand how teachers explain mathematics knowledge to students, what they emphasize and what they do not; and what methods they choose to help students understand (Ball, 1991).

Harbor-Peters (2001: 16) rightly stated that, "A teacher cannot teach what he does not know. Frequently, lack of mastery of mathematics content is exhibited by teachers during classroom instruction". Harbor-Peters continued to say that the attitude of the teacher towards learning mathematics has a lot of influence on his/her students. A competent teacher would always display a positive attitude towards the teaching/learning of mathematics and therefore generate interest in the learner. Harbor-Peters (2002:34) defined interest thus:

> Interest is a subjective feeling of intentness or curiosity over something. The interest in a particular thing is a feeling manifested in an activity. Interest is a tendency to become absorbed in an experience and to continue it. It is the zeal or willingness to participate in any activity from which one derives some pleasure.

The lack of theoretical framework that characterizes research on attitude toward mathematics is partially shown by the fact that a large portion of studies about attitude do not provide a clear definition of the construct itself: attitude tends rather to be defined implicitly and a posteriori through the instruments used to measure it (Leder, 1985; Daskalogianni & Simpson, 2000). A multidimensional definition, which recognizes three components in the attitude: emotional response, beliefs regarding the subject, behaviour related to the subject. From this point of view, an individual's attitude toward mathematics is defined in a more complex way by the emotions that he/she associates with mathematics (which have a positive or negative value), by the individual's beliefs towards mathematics, and by how he/she behaves (Hart, 1989).

Polya (as cited by Nekang, 2011:12) opined that positive attitude towards mathematics should be acquired and transferred to students when he said:

> The first rule of teaching is to know what you are supposed to teach. The second rule of teaching is to know a little more than what you are supposed to teach…. Yet it should not be forgotten that a teacher of mathematics should know some mathematics, and that a teacher wishing to impart the right attitude of mind toward problems to his students should have acquired that attitude himself.

Rusbult (2005) said that your problem becomes more effective and more fun when you have a positive attitude. Attack each problem with enthusiasm and good tools, confident that you may be able to find an answer quickly. Rusbult advised that you should avoid the extremes of passive inactivity, simply because you are afraid to make a mistake and unconstrained action when you never check for correctness. According to Ayeni (2007), a teacher is expected to update his knowledge of subject matter and revisit his teaching methods from time to time. Coupled with this is the development of skills in evaluation of his subject matter, his students and implicitly himself. The moral aspect of his behavior as exemplified in his sense of punctuality and dedication to work is crucial.

A crucial factor to the development of the right mind set for teaching is the teacher's attitude to the job. Firstly it is presumed that a teacher knows the job before him and the technicalities to doing it. Knowledge of the subject matter alone without a grasp of the technicalities of teaching may be inadequate for successful teaching. Secondly, it is expected that the teacher devotes himself wholly to the job. At times, one could see a situation in which a person entertains the desire to embrace teaching as a vocation but places some restrictions on what could earn him fulfillment on the job. Thirdly, a teacher is expected to know and demonstrate the professional ethics of teaching (Durka, 2004).

Empirical Studies

Ohuche and Obioma (as cited by Harbor-Peters, 2001) conducted a study on how primary school teachers perceived the mathematics competencies. They made use of 130 practicing primary school teachers in Imo and Anambra States of Nigeria. The result of the study indicated that the teachers claimed to be competent only in number and numeration and basic operations to the exclusion of practical and descriptive geometry, measurement and statistics. The question the researchers asked was: who will teach the excluded topics since the primary school teacher is a generalist teacher and must teach all subjects? Harbor-Peters concluded that the primary school teachers in Nigeria are short of mastery of the mathematics content. This is very unfortunate since the primary school teacher is a generalist teacher and therefore teaches all the subjects at this level. Nothing can be more destructive to a student of mathematics than the knowledge of the fact that his/her teacher has no mastery of what he/she teaches. This increases the fear of failure and therefore creates an aversion.

Amato (2001, 2004) carried out an action research with the aims of improving primary school student teachers' understanding of, and attitudes to mathematics. Amato found that some student teachers' dislike for mathematics was related to their instrumental understanding. Therefore, the strategic actions to improve their relational understanding were considered helpful in improving their liking for mathematics. The majority of student teachers also said that they like the idea of using children's activities for instance, to 'see' the content as a child, the attempt to place one's self in a child's place and to try 'seeing' how he/she thinks, and how he/she understands. For some student teachers the attempts to achieve affective outcomes were considered incompatible with the attempts to maximize cognitive outcomes.

From the interview, Amato (2001, 2004) reported that student teachers like the manipulations of concrete materials, but they do not like the reports. They find them boring because you are dealing with something light that comes spontaneously and then suddenly and you have to record these manipulations. It gives you the impression that we are returning to the traditional way of working. The practical activities were time consuming and hard work with large classes, but using children's activities proved to be an appropriate strategy to attempt improving student teachers' understanding of the mathematics since the majority of student teachers said, and many indicated in the post-tests, that their understanding had improved. The majority of student teachers also said that they had enjoyed using children's activities. The use of several mathematical representations, and helping students to construct relationships among concepts and operations, are important strategies in the teaching of mathematics. So the strategic actions and teaching activities did not require any changes in nature; mainly quantitative and timing adjustments were made for the third and subsequent semesters in order to maximize student teachers' learning during a single semester. More practical and written activities were included for the representations and content that proved to be more difficult for the student teachers in previous semesters. For this reason certain activities had to be excluded from the program.

According to Amato (2004), some student teachers suggested increasing the teaching time for rational numbers. In the third and subsequent semesters, the activities for rational numbers concepts and operations were started at the beginning of the semester and they continued until the last day of each semester. The number of activities about operations with natural numbers alone was reduced, but there were still many activities about operations with rational numbers which included a natural number part. Through operations with mixed numbers and decimals (e.g., 35¾+26¼ or 24.75-12.53) the student teachers experienced further activities related to operations with natural numbers and had the opportunity to make important relationships between operations with natural numbers and rational numbers. Teaching time was the most important constraint affecting student teachers' learning and attitudes in this study. Changing student teachers' attitudes proved to be a slow process. Philippou and Christou (as cited by Amato, 2004) argue that even more time and challenging experiences are needed to change student teachers' attitudes that were developed over many years at school. Without deeper understanding of mathematics, student teachers will probably teach mathematics as a set of disconnected rules and algorithms and disseminate even more negative attitudes to the subject among primary school children. One of the most relevant results of the study was the knowledge gained about the time needed to help primary school student teachers acquire a strong understanding of most of the mathematics they will teach.

The review of literature justifies the general notion that knowing mathematics is one thing and to be able to teach it, that is, to raise a set of students from one conceptual level to another, is quite a different thing. This researcher believes that having a grasp of the subject matter is important for a mathematics teacher. But that it is the ability to use good instructional methods, strategies/techniques and instructional aids to arouse the interest of the learners, impart the much needed mathematics knowledge and to bridge the gender gap which is more important nowadays. A lot has been done as concerns student teachers' attitude towards the teaching of mathematics in secondary schools in other countries. Very little has been said about primary school teachers' attitude towards the teaching of mathematics especially in the South West Region of Cameroon. The questions one may ask are: How do primary school teachers perceive the mathematics competencies? Which of the topics are they comfortable with during classroom interaction and

which of them are problematic? What is the attitude of primary school teachers towards the teaching of mathematics and how does it affect the achievement of pupils? What can improve primary school teachers' attitudes towards mathematics education in Cameroon?

Research Questions

The study was guided by the following research questions:

1. Which of the mathematics topics/contents are primary school teachers comfortable with during classroom interaction?
2. Which of the mathematics topics/contents are problematic to primary school teachers during classroom interaction?
3. To what extent does the attitude of primary school teachers towards the teaching of mathematics affect the achievement of pupils?
4. What can improve primary school teachers' competences and attitudes towards mathematics education in Cameroon?

Hypothesis

Ho: There is no significant effect in the mean attitude of primary school teachers on pupils' achievement in mathematics in Cameroon.

Scope of the Study

The study was delimited to the mathematics topics/contents which primary school teachers are comfortable with or which are problematic during classroom interaction, the attitude of primary school teachers towards the teaching of mathematics and its effect on the achievement of pupils, and how to improve primary school teachers' attitudes towards mathematics education in Cameroon. The study involved all level 200 and 300 distance learners for the bachelor of nursery and primary education degree of the University of Buea, from all the regions in Cameroon who took part in the December tutorials.

Design of the Study

This study used the survey design, precisely the sample survey was found appropriate in that it enabled the researcher to study a large population by making use of representatives of all the primary school teachers in Cameroon from the 10 Regions.

Sample and Sampling Techniques

One hundred and twenty-nine (129) level 200 and 300 distance learners for the bachelor of nursery and primary education degree of the University of Buea, from all the regions in Cameroon who took part in the December tutorials took part in the study. The researcher used the purposive sampling technique to draw subjects from these two levels because at the time of data collection, they have not had a lesson on the courses that may improve their methods, techniques and attitude towards the teaching of mathematics.

Instruments for the Study

A questionnaire was constructed for data collection. The questionnaire was divided into three sections comprising of general information, mathematics topics/contents which primary school teachers are comfortable with or which are problematic during classroom interaction, the attitude of primary school teachers towards the teaching of mathematics and its effect on the achievement of

pupils, and an open item for a suggestion on how to improve the situation. The 4-point likert scale was used to collect data on teachers' attitude with each item having four options (Strongly Agree SA=4, Agree A=3, Disagree D=2 and Strongly Disagree SD=1).

Methods of Data Analyses

Frequency counts using percentages, mean scores and standard deviations were used for analyzing data to provide answers for the research questions. The hypothesis was tested at 0.05 level of significance using a one-way analysis of variance (ANOVA).

Results and Discussion

Of the 129 respondents 33(25.58%) were males while 96 (74.42%) were females and their region of school where they teach are shown in the table below.

Table 1: Region of school where respondents teach

Region	South West	North West	Littoral	Extreme North	Centre	North	West	Adamawa	Total
Number	78	22	12	5	4	4	3	1	129
Percentage	60.47%	17.05%	9.30%	3.88%	3.10%	3.10%	2.33%	0.78%	100%

The table shows that more than half of the distance learners come from the South West Region and a good number from the North West and Littoral regions, maybe due to nearness to the University of Buea where the program is offered. More sensitization is needed in other regions, financial and transportation constrains studying from far places, and information, communication and technological difficulties to get adverts for the program, complete assignments on time and carry out researches are some of the major hindrances.

The table below was used to answer the following research questions;

1. Which of the mathematics topics/contents are primary school teachers comfortable with during classroom interaction?
2. Which of the mathematics topics/contents are problematic to primary school teachers during classroom interaction?

Table 2: Mathematics contents

S/N	Topics	Contents	No of respondents who are comfortable with topics/contents	No of respondents who find topics/contents to be problematic
1	Sets and logic	Writing and interpreting set statements using symbols	119 (92.25%)	10 (07.75%)
		Intersection, union, sub, disjoint and universal sets	121 (93.80%)	8 (06.20%)
		Venn diagrams	112 (89.15%)	17 (10.85%)
		Set cardinality	82 (63.37%)	47 (36.43%)
2	Basic number operation	Place value for decimals	92 (71.32%)	37 (28.68%)
		Place value for whole numbers	111 (86.05%)	18 (13.95%)
		Number sequence	113 (87.60%)	16 (12.40%)
		Rapid multiplication	99 (76.74%)	30 (23.26%)
		Mixed operation (BODMAS)	87 (67.44%)	42 (32.56%)
		L.C.M and H.C.F	117 (90.70%)	12 (09.30%)
		Roman numerals	90 (69.77%)	39 (30.23%)
		Rules of divisibility by 2, 3, 5, 6, 9 and 10	87 (67.44%)	42 (32.56%)
		Simplifying expressions	78 (60.47%)	51 (39.53%)
		Multiplying decimals	83 (64.34%)	46 (35.66%)

		Dividing decimals	74 (57.36%)	54 (42.64%)
		Simplifications involving decimals	67 (51.94%)	62 (48.06%)
		Percentage gain (profit) and percentage loss	105 (81.40%)	23 (18.60%)
		Percentage increase and percentage decrease	99 (76.74%)	29 (23.56%)
		Integration activities	74 (57.36%)	55 (42.64%)
		Addition and subtraction in bases less than 10	97 (75.19%)	32 (24.81%)
		Changing from base 10 to other bases and vice versa	78 (60.47%)	51 (39.53%)
3	Number and Numeration	Addition and subtraction up to millions	121 (93.80%)	07 (06.20%)
		Writing numbers in words up to million	112 (86.82%)	15 (13.18%)
		Square roots	92 (71.32%)	37 (28.68%)
		Cube roots	67 (51.94%)	62 (48.06%)
		Simple linear equations	62 (48.06%)	67 (51.94%)
		Simple and compound interest	75 (58.14%)	54 (41.86%)
		Indices	68 (52.71%)	59 (47.29%)
		Approximation	68 (52.71%)	61 (47.29%)
		Reciprocals	51 (39.53%)	78 (60.47%)
4	Graphs and Statistics	Elementary statistics	74 (57.36%)	55 (42.64%)
		X and Y coordinates	61 (49.19%)	63 (50.81%)
		Bar graphs, Pie charts and Pictograms	91 (70.54%)	38 (29.46%)
		Collecting simple statistical data	77 (59.69%)	53 (40.31%)
5	Measurement	Money (shopping and bills)	123 (96.85%)	04 (03.15%)
		Areas of 4 walls	100 (78.13%)	28 (21.88%)
		Areas of triangles and circles	100 (78.13%)	28 (21.88%)
		Areas of composite shapes	52 (40.31%)	78 (59.69%)
		Direct and indirect proportion	70 (54.69%)	58 (45.31%)
		Compound proportion	55 (43.65%)	71 (56.35%)
		Volumes of cuboids, cylinders, liquids, materials and contents	28 (21.88%)	100 (78.12%)
		Speed, distance and time	89 (69.53%)	39 (30.47%)
6	Geometry	Shapes (planes shapes and solids)	86 (67.19%)	42 (32.81%)
		Integration activities	71 (55.47%)	57 (44.53%)
		Sides of a triangle	86 (67.72%)	41 (32.28%)
		Interior angles of a triangle	63 (49.22%)	65 (50.78%)
		Angles of a straight line	74 (57.81%)	54 (42.19%)

Apart from few respondents with science background in high school who are comfortable with all the topics, many other respondents are not comfortable with the following topics /contents; Sets and logic (set cardinality), Basic number operation (mixed operation (BODMAS), Roman numerals, rules of divisibility by 2, 3, 5, 6, 9 and 10, simplifying expressions, multiplying decimals, dividing decimals, simplifications involving decimals, integration activities and changing from base 10 to other bases and vice versa), Number and Numeration (cube roots, simple linear equations, simple and compound interest, indices, approximation and reciprocals), Graphs and Statistics (elementary statistics, X and Y coordinates, and collecting simple statistical data), Measurement (areas of composite shapes, direct and indirect proportion, compound proportion, volumes of cuboids, cylinders, liquids, materials and contents, and speed, distance and time) and all of Geometry (shapes (planes shapes and solids), Integration activities, Sides of a triangle, interior angles of a triangle and angles of a straight line). The percentages indicate the extent of difficulty in the teaching and learning of the topics / contents.

The table below was used to answer the following research question;

3. To what extent does the attitude of primary school teachers towards the teaching of mathematics affect the achievement of pupils?

Table 3: Attitude towards the teaching of mathematics

S/N	competence	SA	A	D	SD	Sum	$\bar{x}$	s	Decision
1	Mathematics should be taught in a way that pupils should be able to solve real life situations by employing knowledge and skills learnt in class.	34	74	14	5	127	3.0787	.73037	A
2	I enjoy teaching mathematics because the lessons are very exciting	59	57	8	3	127	3.3543	.70742	A
3	Mathematical concepts are clear and related to day-to-day life.	59	58	9	1	127	3.3780	.65379	A
4	Mathematical knowledge and skills guide us in decision-making and in tackling everyday experiences.	93	29	4	1	127	3.6850	.57322	A
5	I always take problems on mathematics topics and/or content to my colleagues for enlightenment and better understanding before teaching them in class.	39	56	19	11	125	2.9840	.90682	A
6	I like setting and marking mathematics tests and examination.	33	55	32	7	127	2.8976	.85296	A
7	When setting and marking tests and examination I give the pride of place to mathematics.	31	40	39	18	128	2.6562	.99951	A
8	I am comfortable with more than 60% of the mathematics topics/content and enjoy teaching them.	46	49	18	14	127	3.0000	.97590	A
9	Most mathematics concepts are problematic, abstract and unrelated to scientific investigations.	14	25	47	40	126	2.1270	.97147	D
10	The symbols, methods and materials used for teaching are confusing.	5	28	60	35	128	2.1797	1.94181	D
11	The language of mathematics is very difficult to understand.	5	25	49	47	126	1.9048	.85256	D
12	Mathematics is the worst subject in the Common Entrance and First School Leaving syllabuses.	18	27	45	37	127	2.2047	1.01839	D
13	I prefer teaching or reading other subjects than mathematics.	10	37	37	45	129	2.0930	.97180	D
14	I allocate more instruction time to subject-matter areas that they enjoy, and less to areas that they dislike	13	31	49	33	126	2.1905	.94415	D
15	Teacher demonstrations and instructional games (luddo, playing cards, tossing a coin, game of raffle) make mathematics teaching enjoyable more than all other subjects.	28	53	31	16	128	2.7266	.94506	A
16	I always use demonstrations and instructional games during mathematics lessons because they are helpful for pupils in understanding concepts.	37	65	17	6	125	3.0640	.79051	A
17	Teachers' attitude towards the teaching and learning of mathematics has an impact on their pupils' achievement in class and public examinations.	86	31	4	7	128	3.5312	.80292	A
	Total	**610**	**740**	**482**	**326**	**2158**	**2.75718**	**1.02558**	**A**

Respondents opined that mathematics should be taught in a way that pupils should be able to solve real life situations by employing knowledge and skills learnt in class. Respondents stated that they enjoy teaching mathematics because the lessons are very exciting and that mathematical concepts are clear and related to day-to-day life. Mathematical knowledge and skills guide them in decision-making and in tackling everyday experiences. They always take problems on mathematics topics and/or content to their colleagues for enlightenment and better understanding before teaching them in class. They like setting and marking mathematics tests and examination and that when setting and marking tests and examination they sometimes give the pride of place to mathematics. And that they are comfortable with more than 60% of the mathematics topics/content and enjoy teaching them.

Primary school teachers stated that most mathematics concepts are not problematic, not abstract but figurative and are related to scientific investigations. The said that the symbols, methods and materials used for teaching are not confusing as people think and that the language of mathematics

is not difficult to understand. Mathematics is not the worst subject in the Common Entrance and First School Leaving syllabuses though they do not prefer teaching or reading other subjects than mathematics. They respect the time table and the policy that mathematics is a daily subject. Hence, they do not allocate more instruction time to subject-matter areas that they enjoy, and less to areas that they dislike.

Respondents were also of the view that teacher demonstrations and instructional games (luddo, playing cards, tossing a coin, game of raffle) to a high extent make mathematics teaching enjoyable more than all other subjects. For this reason, they always use demonstrations and instructional games during mathematics lessons because they are helpful for pupils in understanding concepts. Finally, they concluded that teachers' attitude towards the teaching and learning of mathematics has an impact to a very high extent on their pupils' achievement in class and public examinations. Teachers' attitude towards the teaching and learning of mathematics can affect the learners either negatively or positively.

The table below was used to test the hypothesis which was stated thus:
Ho: There is no significant effect in the mean attitude of primary school teachers on pupils' achievement in mathematics in Cameroon.

Table 4: A 2-tailed t-test of teachers' attitude on pupils' achievement

	N	Sum	Mean		Std. Deviation	Test Value = 0 (95% Confidence Interval)		
	Statistic	Statistic	Statistic	Std. Error	Statistic	df	t	Sig. (2-tailed)
Attitude	2158	5950.00	2.75718	.02208	1.02558	2157	124.888	.000
Valid N (listwise)	2158							

The table shows a very significant t-value at 95% confidence level, hence we reject Ho in favour of Ha.

Ha: There is a significant effect in the mean attitude of primary school teachers on pupils' achievement in mathematics in Cameroon.

The findings are very similar to Cockeroft's (as cited by Nekang, 2011:4) assertion that:

> There is no area of knowledge where a teacher has more influence over the attitudes as well as the understanding of his pupils than his professional life. A teacher of mathematics may influence for good or ill the attitudes of mathematics of several thousand young people and decisively affect many of their career choices. It is therefore necessary that mathematics should be taught to pupils, but also well taught. All pupils should have the opportunity of studying mathematics in the company of enthusiastic and well-qualified mathematics teachers.

Also, Harbor-Peters (2002) firmly stressed that teachers' competence in mathematics content has a strong relation to students' achievement and is consequently a source of interest in mathematics learning for students. According to Harbor-Peters:

> A competent mathematics teacher teaches with confidence and commands the admiration of his/her students. This generates interest in the learner. Every student has a

> model teacher he/she cherishes and admires. The thought of such a teacher inspires his/her students to want to learn. This generates interest in them. It is therefore necessary that teachers should have mastery of the content they teach (p.35).

Harbor-Peters went further to say that mathematics should be charming, fascinating as well as attractive to the learners, the teachers and the users. This means that various structures must be properly put in place (instructional strategies and materials, attraction and retention of mathematics teachers). Harbor-peters concluded that since mathematics students of today will become mathematics teachers of tomorrow, they need to be attracted to learn and study mathematics through problem-solving.

Suggestions and the way forward

The following research question guided data collection for suggestions and the way forward.

4. What can improve primary school teachers' competences and attitudes towards mathematics education in Cameroon?

The respondents declared the following suggestions and the way forward for mathematics education in the nursery and primary levels in Cameroon.

- Since mathematics is the most difficult and hated subject to most pupils and teachers, teachers should put in more effort in teaching, develop a good attitude and show interest in mathematics, encourage all pupils at all levels, and teach mathematics using didactic materials.
- Teachers should make mathematics enjoyable and lively to learners so as to arouse and sustain their interest. As such, teachers should demystify the subject-matter of mathematics so that pupils see it as simple and friendly as other subjects in the curriculum. It should be taught practically and relate mathematics to real life situations.
- Textbooks for nursery and primary schools should be simplified, updated and well edited before they are put to use. Textbook writer and teachers of mathematics should contact experienced and knowledgeable mathematicians and mathematics educators for enlightenment.
- Pedagogic seminars should be organized for the teaching of mathematics to upgrade teachers' level of competences, interest, eliminate the mystical aspects and help them in problematic topics / contents, in the use of child-centred teaching methods, use of concrete materials and motivation.
- Many methods and strategies like the use of games and simulations, concept maps, the andragogical enquiry and problem-solving approaches should be taught to teachers to enhance the teaching and learning of mathematics. This can go a long way to avert aversions in mathematics (mathemaphobia or mathematicsphobia).
- Mathematics should be well taught in teacher training colleges as a main subject, the topics and the content should be well exploited. Problematic topics like compound interest, compound proportion, division of decimals, x and y coordinates, simple linear equations, reciprocals, areas of composite shapes, volumes of cuboids, cylinders, interior and exterior angles of triangle, and rapid multiplication should be given more attention. Some of the problematic topics could be taken to secondary school considering the age range of pupils and their readiness to grasp these concepts.
- Teachers should not carry out co-curricular activities during mathematics periods. Only those who master the subject should teach it especially at the foundation level and examination class. The policy that mathematics is a daily subject should be respected and it

should be given the highest coefficient at the nursery, primary and teacher training colleges to force learners to learn.

- Teachers should be taught the whole mathematics syllabus for primary school during in-service seminars or mathematics should have specific teachers like French. Such teachers must have passed mathematics at least at the GCE ordinary level. Also, women should be encouraged to teach mathematics.
- Further researches should be carried out to investigate learners' competences and their attitudes towards the teaching and learning of mathematics and the causes of poor achievement in class and public examinations in Cameroon.

Conclusion

The majority of primary school teachers are not comfortable with the teaching and learning of the mathematics topics /contents in Cameroon. A lot therefore needs to be done using the competence base approach to ameliorate the sad situation. Since the teachers' attitude towards the teaching and learning of mathematics has a significant impact on pupils' achievement in class and public examinations, pupils need to be attracted to learn and study mathematics through problem-solving.

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