

# Mathematics Teaching Methods and Its Effects on Pupil's Performance in Yaounde VI Municipality

\*Chengwa Neville Shu<sup>1</sup>, Prof Diffo Lawrence Lambo<sup>2</sup>

### <sup>1,2</sup>University of Yaounde 1 Phd Student In Curriculum And Evaluation

**Corresponding Author\*** 

DOI : https://dx.doi.org/10.47772/IJRISS.2024.806217

### Received: 24 May 2024; Revised: 19 June 2024; Accepted: 20 June 2024; Published: 22 July 2024

# ABSTRACT

The study sought to investigate the designwithin which Mathematics is taught andpupils performance within the subject. The researcher used survey research design within which observation was used both for teachers and pupils to collect data. The target population was 500 pupils from 29 Anglophone primary schools in Mfoundi division, using the stratified sampling techniques and a sample size of 63 pupils was obtained. The research was conducted with the review of related literature with the main theory being the theory of constructivism. An observation grid (Flander's integrated Analysis System, FIA) was used to collect data and analysed using descriptive statistics (percentages). This resulted that teachers stick to the traditional teaching method against the scientific method (alternative methods), thereby making pupils performance not to be effective, efficient, doable, impacting, pertinent etc.

Key words: Mathematics, teaching methods, performance

# INTRODUCTION

The ability to reason logically and present arguments in honest and convincing ways is a skill that is becoming increasingly important in today's world. Phenix (1964) stated that knowledge of ordinary language consist in the ability to use symbols to communicate meaning. All the subjects learned in school requires meaning or reasoning. Obtaining (learning) and reasoning especially in mathematics reasoning is possession of skills, knowledge and capacities to fulfil current needs. This focusses on the ability to develop and flex to meet future needs (PISA 2021).

QUARA (2017) said Mathematics is a fundamental part of our daily lives, from counting to measuring to more complex calculations. Mathematics is applied in various fields and disciplinessuch as in science, engineering, economics etc. The Cameroon government dimed mathematics to be the main instrument determining learner's entrance from the primary school to the Secondary school. PISA (2021) in Mathematics reasoning looked at Mathematics subject as a base of reasoning which is applied in all subjects. He said all subjects contain Mathematics reasoning, thereby making mathematics to be at the centre of all subjects.

Romberg (1969) maintained that children acquire number concepts and operations by construction from the inside and not by internalization. Marystella andsusan (2001) indicate that teaching Mathematics is seen as an interpersonal activity with a Facilitative role for learning. The facilitator being the strategy before the role of the teacher in a presentation. Thereby, requiring a standard procedure for presenting the subject matter and organising teacher learner interaction during teaching/learning process. Marystela (2001) states that through teaching methods in Mathematics, pupils are encouraged to think on the newly acquired knowledge and the use of illustration/demonstration. Tambo (2012) stated that a child move from one stage of learning to another through the process of equilibrium (a balance between assimilation and accommodation) through understanding the new concept so that the understanding (design) can be applied to new situations to improve on the learner's performance. Meaning that reasoning logically is a means to improve performance in a teaching/learning process.



Oxford dictionary (1995) defined performance as the process or manner of doing a piece of work, something one is ordered to do, something one has agreed to do, (task, outstanding action or achievement, one's study) to act an operation to save life or operate efficiently. In this light the researcher then sees performance in mathematics from an actual evaluation of school's program to be effective (realise the objectives of a program), efficient (carry out a good usage of the resources like, quality, cost,time etc), doable (assure that the outcome will take within time), impact (the knowledge should have great positive impact as to the negative impact), pertinent (in concordance with the beneficiary's needs).Prior to this effect, learner'sperformance in mathematics within the basic education is questionable.

Within and out of the primary schools in Cameroon pupils succeed in examinations but find it very difficult at the application of the content. Within and out of the classroom, they find it difficult in solving simple problems of writing numbers in words, can't identify mathematics content within their day to day activities. The structural adjustment program (2021) stated that quality concerns and corruption continue to plague most levels of the Basic Education system, while access to secondary and higher education remain out of reach for many, improving the education system will be a key to Cameroon's social and economic development. The structural adjustment program (2021) stated as of 2019 only 36% of children attended the English Government common Entrance examination (ECE) program, falling short of 50% goal set for 2020 in GESP. In a study carried out by MINEDUB in 2010, the level of education confirms that 49% of Cameroon child in the third year struggle to read while 27% could not read nor solve simple mathematical problems. The world bank in re-examining sources of educational growth in the quality of mathematics of Basic Education in 2014 declared that access to education between 1995-2005. According to PASEC 2019, 9% of test takers perform below benchmark in Mathematics, although it was better as compared to 33% to other countries that took the same assessment but is indicating a problem to be solved. How is mathematics taught in the schools that pupil's performance is questionable?

Resulting from the decline in standards, the Cameroon government in 2018 obtain reforms in Mathematics curriculum, (MINEDUD, 2018), but the problem persist. PISA (2021) defined Mathematics as a science of welldefined objects and notions that can be analysed and transformed into different ways of using "Mathematics reasoning" to obtain certain and timeless conclusions. Smith and Ragan (2012) in constructivism stated that reasoning is the primary source of knowledge and that knowledge is constructed and not transmitted. Therefore a pattern that is recurrent and applicable in lesson instruction is a necessity in teaching/learning Mathematics. Since there is no subject to be learnt that does not warrant logical reasoning in determination of performance for the attainment of objectives, it is in this light that Mathematics is a call for concern in this study. Reasoning logically is a means to improve learner's performance and standards in teaching/learning process, seemingly pupils performance in Mathematics is a call for concern. What method is used in the teaching of Mathematics that performance is a problem? Ragan (2012) A foundational tenet of Constructivism state that knowledge is not transmitted; it is constructed'. This means that in constructing knowledge, there is a procedure expected to follow, a specific pattern to improve performance. Tambo (2003) described teaching methods as a standard procedure for presenting subject matter and organising teacher learner interactions. University of Buea (2011) stated that meaning in Mathematics formulae is negotiated and not told or explained. This means the pattern to which Mathematics should take is that to which formulas are negotiated with concepts defined within all the domains of learning.

University of Buea (2010) indicated that learning Mathematics entails the simultaneous development of practical skills and theoretical knowledge for the purpose of applying the concepts to be acquired. The teaching of mathematics in the primary school begins with the definition of concepts and negotiations of formulae. This takes a logical, systematic, sequential process to solve problems(design). Meaning that teaching methods in mathematics must follow a particular design. Teaching methods according to Marystela and Susan (2001) are classified under Child centred and teacher centred methods of teaching to ease understanding. They considered the teacher centred method (inductive and deductive method) not all bad for a combination of a number of them (alternative methods) may be useful. They consider the child centred as modern (analytic and synthetic method) educationists, highly advocate for and it is more democratic and more active methodthat respects the competence Based Approach (CBA). Chin and Fon confirmed this that, a teacher in any mathematics method should be, apart



from studying, involved in explaining demonstration, distributing material, giving instructions and must have determined approach, strategy, teaching technics put in place for use.

NuhMih (2017) in Competence Based Approach (CBA) confirmed thatteachers have to expose learners to a problem solving attitude in which the teachers provide guidance to learners to solve given problems in and out of the classroom. This approach requires that teachers take care of each learner, see where the learner is good at and enable the learner develop a skill in what he/she can do best. Teacher's handbook for the Cameroon Primary School Curriculum English Sub-Subsystem (2018), teaching method in mathematics should be interactive and follow a number of procedures (introduction, presentation and evaluation) based on the principles of learning. At the level of presentation, the teacher must begin presenting something (problem or didactic situation, material etc) from which is the beginning of discovery through analysis.

This is followed by guided practice in which the teacher involves the learner in activities to which the learner discovers a role within the practice. Patton (1978) within the benefits of CBA stated that it's beneficial because the teacher sets a concrete decision for work force performance to align with organisational goals and strategies, Teacher allow learners to take ownership of the skills and behaviour required of them in their roles. He enables human resource and training to more accurately identify learning and development needs. He/she empowers learners to keep track of what skills learners have so that strategy and planning can work towards that future skills that may be needed, teacher provides a consistent and fair system of measurement for performance evaluation. Tambo (2003) identifies that from the guided practice, is the independent practice where the learners use the role discovered from the practice to solve sample example(s) for the teacher to affirm the acquisition of expectations. Exercises could then follow suit to discover the attainment of the objectives. After haven marked the exercises, one most pertinent level is remediation. University of Buea (2011) identifies this level (remediation), that most learners discover learning at this level, since the teacher insists in the usage of the WH-words in clarifying all learners.

According to the national research council (2010) much of the failure in school mathematics is due to a tradition of teaching that is inappropriate to the way most pupils learn. Yet despite the fact that the numerous scientific studies have shown that traditional methods of teaching mathematics are inefficient and despite professional recommendation for fundamental changes in mathematics curricular and teaching, traditional methods of teaching continue (Encyclopaedia of education, 2003). This enabling pupils viewing mathematics as the most difficult subject. Most of the pupils do pass the Cameroon Common Entrance Examination into forms one in list A, but during interview into forms one, most of them are dismissed for being unable to solve simple mathematical problems.

Performance in this subject continues to be ineffective (not meeting the stated objectives as pupils can't identify nor solve mathematical problems in their day to day life activities), inefficient (pupils can't carry out a good usage of the resources as cant use the knowledge of mathematics in their daily activities or projects), not doable (can't assure that the outcome will take within time, pupils even if passed exams like common Entrance exams are not sure to passed interview), limited impact (the knowledge is not having great positive impact as to the negative impact as not applied in pedagogic projects), not pertinent (is not in concordance with the beneficiary's needs as learners can't identify the need of mathematics knowledge acquired).

This is supported by Peter Williams (2008) in independent mathematics teaching in early years setting and primary schools that 'mathematics is a problem internationally and which has promoted actions in all advanced nations. Mathematics is very important in everyday life. But as a teacher, this researcher has observed that many pupils face a lot of difficulties understanding this subject. Can an actual application of a scientific method of teaching mathematics improve pupils' performance?

### **Research objectives**

- To determine the processes teachers facilitate learners' acquisition of mathematics skills and objectives
- To determine the opportunities in blending theory with practice in mathematics problem solving
- To explore the instructional strategies used in teaching mathematics



### **Research questions**

- Do teachers use a recurrent pattern to facilitate learners' acquisition of skills and objectives in Mathematics?
- Do teachers define concepts and negotiate formulas in Mathematics problems solving?
- Are there the instructional strategies used in teaching mathematics in the primary?

#### Significance of the study

The study is going to improve on the achievement of Mathematics and goals of Education in general. The competences acquired from the quality of the design instructional methods will enrich or innovate performances in instructional outcome. These innovations to be seen in the

Learner; The learner will obtain, positive performance, quality education, lifelong learning, improved literacy rate and numeration and theapplication of competences in Mathematics.

The teacher; Acquire the application of instructional scientific methods and erase phobia in mathematics teaching activities

Authorities; Achievement of goals, objectives and reform innovations

# METHODOLOGY

An observation grid was developed to the theoretical model asobservation instrument (the verbal interaction analysis system, 'VICS') for collecting knowledge for mathematics method of instruction during evaluation, which was a modification of the Flander's interaction analysis system (FIA), modified by Amidon and Hunter in 1975, was adopted from Amidon, E. and E, Hunter (1967) in "verbal interaction in the classroom: the interaction category system by the researcher". This instrument is to categorize the type and quantity of dialogue in the classroom and the information plotted on the metrics during and after analysis of pupil's mathematics assessment. It has 17 categories with five broad sections which are comprehensive and more specific because it takes into considerations minute details such as pupil's response to teacher without waiting for unpredictable questions. The researcher then uses the information plotted on the metrics to clack. The clacking is done after every 3 - 5 seconds, chosen by the researcher. It focuses directly on the behavior of the teacher (competence Based Approach CBA) and learners in determining the mathematics method of teaching; it is more pervasive and fundamental practice in human and natural sciences. The 17 categories are;

1<sup>st</sup> category; Teacher initiate talk

- 1. Teacher present information or opinion to set a concrete direction for workforce performance to align with organizational goals and strategies
- 2. Teacher gives direction enabling human resource and training to more accurately identify learning.
- 3. Teacher asks broad questions to allow learners to take ownership of the skills and behavior required of them in their roles
- 4. Teacher asks narrow questions o empower instructions to keep track of what skills learners have in that strategy for planning to work

2<sup>nd</sup> category; teacher response. (response to)

5.	A) Idea	B) Behavior	C) Feeling	
6.	Rejects	A) Idea	B) Behavior	C) Feeling

3<sup>rd</sup> Category; pupil's response, (Response to)

A) predictable questions to indicate direction of workforce performance



- B) Unpredictable Question to show ownership of the skills required of them
- 7. Pupils response to pupils to keep track of what skills required

### 4<sup>th</sup> Category; Pupils Initiate talks

- 8. Pupils response to teacher without waiting to unpredictable questions
- 9. Pupils response to another pupils to show prove of worth
- 10.Silence (a pause)

### CONFUSION

#### 5<sup>th</sup> Category; Others

The categories and questions on the observation also considers some of the typical responses the teachers and learners who participated in the research have. These items and answers have served as input to pose situational problems in the study.

The researcher then adopts this instrument from Amidon and Dove (1967-1970) Flander's analysis with categories focusing on verbal behavior, to find out if the instrument can be used during our primary school evaluation of mathematics teaching methods, to determine both the process of evaluation of mathematics teaching methods and the pupils and teacher behavioral product through evaluation (the working habits, adjustment and interests) and the extent to which information from the affective domain can influence pupils performance. The method proposed by Amidon has been chosen to build the instrument, which include two phases, first,

It is likely to investigate the knowledge of mathematical method of teaching in relation to the teaching activities carried out in the classroom.

Once designed the instrument was subjected to a validation process that considers two aspects. Content validity was first secured from the selection of method related to the study from the mathematics curriculum. Subsequently to test the validity of the items, that is, if they really measure what was meant to measure, the instrument was subjected to the evaluation of experts' opinion on the subject of evaluation of knowledge of mathematics teaching methods in the primary schools. The researcher then used the instrument as a non-participant observation evaluation instrument and the evaluation took place in the classroom. In other to clack the observer used an Observation clacking sheet, which is what the Observer took to the observation center as seen below.

categories					Clack	ing (oco	currei	ices)									
Feacher present	11	11	1111	11	11	1111	11	11	11	11	24						
nformation or opinion																	
Feacher gives direction	11	111	111	11	11	1		11	1111 1	11	22						
Feacher asks broad questions	1	1	11	1	111	11	1111 1	11		1	18						
Feacher asks narrow questions		111	11		11	11	1111	1111 11	111		32						
Feacher response to dea, behavior or feeling		11111	1111	1111 1	11111 11		111	1111 1	1111 1	11111 1	40						
Feacher rejects idea, pehavior or feelings	1111	1111111 111 111	111	1111 111	11	1111		111		111	40						
Pupils response to predictable and	11111 111	111111	11111 111	111	11111 1	11111	1111 1				36						



unpredictable questions												
Pupils response	to	11111	111111	11111	1111	11	1111	111	1111		111	14
pupils		1111		11	11				1			
Pupils response	to	111	1111	1111	1111	11111		1111	1111	11		46
pupils without wait	ting				111	11		1111	1			
Pupils response	to	11	11	11111	1111	11111	11111	111	1111	11	11	54
eacher with	hout			1	1111	1111	111					
waiting												
Silence (a pause)												
Confusion (Z)						11					11	1
Others												
Гotal		30	14	42	38	48	30	30	36	38	24	360

The clacking was done based on the occurrences of items (teacher/pupil behavior) within a category and the number of the item of that particular category was written or clacked. The clacking was done manually after every 5 seconds. Here, the number of the occurring events (behavior) was written beginning with 10 and ending with 10. After obtaining the clacked figures, we now pair them into a metrics form as seen below. Each block in the sheet represented the number of seconds he was working with.

Y, G, Y, G, HO, D, Z, B, A, P, 5, Y, B, B, B, B, B, B, G, 1, G, Z, Y, 3, 7, 10, 10, 4, 5, 5, 6, 6, 8, 3.4, 10, 1.1, 3, 3, 384336 2 5 9 1. 2. 10. 2. 2.  $\overset{\flat}{1}$ [] 6, · [] } 1, 2, 1 V 10, 6, 7, 1010, 1, 8, 8, 5, 5, ▓ 8.7 5.8. 1. 5. 5. 5. 5.

These pairs were then used to plot a metrics table. It shows the total number of occurrences within each category within the subject which a particular behavior can be determined. From here we then use the pairs to plot the metrics table, using the pairs starting with row and column.

 Table 1: Showing a metrics table

Occurrences Categories	1	2	3	1	5	5	7	8	Ð	10	Fotal
1	xх	кх	XXXX						XХ	ĸх	12
2				ĸ	ĸ			ĸх	XXXXX	кх	11

3					КX	xxxxx	ХX				09
4			ĸ		K	ĸ	XXX	xxxx	X		11
5		кх		ĸх	XXX		ĸ	XXX	Xxxx	XXXXX	20
5	XХ	xxxxxxxxx	ĸ	ХXХ	K	ĸ	ĸх				20
7	XXXXXXX	XXXXX	xxxxxx	ĸ	XXXX		ĸ				18
8	xxxxxxx	кх	XXX	ĸх		ĸх	ĸ	XXXX		K	23
9	K	ĸ	ĸ	XXXX	XXXX		xxxx	xxxx	x		20
10			KXXX	xxxxxx	xxxxxxxx	xxxxxx	ĸ	K	ĸ	XX	29
Fotal	20	22	21	19	24	15	15	18	14	12	180

From the pairings we can then determine what is happening in evaluation of the subject using the ratios to determine the proportion of the initiatives and responses of both the teachers and pupils' behaviour.

At this level to determine teacher's component of **initiating talk**, we calculate the proportion of the total component of teacher initiating talk in the subject to the general total. That is

 $\frac{\text{total of teacher initiative talk}}{\text{general total}} \ge 100 = \frac{12+11+9+11}{180} \ge 100 = 23.9\%$ Teachers response =  $\frac{\text{total pupils response}}{\text{general total}} \ge 100 = \frac{20+20}{180} \ge 100 = 22.2\%$ Pupils responses =  $\frac{\text{total pupils response}}{\text{general total}} \ge 100 = \frac{25+23}{180} \ge 100 = 26.7\%$ Pupils initiate talks =  $\frac{\text{total pupils initiate talks}}{\text{general total}} \ge 100 = \frac{20+29}{180} \ge 100 = 27.2\%$ 

These analysis shows that, the influence of the teachers initiating talk to reinforce the framework within learner's development of mathematics knowledge was low with 23.9% indicating teachers ineffectiveness in planning both the process and behavioral product during presentation and why not evaluation (remediation); narrowly taking a concrete direction(initiating talk) for workforce performance to align with objectives, not giving opportunities for learners to define concepts to be taught, notnegotiating the formula but providing learners with, no demonstration of intuitiveness and creativity in allowing learners to take ownership of the skills and behavior required of them in their roles as in the Heuristic and Discovery method, indicating a low attitude within the use of framework working (teaching) habit in mathematics. Meaning the method the teacher uses does not permit the learner to understand (reason) and care about what learnt to demonstrate his or her understanding to enable teacher's guide for progressive development of competence acquisition. This shows the attitude within the teaching method the teacher has towards mathematics teaching in discovering the level of attainment of specific objectives and level of successive application of the instruction is within the traditional teaching method (rote learning).

Teacher response with 22.2% indicated that teacher expressed feelings, aesthetics and social recreation rarely but response does not enable learners discover the relationship that exist between entities that use thinking and arguments. This means that, there is no use of hypothesis and conclusions. That is, learners do not utilize manipulative, constructive activities or patterns, meaning mathematics is not symbolically represented as a law of rule in inductive and deductive method of teaching. The absence of this method is an indication that traditional (drill) method of teaching is used in the teaching of mathematics in the various schools. This indicates a high sense of affection in lecturing the mathematics which enables the learner's achievement of low learning outcome.

Pupil's response and pupils initiating talk each with a 26.7% and 27.2% respectivelyalthough seemingly below average but high, an indication that pupils are eager in reasoning, understanding and care about what they are learning. This indicates pupil's adjustment towards teaching method as if they understand that the modern method of teaching mathematics focuses on meaning, understanding and how it can be used, BYJU (2023). They require reasoning to obtain general laws from specific objectives or process to obtain generalities as in the



inductive and Deductive method. They indicate an average relationship to peers, reacting to questions and praises, criticism, emotional stability and social adaptability.

This also indicates that after using the systematic observation procedure, both quantitative observation instrument (rating scale, check list, systematic observation) and qualitative observation instrument (anadocta, reports etc) can then be used to determine individual teaching method attitudes and behaviors in mathematics to better the quality of teaching method of mathematics for a better performance. In the entirety, the researcher then sees the instrument a high process and high indicator towards behavioral product evaluation of mathematics.

# RESULTS

University of Buea in DED 305, (2010) identifies some steps in indirect method of teaching mathematics,

- Review prerequisite knowledge
- Present new material
- Conduct guided practice
- Provide feedback and corrections
- rovide independent practice
- Evaluate and assess learners
- Conduct weekly and monthly review

Teachers do not analyze or assess the needs and evaluate activities or self within steps planned and are being carried out in mathematics teaching. There is no follow up to discover the evolution of what is being taught. Learner's poor performance results from teacher's limitation in initiating talk to enable the learner demonstrate their performance, indicating teachers use of the traditional method (lecture method) inability to attribute concepts to real life situations (no exploitation of skills in mathematics teaching), ineffectiveness in planning both the process and behavioral product during presentation and why not evaluation (remediation);

Teachers do not facilitate learners demonstration of their understanding during mathematics teaching, teachers narrowly taking a concrete direction (initiating talk) for workforce performance to align with objectives, not giving opportunities for learners to define concepts to be taught, not negotiating the formula but providing learners with, no demonstration of intuitiveness and creativity in allowing learners to take ownership of the skills and behavior required of them in their roles as in the Heuristic and Discovery method, indicating a low attitude within the use of framework working (design) habit in mathematics.

Teachers do not follow an updated pattern in symbolic determination of mathematics during teaching. Learner's response is too low because teachers do not use didactic materials or present a didactic situation as a step within a patternfrom which concepts are demonstrated and linked to reality enabling a feasible unfolding of actual definition of concepts and negotiations of formulas within guided practice from abstract thinking towards concepts as in traditional methods.

Mathematics is not taught within the Competency Based Approach (CBA). Teachers do not act as facilitators. Teachers teach mathematics based on the normative definition of the word teaching, as they take the learners as empty vessels that are to be filled with knowledge. Remediation is not always done to permit the learner to clarify doubts for what reason any response was accepted or refused. This is an indication that teachers do not have a mastery of the concepts and are not willing to nor thinking of recurrent pattern as a scientific method that will improve learner's performance.

# CONCLUSION

This study was interested in finding out the extent to which methods of teaching mathematics can influence learner's performance in the subject. Specifically this was concerned with the degree of designed activities teachers comply tothat can influence learner's performance in the teaching of the subject. In this regard focus was on the context of the design teacher practicum (presentation) and the level of learner's incorporation of



competences and level of application within their activities (both daily and academic). The study concluded that teachers are comfortable with the traditional method of teachingthe subject(drilling, lecture, lecture demonstrationetc), despite the efforts the state is making even through reforms (2018) especially the introduction of the competence Based Approach (CBA) within the modern method of teaching mathematics as the analytic and synthetic method, heuristic and discovery method, inductive and deductive methods, methods that enable demonstration, illustration, problem solving etc. Teachers in the basic education find it difficult in carrying out pedagogic projects (taking a sample activity within the real life situation from the societywithin which the knowledge of mathematics is used and present in the classroom to show the learners) to which learners can get the reality in the application and use of the knowledge of mathematics to influence or conditioning learner's performance classically or operant. Finally the study observed that the teachers failed to enable the learners demonstrate their understanding within the teaching/learning process for the teachers to guide or facilitate learning process to actually take place, but teachers become lecturers in the primary schools, not defining concepts to be taught nor negotiating formulas but providing those formulas to pupils within any procedure insisting that learners should cram and use to solve. Finally the study observed that both the learners and teachers failed and will always fail to attain objectives or teaching/learning outcomes if nothing is done as teaching methods in mathematics are concern. Learners find it difficult in smoothly integrating themselves within the society they find themselves as they will always complain that mathematics is the most difficult subject.

# RECOMMENDATIONS

Although in performance within the contemporary issues, all adjudication in learner's performance is not only on teaching methods but teaching methods plays the greatest role within pedagogic activities.

The teaching of mathematics in the primary schools should follow the scientific method in which Concepts have to be identified within simplified language at the age appropriate Formulas have to be negotiated with learners.

A specific pattern which is recurrent within a particular criteria have to be followed, in short a scientific method/strategy of teaching has to be used. Meaning that

- 1. Teachers have to set a concrete direction (design) for workforce performance that aligns with organisational goals and strategies
- 2. Enable learners and training to more accurately identify learning and development needs (use all the three domains of learning in a systematic way)
- 3. Allow learners to take ownership of the skills and behaviour (demonstrate their understanding) required of them in their role (use the competence Based Approach, 'CBA')
- 4. Teachers to keep track of what skills learners have so that strategy and planning can work towards that future skills may be needed
- 5. Teachers to Provide a consistent and fair system of measurement for performance evaluation (give exercises that enable thinking/reasoning in learners and not what will make learners to be copiers.)
- 6. Teachers should diseased from the traditional methods of teaching mathematics to the scientific methods of teaching Mathematics

# REFERENCES

- 1. Amin, M E (2005), Social science research; conception, methodology & analysis, Kraft Books
- 2. Leke I, Tambo (2003), Cameroon national Education Policy since 1995 forum, design house Limbe of Calabar press
- 3. Smith P,L& Tillman J R (2012) Instructional Design: Basic Principles and Practical strategiesto promote learning in any setting. Third Edition, England, LATEFLCA: SAGE
- 4. DED 305 (2010) Mathematics subject matter for Nursery and Primary schools. University of Buea
- 5. MINEDUB (2001) National syllabus for English Speaking Nursery and Primary Schools in CameroonMINEDUB
- 6. Chin and Fon Susan (2001) General Didactics for Teachers, Moklens commercial. Inc.



- 7. Farant, JS (1982), Principles and Practice of Education, London; Lonman Press
- 8. Tchombe TM (1997) Classroom Events, Methods Technics and Psychological Correlates, Yaounde, Vita Press
- 9. DED 505 (2011) Contemporary Issues in Nursery and Primary Education. University of Buea
- 10. DED 407 (2011) Introduction to Research and Statistical Methods in Education. University of Buea
- 11. Sir Peter Williams (2008) Independent Review of Mathematics teaching in Early Years Setting in Primary Schools. DCSE Publicators
- 12. Grace Flaming (2007) Study Tips for Mathematics, About. Com http://hubpage.com/hub/logic.statement-and-tru.
- 13. David Bornstein (2011) A Better Way to Teach Mathematics. Nytimes, Com. Htm.
- 14. Phenix (1964) Realms of Meaning; New York; McGraw Hill
- 15. Hornby, A, S (1995), Oxford Advanced Learner's Dictionary. Oxford; oxford University Pressnuh
- 16. PISA (2021) Assessment and Analytical Framework; framework for Assessing Mathematics, OECD
- 17. NuhMih (2017) Competency-based Approach in Cameroon. UNESCO. BIE international Education. Horaires de la Bibliotechue
- 18. Patton M. Q, (1978) Utilisation-Focused Evaluation. Bevely Hills, CA;SA Patton, MQ (2002), Quantitative Evaluation and Research Methods, 3<sup>rd</sup> ed. Thousand Oaks. CA SAGE
- 19. Cameroon (2015) An IDEV country strategy and program Evaluation.Summary Report. African Development Bank group
- 20. Tambo L (2003)Principles and Methods of Teaching: Application in Schools. University of Buea: ANUCAM Publisher Limbe.
- 21. PASEC (2019) Quality of Educational system in Francophone Sub-saharienne African countries: Performance and Environment of Teaching: learning in the Primary
- 22. Gutherie (2003) Encyclopaedia of Education: second edition Macmillan Reference USA, New York
- 23. Williams (2008) Independent Review of Mathematics Teaching in Early Years Setting and Primary Schools. Department for Children, Schools and Families, ISBN-13 Amazon.com .inc