EVALUATION OF THE EDUCATION FOR ALL-FAST TRACK INITIATIVE PROGRAMME IN CAMEROON

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ABSTRACT

The universalisation of primary education made schooling obligatory and free in Cameroon. This resulted in overcrowded classrooms and poor achievement in Language (English and French) and Mathematics. The World Bank (2007) introduced an intervention programme, Education for All-Fast Track Initiative (EFA-FTI) programme, by recruiting 37,200 qualified teachers to reduce class size and teacher-pupil ratio and improve pupils' achievement. However, since the inscription of the programme, no study has investigated Cameroon's progress towards achieving the EFA-FTI goals. The study, therefore, evaluated the effect of class size and teacher-pupil ratio, teacher effectiveness, teacher job satisfaction, teacher qualification, teacher experience, school location and school type, school infrastructure and pupils' proficiency in language on pupils' achievement in mathematics.

The research was an *ex-post* facto type which adopted the Context Input Process Product (CIPP) Model. Schools were stratified along types (EFA-FTI and non EFA-FTI) and locations (urban and rural). Simple random sampling was used to select 40 government primary schools from five regions in two educational zones; Francophone (three) and Anglophone (two) with 50 primary six pupils from each class (classes with less than 50 pupils were all taken). In all, 1807 pupils, 40 schools, 40 teachers, 40 head teachers, a World Bank representative, one Government representative and 10 National Pedagogic Inspectors of Education participated in the study. Seven validated instruments were used. Classroom Observation Rating Scale (r=0.86), Head Teacher Material Resources Checklist, Teacher Job Satisfaction Questionnaire (r=0.76), Pupils' Evaluation of Teacher Effectiveness Scale (r=0.78), Language Proficiency Test (r=0.72), Pupils Achievement Test in Mathematics (r=0.76) and In-Depth Interview Schedule (r=0.76). Data were analysed using descriptive and inferential statistics; mean, standard deviation, t-test, Pearson Product Moment correlation and multiple regression at $p \leq 0.05$ level, while the qualitative data were thematically analysed.

There was a significant mean difference in class size and teacher-pupil ratio between the EFA-FTI and non EFA-FTI schools (57:75; 1:57 and 1:75, respectively). Pupils' achievement in mathematics was negatively related to teacher effectiveness (r=-.017). Pupils from the EFA-FTI schools were more proficient in language (M=54.01) than those from non EFA-FTI schools (M=50.23) but not significantly different in achievement in mathematics. The 10-predictor variables predicted achievement in mathematics (R^2=.605, R^2 adj =.486, $F_{(9,30)}$=5.104). The three most significant variables in predicting pupils' achievement in mathematics were: proficiency in Language (ß =.627); teacher working experience (ß =.243) and teacher effectiveness (ß= -.275). High language proficiency (M =78.78) had a high mathematics score (M=64.92) and a low language proficiency (M=42.12) had a low mathematics score (M=39.56). There was attrition due to posting allocations because teachers were often absent in the schools where they were posted to, particularly in the rural areas.

The Education For All-Fast Track Initiative programme increased teacher quality and quantity and improved pupils' proficiency in Language, did not meet the objective of reducing class sizes (40) and Teacher-pupil ratios (1:40) and did not improve pupils' achievement in mathematics in the schools. To reduce attrition, newly posted teachers should sign an undertaking to remain at their places of work for three years before applying for transfer.

Key words: Class size, Teacher-pupil ratio, Achievement in Mathematics, School quality, EFA-FTI in Cameroon.

Word count: 500

DEDICATION

This project is dedicated to the Glory of God Almighty for his infinite love, mercies, protection and guidance all through this work.

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CERTIFICATION

I certify that this work was carried out by Martha Beyang EGBE (Matriculation Number: 159220) under my supervision at the International Centre for Educational Evaluation (ICEE), Institute of Education, University of Ibadan, Ibadan, Nigeria.

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LISTS OF ABBREVIATIONS

CEP   **-** Certificat d'Etude Primaire (First school Leaving Certificate Examination for francophones)

DPPC/MINEDUB   -Division of planning, projects and cooperation in the Ministry of Basic Education.

GCE O/L   - General Certificate of Education, Ordinary Level

GCE A/L   - General Certificate of Education, Advanced Level

MINEDUC/PEII/CEP - Ministry of National Education/Project Education 2/Project Execution Unit

MINEDUB   - Ministry of Basic Education

CHAPTER ONE

INTRODUCTION

1.1 Background to the problem

The "Universalisation of Primary Education" or "Education for All" is a major policy option in the educational system of the Republic of Cameroon. The 1996 country's constitution (amended in 2000) states that "Primary Education shall be compulsory" (Law No 1996/06, Article (Art).17:43). With respect to this, the President of the Republic of Cameroon in 2000 re-enforced this policy by declaring primary education "obligatory" and "free" (Decree No 2001/041, Art.41). Its primary objective is for children of ages 6-12 to achieve sustainable level of basic literacy, numeracy and life skills at the end of their primary education. Following this decree, classrooms experienced significant increase in enrolment at the time when the school system was increasingly suffering from different forms of inefficiency due to inadequate number of qualified teachers in the primary schools (Amin, 1999).

The results of a survey conducted in 2004 by the Ministry of National Education/Project Education II/Project Execution Unit (MINEDUC/PEII/CEP) confirmed that classrooms in the Cameroon primary schools were overcrowded with a high teacher-pupil ratio. This resulted in ineffective teaching/learning and subsequent low academic achievement in class tests and official examinations (First School Leaving Certificate (FSLC/CEP) and Common Entrance (CE), examinations), especially in mathematics and language (French or English). Other studies (UNICEF, 2001 and Fonkeng, 2007) revealed high repetition rates at this level (more than 40%) due to over crowdedness in the primary schools. A survey conducted by the Division of Projects and Cooperation, Ministry of Basic Education (DPPC/MINEDUB) in 2009/2010 reported 9.8 million pupils in schools out of a population size of 16 million (Cameroon Population Census, 2002), resulting in huge class sizes and high teacher/pupil ratio (TPR) which in turn jeopardized the quality of education.

The table below (table 1.1) illustrates the results in 2007 before the introduction of the Education For All-Fast Track Initiative (EFA-FTI) programme. The EFA-FTI programme is an intervention programme, which became a timely response to salvage the Cameroon primary education by enhancing its quality through the recruitment of qualified teachers to solve the teacher shortage problem and thus improve the quality of education. Contrary to the aims of EFA-FTI policy that advocates for "quality" education through the recruitment of more teachers, increasing in "quantity" is not the only approach towards enhancing education

quality at the primary level. As primary education is the foundation upon which other levels of education is laid, there is need to use other factors to be able to inculcate in pupils literacy and numeracy skills required to participate effectively in the society and to be able to solve daily life problems. Other factors that improve school quality other than class size and Teacher-Pupil Ratio (TPR) could include: school infrastructure, teacher quality (qualification: academic and professional) teacher experience, teacher job satisfaction, school type, school location, material resources, language proficiency and teacher effectiveness.

TABLE 1.1: School Enrolment, class size, Achievement rate, Repeat rate and Dropout rate in August 2007 (before introduction of EFA-FTI programme in September 2007).

Region	School Enrolment		Class Size		Achievement rate		Repeat rate		Dropout rate
	Urban	Rural	Urban	Rural	Urban %	Rural %	Urban %	Rural %	Total %
Adamawa	423755	100152	80	110	58	3.71	43	70	38.5
Centre	105355	294200	60	80	67	16	30	35	17
East	498364	53950	45	95	17	65	30	20	68
Littoral	1358011	158308	80	150	58	32	30	40	26
Extreme North	1930355	145392	80	156	30	11.3	58	80	58.7
North	986473	140218	75	52	20	26.3	51	80	53.3
North West	1196441	124657	70	40	33	66	41	25	18
South	314941	11438	40	15	28	3.59	41	25	68
South West	761060	100300	60	45	18	80	17	5	22
West	1148233	145185	90	65	28	61	54	30	12

Source: Cameroon School Enrolment and Statistics: Ministry of Basic Education, 2008-2009 Edition

Table 1.1 illustrates the school enrolment, class sizes, achievement rate, repeat and dropout rates of pupils in all the ten regions of Cameroon in 2007 before the introduction of EFA-FTI programme in September 2007. Prior to this programme, school enrolment was 8,771,190 (with rural enrolment of 1,094,000 and urban of 7,677,190). The teacher/pupil ratio was about 1:80 with 1:78 in the urban and 1:81 in the rural classrooms. Achievement rates were 35.7% and 36.5%, and repeat rates were 39.6% and 44.5% in urban and rural schools respectively, with an overall dropout rate of 36.5. This picture revealed the inefficiency of the education system (that is, an overwhelming primary school population with low achievement rates and high repeat and dropout rates).

Large class sizes and high TPR, that affect the quality of education at the primary level have become a major concern for students and educators in recent years because it leads

to having too many pupils in classrooms/schools with no additional space to contain them nor extra teachers to teach them. Under such conditions, students may not be able to get the attention needed since teachers are overworked with the additional load of extra students to teach, more papers to grade and less time to focus on individual pupil's needs. Experience has shown that congested classrooms (41-80[+])(bench mark of 40; World Bank, 2006) promote lower achievement rates than would likely be seen in smaller classrooms (less than 40).

Table 1.2 shows the baseline statistics, that is the number of teachers, Class size and teacher pupil ratio (TPR), in the public primary schools before the introduction of the EFA-FTI programme in September 2007.

TABLE 1.2: Statistics of public primary school teachers in MINEDUB (2006/2007) (Baseline Statistics)

Region	Teachers	TPR	Pupil/ Classroom ratio	Class size
Adamawa	972	1/89	89/1	89
Centre	4949	1/70	70/1	70
East	1123	1/80	80/1	80
Extreme North	4870	1/106	106/1	106
Littoral	2485	1/107	107/1	107
North	3222	1/106	106/1	106
North West	2682	1/69	69/1	69
West	4985	1/76	76/1	76
South	1545	1/41	41/1	41
South West	1292	1/60	60/1	60
Total	28125	1/71	71/1	71

Source: Basic Education in Figures; MINEDUB, Edition 2006/2007

Table 1.2 illustrates the class size, baseline statistics, in the public primary schools before the start of the programme. The inference that can be drawn here is that the schools all have large class sizes (> 40) and teacher/pupil ratio in all the ten regions of the country. For example, the class size/TPR of Adamawa was 89 (1/89), Centre 70(1/70), East 80 (1/80), Extreme North 106 (1/106), Littoral 107 (1/107), North 106 (1/106), North West 69 (1/69), West 76 (1/76), South 41 (1/41) and South West 71(1/71). None of the regions across the country has class size as recommended by either World Bank (40) or the UNICEF (37). Considering the five regions of the study (Adamawa, Centre, North West, West and South West) none meets either the World Bank of the UNICEF class size limits.

The World Education Forum (WEF) (2000) observed that the higher the TPR, the less likely students are attentive, as the class typically has an increased number of distractions.

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Although smaller classes have some evidence of better performances, Krueger (2002), in his study on effects of class-size on students' performances, found that the effects of class size on student performance was weak. He revealed that there is more evidence supporting a positive relationship due to improved teacher moral and job satisfaction (Hattie, 2009; OECD, 2009). From experience, teaching in small space with too many pupils could be stressful, as classroom management becomes a problem. Sometimes disciplinary problems emerge, preventing students from involving themselves fully in class activities, resulting in reduced learning and low achievement rates, and thus poor school quality.

UNICEF (2000) asserted that 'quality' in the context of education is an indefinable term as there is no clear definition of "quality". However, some people have situated the definition of quality to embrace all aspects of education that emphasizes basic learning outcomes especially in literacy, numeracy and life skills. In this work, the definition of quality by the EFA-FTI programme involves teacher quality and quantity, class sizes and TPR, level of Language proficiency and achievement in Mathematics. In effect, the EFA 2005 Report states that of the several researches on the quality of education, most of the literature deals with schools as the major institution of learning, thus, educational quality and school quality have been used interchangeably (UNICEF, 2000, UNESCO, 2005). Sometimes, school quality may be classified under the term educational quality. Although the term educational quality is a wider concept, its focus on improving quality of education begins with the learners' conditions in schools, so school quality is commonly used to evaluate the educational system.

The need to provide quality education by increasing opportunities for pupils to learn in schools has been the concern of educationists and donor-agencies such as the World Bank. This is premised on the fact that pupils' achievements have been widely acknowledged as a major indicator for determining school quality. According to the World Bank (2001), the home and the school have been identified as the two major factors that influence children's performance, but, the home factors are challenging and cannot be controlled while the school factors can be manipulated to improve learning achievement. Also, the school can easily overcome its inadequacies by enhancing its quality through manipulating her context components (class size and TPR, school type (EFA-FTI and non EFA-FTI), input components (physical infrastructure, teacher quality and experience, job satisfaction) process components (teaching and learning process, teaching effectiveness, and time on task). These components put together will make significant contributions to the product component (pupils' achievement) (school quality, UNESCO 2004).

The EFA Report (2013) confirmed that quality education not only helps individuals escape poverty by developing the skills they need to improve their livelihoods, but also generates productivity gains that stimulate individual economic growth. Despite these advantages, not every child has access to quality education. Hence, EFA talk has moved from a commitment to access to quality, without consideration what quality entails, particularly with no attention paid to pedagogy (Alexander, 2008). Definitely, pedagogy is the missing component in EFA and EFA-FTI debate on quality. Therefore, the EFA-FTI focus on increasing the number of qualified teachers in schools does not seem to be sufficient in solving the problems of quality in schools. According to Richardson (2001), quality must include the pedagogical process as proposed by UNESCO (2005) and Alexander (2008). It is difficult therefore to handle quality generally and pedagogical quality in particular. For this reason, there is confusion in the use of the word 'quality' itself as its usage shifts between adjective (quality as attribute) and noun (quality as achievement) (UNESCO, 2004).

Singh (2008) stated that quality education even in the academic circle is still difficult to understand owing to the fact that the quantitative measure given to the quality of education acquired by a student is an incomprehensible concept. It is therefore not surprising that many academic authorities are still searching for appropriate ways to quantify the achievements (quality) of their graduates (Singh, 2008). He said that some institutions use the grades (quality) of their students classified like 1st class, 2nd class or 3rd class. Others use the marks scored by students in each subject to indicate the achievements (quality) of the students. But in Cameroon one talks of having received quality education when he/she is able to use knowledge and skills acquired to adapt in whatever society and/or vocation in which one finds one's self.

Besides, Singh (2008) demonstrated that 'Quality education is elusive'. In his study, he compared school quality in town and rural schools in India, and found that even those top schools in major cities provided rote learning to pupils. This may discourage those who think that teachers in top urban schools employ better teaching methods (pedagogy) than their counterparts in rural schools. From other studies carried out on teaching method, UNESCO (2005) and Singh (2008) observed that teaching is universally presented as a mere transmission of information in a classroom, rushing through a programmed syllabus and preparing children for final examinations. Bhatta (2008) concluded from these findings that education in many countries (including Cameroon) is far from being a process of learning.

There has been a steady growth in the number of schools during the EFA era in Cameroon (Table 3.1). Even if the problem of access appeared to be addressed, that of quality

remains a recurrent issue. The major challenge facing Cameroon primary education today is the problem of poor quality. This could be aggravated by the disparity in education quality across school types (EFA-FTI vs. non EFA-FTI) and locations (urban vs. rural). The World Bank (2006) observed that pupils from schools in rural areas in Cameroon seem to be disadvantaged compared to pupils from urban schools, with respect to the number of qualified teachers available in their classrooms. According to BEF (2009/2010) about 400 thousands school-age children are not attending school. Most of these children are from remote or rural locations and disadvantaged population groups. The EFA-FTI report of 2005, pointed out that despite efforts made so far, over 100 million children (58 million girls), 70% from Sub-Saharan Africa are out of school (EFA-FTI, 2007). Although Cameroon has made noticeable progress towards increasing access to primary education, up to 11.8% (BEF 2009/2010) of children of school age do not have access to schooling (see table 1.3) with the level of access varying greatly across regions.

TABLE 1. 3: Access to primary education in Cameroon 2009/2010

Region	Schooling population	School Age population	Net schooling Rate (%)	No-Access Rate (%)
Adamawa	165 531	180 840	91.53	8.47
Centre	569 380	593 077	96.00	4.00
East	187 689	198 938	94.73	5.27
Littoral	383 954	362 346	105.96	5.96
Extreme North	579 810	626 665	92.53	7.47
North	337 425	358 039	92.24	7.76
North West	298 047	388 197	76.78	23.22
South	114 599	128 040	89.50	10.50
South West	228 014	229 425	99.38	0.62
West	312 863	472 829	66.19	33.83

Source: Basic Education in Figures (BEF): Ministry of Basic Education, 2009/2010 Edition

The problem of school quality faced in Cameroon primary schools is attributed to the advent of the economic crisis, which has had an effect on the government's ability to provide adequate, qualified and competent (effective) teachers and maintain high quality educational services. Since the government could not single-handedly finance the increasing cost of education, alternative financial sources were sought to guarantee an improvement in the quality of education so as to ensure the achievement of the EFA goals by 2015.

To this end, in 2000, the Government of Cameroon asked for financial assistance from donor agencies to assist in the implementation of her education sector plans that would

improve the quality of her education system. Responding to this demand, the African Development Bank between 2002-2004 provided funding for the construction of classrooms and staffrooms in some 150 primary schools in addition to training teachers on the use of competence-based approach (CBA) teaching to help increase achievement rates and thus improve the quality of education (MINEDUC, 2003; MINEDUC/PEII/CEP, 2003).

During the World Education Forum in Dakar, Senegal in 2000, countries across the world declared that "no countries seriously committed to EFA will be frustrated in their achievement of this goal by lack of resources" (World Education Forum, 2000). Responding to this commitment to partners of developing low-income countries in 2007, the World Bank, Education for All-Fast Tract Initiative (EFA-FTI) endorsed the Cameroon education sector plan on improving school quality, by providing financial resources towards the recruitment, deployment and payment of 37,200 teachers for her primary schools. The aim was to increase the number of trained teachers on the field so as to reduce class size and TPRs to guarantee progress towards achieving the Education Millennium Development Goal of "Quality Education for All" by the year 2015 (Millennium Summit, 2000). The EFA-FTI programme sets out to address the problem of quality through the recruitment of more trained teachers.

The EFA-FTI is a global partnership between donors, developing countries, agencies and civil society organisations, initiated by the World Bank (supported by all major bilateral donors for education and by UNESCO, UNICEF, the World Bank, and 122 regional development banks (UPE, 2015)) to steer progress towards the Millennium Development Goals (MDG) of universal primary education (Millennium Summit, 2000; EFA-FTI Secretariat, 2005).

1.2 The Millennium Development Goals

The Millennium Development Goals (MDG) consists of eight goals targeted as a road map to increase quality education, reduce poverty by half by 2015 and create a global partnership by all countries and development institutions of the world for development (UNICEF, 2010). According to the UN Millennium Development Goals report of 2008 (mid way to 2015), these goals that became the official list of MDGs in 2001 are as follows:

1   Eradicate Extreme Poverty and Hunger;

2.   Achieve Universal Primary Education;

3.   Promote Gender Equality and Empower Women;

4.   Reduce Child Mortality;

5.   Improve Maternal Health;

6.   Combat HIV/AIDS, malaria and other diseases;

7.   Ensure Environmental Sustainability; and

8.   Develop a Global Partnership for Development.

According to the UN Millennium Development Goals Report 2008, some of these goals were on track in countries like India and China, whereas Sub-Saharan Africa was not on track as a region to meet these goals. That notwithstanding, some areas including Cameroon improved their progress towards the second goal by increasing school enrolments (due to the provision of free and compulsory primary education to all pupils of school age) and increasing teacher quality and quantity to cut down class sizes and TPR (EFA-FTI programme). The EFA-FTI goal stems from MDG goal N^O 2, "Achieve Universal Primary Education"

The EFA-FTI programme was necessary to support countries whose realization of quality universal primary education by 2015 could be thwarted by lack of financial resources (EFA-FTI, 2002). As of June 2005, 60 countries including Cameroon had their education plans endorsed to enable them benefit from the programme. Cameroon started benefiting in 2007 with the recruitment and payment of 37,200 grade one teachers for her public primary schools for five years (2007 to 2011) (see table 1.4) to enable her meet the MDGs.

1.3 The EFA-FTI Objectives

There are three levels of the EFA-FTI objectives (derived from MDG goal N^O 2):

The **first level general objectives** are as follows:

1.   To provide financial and technical support to low-income countries (LIC) with serious commitment towards reaching Universal Primary Education (UPE) by 2015.

2.   To increase the number of countries on track towards achieving quality universal primary education.

The **second level specific objectives** are to beneficiary countries:

1.   Providing more efficient aid for primary education to countries that demonstrate the ability to utilize it effectively.

2.   Providing adequate and sustainable domestic financing for education, within the framework of a country's national poverty reduction strategy and medium-term expenditure framework.

3. Increasing accountability for sector results and promoting mutual learning on 'what works' to improve primary education outcomes (EFA-FTI, 2004 and EFA-FTI, 2005).

The **third level specific objective**, **specifically for Cameroon** deals with financial assistance for the recruitment, deployment and retainment of teachers by paying the salaries of 37,200 public primary school contract teachers for the years; 2007 to 2011 (MINEDUB, 2011) (Table 1.4); This objective was to ensure that the Cameroon primary school quality meets the EFA millennium goals by 2015 through:

i. Increasing teacher quantity and quality in her schools.

ii. Reducing class sizes and teacher/pupil ratios to improve teaching/learning and pupils' achievement.

iii. Improving proficiency in Language (English and French) and

iv. Improving the Mathematics achievement rates in her primary schools.

This third level objective is one on which this study is based.

The EFA-FTI programme was designed to increase the number of quality teachers, reduce class sizes and teacher/pupil ratios (TPR) and improve pupils' achievement in primary schools across the ten regions of Cameroon (EFA-FTI, 2002).

Table 1.4 shows the number of qualified teachers recruited (IC) for the five years of the EFA-FTI programme (2007-2011) in Cameroon. (IC is 'Institutaire contractuel', designated 'Contract Teachers').

TABLE 1.4: Statistics of "Contract Grade One" teachers recruited under the EFA-FTI Programme: Ministry of Basic Education (MINEDUB) (2007-2011).

N°	REGION	2007 IC_1	2008 IC_2	2009 IC_3	2010 IC_4	2011 IC_5	TOTAL
1	Adamawa	815	453	490	417	350	2,525
2	Centre	2,720	655	620	217	903	5,115
3	East	1,115	436	470	425	291	2,737
4	Extreme-North	1,681	666	590	1,336	1,411	5,684
5	Littoral	809	473	500	377	821	2,980
6	North	985	472	500	1,214	907	4,078
7	North-West	1,165	556	580	566	842	3,709
8	West	1,337	569	590	687	777	3,960
9	South	809	536	560	408	229	2,542
10	South-West	1,306	574	600	628	762	3,870
	TOTAL	**12,742**	**5,390**	**5,500**	**6,275**	**7,293**	**37,200**

Table 1.4 illustrates the number of teachers recruited between 2007-2011 school years. 37,200 qualified teachers were recruited and posted to schools that desperately needed teachers. It is evident here that the regions with higher enrolments (table 1.1) received more teachers. The implication of this is that enrolment was the main criterion for posting teachers to schools.

The World Bank Progress Report on EFA-FTI (2005) indicated that school quality and students' achievement in developing countries depend on teacher quality, the learning location (rural and urban) and class size while UNICEF (2010) and Tchombe (2011) highlighted physical facilities as indicators that contribute to pupils' achievement. Amin (2004) reported that factors attributed to proficiency in Language and achievement in Mathematics in schools could include government related factors such as recruitment and posting of teachers, and teacher factors such as qualification, experience and their effectiveness in the classroom. These among others was considered in the study.

In this study, the indicators that were used to evaluate quality in the primary school include: class size and teacher/pupil ratio, teacher quality in terms of qualification, experience and teacher effectiveness, job satisfaction, school type and proficiency in Language (English or French). These factors were found to be key indicators that could influence pupils' achievement in Mathematics. The problem of evaluating the effect of class size and TPR, teacher quality and quantity and the quality of education from other factors mentioned earlier and pupils' achievement in mathematics were the basis for which this study was initiated.

Tchombe (2011) pointed out that class size in most African primary and secondary schools are large, infact, overcrowded. The World Bank (2006) recommended a teacher/pupil ratio (TPR) of 1:40 and UNICEF, 1:37 at this level. Based on this provision, the FTI established an indicative framework TPR of 1:40 for universal and quality primary education to be achieved (Welmond, 2009). Unfortunately, Cameroon is not close to this prerequisite as her TPR for urban schools stood at 1:78 and for rural, 1:81 (see table 1:1). Besides, Babalola (2000), UNICEF (2001), Kelly (2008) and Nsamenang and Tchombe (2011) maintained that large TPR (41[+] pupils/teacher ratio) was probably amongst the indicators for low achievement in class tests and official examinations mostly in Mathematics.

Although, conventional wisdom dictates that smaller classes benefit students and equally lead to higher levels of achievement, Blatchford (2003) and UNICEF (2001) found

that a significant number of personnel, resources and facilities will be needed to satisfy these class size benefits. UNICEF (2010) submitted that class size reduction represents a considerable commitment of funds to building more classrooms, recruitment and payment of salaries to more teachers. Although extra classrooms have been provided by the Japanese government (Don Japonais), the African Development Bank, PLAN International (MINEDUB, 2009/2010) and the government of Cameroon, the supply has not met the demand. MINEDUC (2003); MINEDUC/PEII/CEP (2003); MINEDUB (2009/2010) and MINEDUB (2011) revealed that there is need for more than 8,928 classrooms to be constructed and 4,386 refurbished in the Cameroon primary schools. Although the provision of classrooms is a proxy factor in the reduction of class size and TPR, the EFA-FTI programme did not provide for the construction of classrooms.

Meanwhile, Alexander and Fuller (2004) pointed out that, regardless of the material resources that are provided, the school programmes (curriculum) that are revised, the primary source of learning for students remains the classroom teacher. It cannot be overemphasized that the teacher can effectively transfer knowledge (using better teaching methods) to his pupils only when he is qualified. Darling-Hammond (2000) and Parker (2004) established that nothing has been taught until it has been learnt.

Odinko (2002) observed that teacher qualification is an important input in teaching/learning situation since quality output (effective teaching) demands quality input (qualified teacher). However, Fonkeng (2007) observed that the Cameroon classrooms faced the challenge of having a limited number of trained teachers to meet the number of schools created. The problem of inadequate trained teachers in schools is linked with the problem of deployment of teachers recruited as many prefer to teach in urban schools leaving rural schools with fewer qualified and experienced teachers (Mulkeen, 2005). Furthermore, MINEDUB/PEII/PEU (2004), World Bank (2006) and MINEDUB (2009/10) reported that in Cameroon, the government finds it difficult to deploy quality teachers to schools in rural areas because shortly after, the teachers find their way to the urban schools. The problem therefore is not only that of qualified teacher supply but also of qualified teacher deployment.

According to Okigbo and Okeke (2011), teacher effectiveness could improve learning experiences by enhancing the cognitive, affective and psychomotor growth of learners especially when enough time is allotted to teaching.
Many studies agree that time on task is also an important condition for learning (Fuller, 1986; Amin, 2004; Fonkeng, 2007). Wim and Van de Grift (2013) opined that numerous studies on effective schooling conducted in developed countries revealed that a good amount of

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classroom time is spent on discipline matters and waiting between activities. The author observed that in Cameroon, teaching time is shortened by teachers staying out of school on feast days, late postings of teachers and late appointment of head teachers at the beginning of the academic year. Furthermore, teachers go out for salaries at the end of each month losing at least 20% of time as allotted for teaching and learning (Egbe, 2009).

Some studies on the effect of teaching experience have found a relationship with teacher effectiveness (Larson, 2008 and Benson, 2007). Darling-Hammond (2000) observed that teachers with at least three years experience tend to have bigger learning gains among their students than their colleagues fresh from school. This is expected to increase even more as the number of years increase (up to 3 years). Egbe (2009) found that when the number of years increases beyond five years, the effectiveness diminishes.

In all fields of life, job satisfaction determines the quality of output a worker is prepared to offer. It is therefore true to say that a motivated teacher in terms of good working conditions, impressive and regular salary will exhibit positive job satisfaction through his effectiveness in the classroom. Egbe (2009) observed that disgruntled teacher tends to be very hard on pupils, disrespects school hierarchy, comes late to class, is irregular at school and sometimes stays away from classes. Research has established that the worst performance of dissatisfied teachers is customarily among Mathematics teachers (Alexander and Fuller, 2004; Ololube, 2006 and Katarina, 2008).

According to Isiugo-Abanihe and Labo-Popoola (2002) the location of schools has a significant effect on the academic performance of the child. A school could be located in either the urban or affluent area with parents who could provide all their children's needs. In Cameroon, in the rural areas, parents are mostly peasant farmers who cannot afford major school needs for their children. This condition hinders their children from attaining the academic level that is expected of them.

In this study, the researcher presents two school types, project and non-project schools, in both urban and rural locations. Donor agencies expected the project schools with EFA-FTI teachers to make a great difference in pupils' achievement in mathematics than the non-project schools with non EFA-FTI teachers. The phenomenon that pupils in the project schools with more qualified teachers and smaller classes with low Teacher-Pupil Ratio (TPR), learn better and will eventually perform better than pupils in the non-project schools was empirically investigated, the purpose for which this research work was designed.

The classroom equipment refers to classrooms and other equipment such as chairs, tables, pupils' desks and chalkboards that contribute to a positive learning environment and

quality education for all students (Tchombe, 2011). Obviously, the quality of school buildings and furniture and school materials will determine teachers' effectiveness and students' learning outcomes. Such facilities will likely motivate and reinforce students' attendance in school and perhaps their performances. Despite the importance attached to school infrastructure and material resources, the EFA-FTI programme did not provide such materials for teachers to be able to work conveniently.

Besides the contributions made by some variables to achievement in Mathematics, Abedi and Lord (2001:232) found among others that the level of language ability (proficiency) is positively related to Mathematics achievement. Moreover, Standards (1999) in Chen (2010: 91) clearly states that 'for all test takers, any test that employs language is, in part, a measure of their language skills'. This statement is true because all assessments use language to measure student achievement. Every learner needs an appropriate level of language skills to be able to read and answer questions in any test hence, language proficiency is confounded with pupils' achievement on mathematics tests.

1.4 Evaluation Objectives

From the three aforementioned EFA-FTI levels of objectives, the researcher was interested in evaluating the third level specifically for Cameroon; this study attempted:

1. To assess the availability of material resources in the EFA-FTI (project) and non EFA-FTI (non-project) schools;

2. To establish the characteristics of some stakeholders of the EFA-FTI programme in Cameroon;

3. To evaluate the extent to which decrease in class size and TPR (teacher quantity) improved pupils' achievement in Mathematics at the primary school level;

4. To ascertain the relationship between teacher qualification and pupils' achievement in Mathematics;

5. To investigate whether the model that described class size and TPR, teacher qualification and experience, teacher effectiveness, school location and school type, job satisfaction, school infrastructure and proficiency in language allowed reliable prediction of pupils' achievement in Mathematics;

6. To identify the predictor variables that were more influential in predicting students' achievement in Mathematics;

7. To assess the reliability of pupils' proficiency in language (English and French) in predicting achievement in Mathematics;

8. To identify variables in the EFA-FTI programme that did not predict achievement in Mathematics;

9. To evaluate the perception of the programme provider, the implementer and National Inspectors of Education with respect to the effectiveness of the EFA-FTI programme.

1.5 Statement of the Problem

Steps had been taken by government to improve quality of education but studies revealed that the primary school classrooms in Cameroon were overcrowded with an average teacher/pupil ratio of about 1:80 as against 1:40 and 1:37 as recommended by the World Bank and UNICEF respectively. Although the World Bank has occasionally been provided with general reports on the effectiveness of this programme in Cameroon, these reports often focused merely on the number of teachers recruited and amount of money disbursed as salary. Existing reports (World Bank, 2006) were mainly on teacher quantity and financial accountability (salaries disbursed) rather than the impact of the programme on the quality of education in schools. Altogether, there had been no formal evaluation or follow up of the outcome of the EFA-FTI programme in Cameroon, this study would provide the needed empirical evidence on the effectiveness of the programme in improving primary school pupils' achievement in mathematics.

In view of the fact that the World Bank progress report of 2006 confirmed no formal evaluation of the programme, the study was therefore designed to evaluate the implementation of the EFA-FTI programme by examining the outcome of the key variables of the project (class size and teacher/pupil ratio, teacher effectiveness, job satisfaction, teacher qualification, experience; school location and school type, school infrastructure and proficiency in language on pupils' achievement in Mathematics).

1.6 Research Questions

The study provided answers to the following questions:

1. Is there any difference in the availability of material resources in the EFA-FTI (project) and non EFA-FTI (non-project) schools?

2. Is there a significant difference between EFA-FTI and non EFA-FTI beneficiary schools in terms of class size and TPR?

3. What is the relationship between teacher quality and pupils' achievement in Mathematics in the Cameroon primary school system?

4. Is there any significant difference between pupils in EFA-FTI and non EFA-FTI supported classrooms in achievement in Mathematics?

5. Does the obtained regression equation resulting from a set of ten-predictor variables (class size and TPR, teacher qualification, teacher effectiveness, school location and school type, job satisfaction, school infrastructure and proficiency in language) allow reliable prediction of achievement in Mathematics?

6. Which of the ten predictor variables is the most influential in predicting students' achievement in Mathematics?

7. Are there any predictor variables that do not contribute significantly to the prediction model?

8. What are the perceptions of the programme provider and implementers about the effectiveness of the EFA-FTI programme in the Cameroon education system?

8b. What are the perceptions of the National Inspectors of Education about the efficiency and effectiveness of the EFA-FTI programme?

1.7 Scope of the study

The outcome of the EFA-FTI programme was assessed using class sizes and TPR, teacher quality and quantity and language proficiency on achievement in Mathematics. This is because this subject is one of the 'core subjects' when classifying subjects of the Cameroon primary school curriculum. Moreover, it is the subject with the highest failure rate at this level. Furthermore, French or English Languages constitute the medium of instruction in the school system. The study was conducted in twenty project schools (having EFA-FTI teachers), twenty non-project schools (having non-EFA-FTI teachers) and class six pupils taught by these teachers. The variables did not exceed those stated in the study (class-size and TPR, teacher qualification, teacher effectiveness, school type, location and infrastructure, job satisfaction and proficiency in language and achievement in mathematics). The study tried to establish the relationship between some school factors, teacher factors and pupils' achievement in mathematics.

1.8 Significance of the study

The evaluation of the EFA-FTI programme in Cameroon results provided empirical bases that serve as an insight (bases) for policy makers, the civil society and donor agencies to

initiate programmes that could improve pupils' achievement in the primary school and thus improve quality of education at this level. It serves as an empirical basis for better understanding of the relationship between teacher qualification, teacher effectiveness, job satisfaction, school location and type, infrastructure and proficiency in Language and achievement in Mathematics in the Cameroon primary schools. The study provided the much needed feedback on the impact of EFA-FTI programme on the Cameroon primary schools.

1.9 Definition of terms

For this study, the terms were defined using the operational definition as follows:

- **Pupils**: Are children between the ages of 6-12$^+$ in the Cameroon primary schools.
- **Class-size**: number of pupils being taught in one class at any given time by one teacher (51-80$^+$ = overcrowded). This helped the researcher to determine the TPR of any given class.
- **Teacher/pupil ratio**: referred to the number of teachers in each class controlling all the pupils of that class. For example, a teacher/pupil ratio of 1:50 indicated that one teacher controlled 50 pupils in that class at a given time.
- **Teacher academic qualification:** This referred to the highest academic certificate (GCE O/L, A/L or a degree) possessed by the teacher.
- **Teacher professional qualification:** This denoted the highest professional certificate (Teacher Grade Two or One) possessed by the teacher.
- **Donor agencies**: Are International organizations (World Bank, African Development Bank, Islamic Bank and Don Japonais) that provided funding for the development of school projects/programmes in Cameroon.
- **Pupil achievement**: This was measured in terms of scores earned by pupils in the mathematics test set by the researcher using the final year mathematics syllabus.
- **Achievement rate:** The measure of the scores obtained in a mathematics test within a stipulated period of time.
- **School Type**: Term used to differentiate schools according to grouping: schools with EFA-FTI teachers (Project schools) and schools without EFA-FTI teachers (Non-Project Schools).
- **School-location**: setting where the schools are found
- **Teacher Quality**: Term associated with teachers' qualifications; professional (Grade one and Grade two) and academic (GCE O/L, A/L and/or a degree) and teacher

effectiveness (lesson preparation, language used in teaching, classroom organization and management).

➢ **Teacher work experience:** number of years put in the teaching employment

➢ **Teacher effectiveness:** teacher efficiency, measured in terms of how the teacher was organised in his teaching; how dedicated he was in the classroom with his level of commitment to his pupils

➢ **Teacher job satisfaction:** referred to the degree of contentment of a teacher in the different facets of the teaching job due to condition of work and nature of reward for work done

➢ **Proficiency in language:** Pupils who scored more than average (50%+) were said to be proficient in the use of language (English or French)

➢ **Achievement score in mathematics:** measure of mathematics ability using test scores

➢ **Material resources:** classrooms, furniture and equipment in the classroom

➢ **Evaluation**: Referred to the systematic assessment of the process and outcome of the EFA-FTI programme, judged against expected results, based on its impact and effectiveness of the objectives of the programme

1.10 Acronyms and Abbreviation

➢ **CEP** - Certificat d'Etude Primaire (First school Leaving Certificate Examination for francophones)

➢ **DPPC/MINEDUB** -Division of planning, projects and cooperation in the Ministry of Basic Education.

➢ **GCE O/L** - General Certificate of Education, Ordinary Level

➢ **GCE A/L** - General Certificate of Education, Advanced Level

➢ **MINEDUB** - Ministry of Basic Education

➢ **MINEDUC/PEII/CEP** - Ministry of National Education/Project Education 2/Project Execution Unit

CHAPTER TWO

LITERATURE REVIEW

This chapter reviewed literature relevant to the work. The literature review focussed on the following concepts in the study:

2.1   The Theoretical Background

2.1.1   Sociocultural Theory

2.1.2   Constructivist Theory

2.1.3   Pedagogical Theory

2.2   The Conceptual Framework

2.3   Achieving literacy for all (EFA)

2.3.1   The role of Mathematics in meeting societal needs

2.4   The concept of quality of Education

2.5   Quality of Education and dropout rates

2.6   Class size, Teacher/pupil ratio and Pupils achievement

2.6.1   Teacher/pupil ratio and student achievement

2.7   Teacher qualification and teaching effectiveness

2.8   School location and teaching effectiveness

2.9   Teacher effectiveness and student achievement

2.10   Job satisfaction, teaching effectiveness and students' achievement

2.11   Evaluation of teacher effectiveness

2.12   Teachers' experience and students' academic achievement

2.13   School infrastructure and Pupils' achievement in mathematics

2.14   The Language Question in Cameroon

2.15   Language proficiency and mathematics achievement

2.16   Route in Qualitative research

2.16.1 Conducting Qualitative Research

2.17   Model of Evaluation (CIPP)

2.18   Appraisal of literature review

2.1 Theoretical Framework

Olaniyi (2014) states that it is important to begin reviewing the literature of a research finding by reflecting on some related theories:

> A brief excursion into the archive of education theories is paramount here. This is in the believe that it will serve as a step into examining national policies in education. Not all that, it will also serve as a major parameter with which a critical evaluation and appraisal of such policies will be examined.(p.183)

Many studies have been carried out that investigated the effects of class size on academic achievement in general and Mathematics achievement in particular using several learning theories. This study stood on three main theories of learning; Sociocultural Theory, Constructivist Theory and Pedagogical Theory.

2.1.1 Sociocultural Theory

This theory which involves teaching and learning is based on Vygotsky (1998) work that believes that the body of mathematical knowledge comes out of the experience of the Mathematician. He goes on to say that it is this body of knowledge together with the culture of the school that the teacher needs to teach and the student needs to learn. Vygotsky reiterated that it is the role of the adult to gear the learners' beliefs away from his experiences towards a more scientific understanding. According to him, learners react and perform actions beyond their competence when they act alone. The role of the teacher is to influence students' thinking so as to motivate and develop their potentials into more scientific understanding. Students should be made to interact with competent adults who demonstrate advanced thinking to facilitate new learning. Lerman (2000) believed that for children to develop higher-level thinking and learning, the teacher must provide them with problem solving opportunities.

The sociocultural theory states that the child is "an active member of a constantly changing community of learners in which knowledge constructs are constructed by larger cultural systems" (Larson & Marsh, 2005, p. 100). This theory focuses on daily interaction between the learner and his school, home or play where he experiences how other people that he meets behave. The pupils most often use their prior knowledge to understand new knowledge. This gives the teacher a duty to individualize lessons to meet individual student's needs depending on their cultural values (Larson & Marsh, 2005, p.4). This guides the

teacher's lesson planning and implementation in the classroom. The recruited teacher (EFA-FTI teacher) is expected to put this into practice when he is teaching.

2.1.2 Constructivist Theory

The constructivist theory (Nodding, 1990) believes that the child learns better by constructing his own knowledge through his personal activity. Therefore, the student in the constructivist classroom is exposed to autonomy. Nodding (1990) stated that this theory is also inspired by Piaget's theories of knowledge established by the class teacher. Such environments are meant to provide learners with openings for the development of knowledge to hypothesize, test and communicate their thinking by manipulating materials to get meaning and thus build mathematical knowledge. In finding the missing link in constructivist theory, Waschescio (1998) revealed that the teacher has a duty to ease students' learning by monitoring students' progress and guiding the direction of students' explorations thus developing new patterns of thinking. This theory gives students the latitude to construct their knowledge through their own activities.

2.1.3 Pedagogical Theory

According to Nelson (2002), the Pedagogical theory is a general teaching theory which emphasises the principle of realism. Practically, it recommends didactic methodology as prerequisite for proper teaching and learning situations. The pedagogical theory aims at developing a great deal of learning by doing, as learning is derived from practicality. Learning comes from practice and repetition employed in strategies which originate from the pedagogic theory. Since Mathematics is key to scientific knowledge and understanding, Mathematics knowledge plays an essential role in education. Thus, the pedagogical order of Mathematics should be logical, procedural and systematic moving from the known to the unknown, simple to complex, concrete to abstract, and familiar to unfamiliar concepts (Nelson, 2002).

2.2 Conceptual Framework

Miles and Huberman (1994) defined Conceptual Framework as a visual or written product or model that explains the key variables in the study and the interrelationships among them. The Conceptual Framework recapitulated the whole concept of the evaluation of school quality by

conceptualising the independent variables (class size and PTR) in terms of project (EFA-FTI) and non-project (non EFA-FTI) schools found in urban and rural areas assumed to affect the dependent variable (pupils' Mathematics achievement). The framework reflected other factors referred to as intervening variables which were assumed to moderate the relationship between the independent and dependent variable. Moreover, this framework as adapted from CIPP model explains the CIPP model at a glance, the reason for which it was designed.
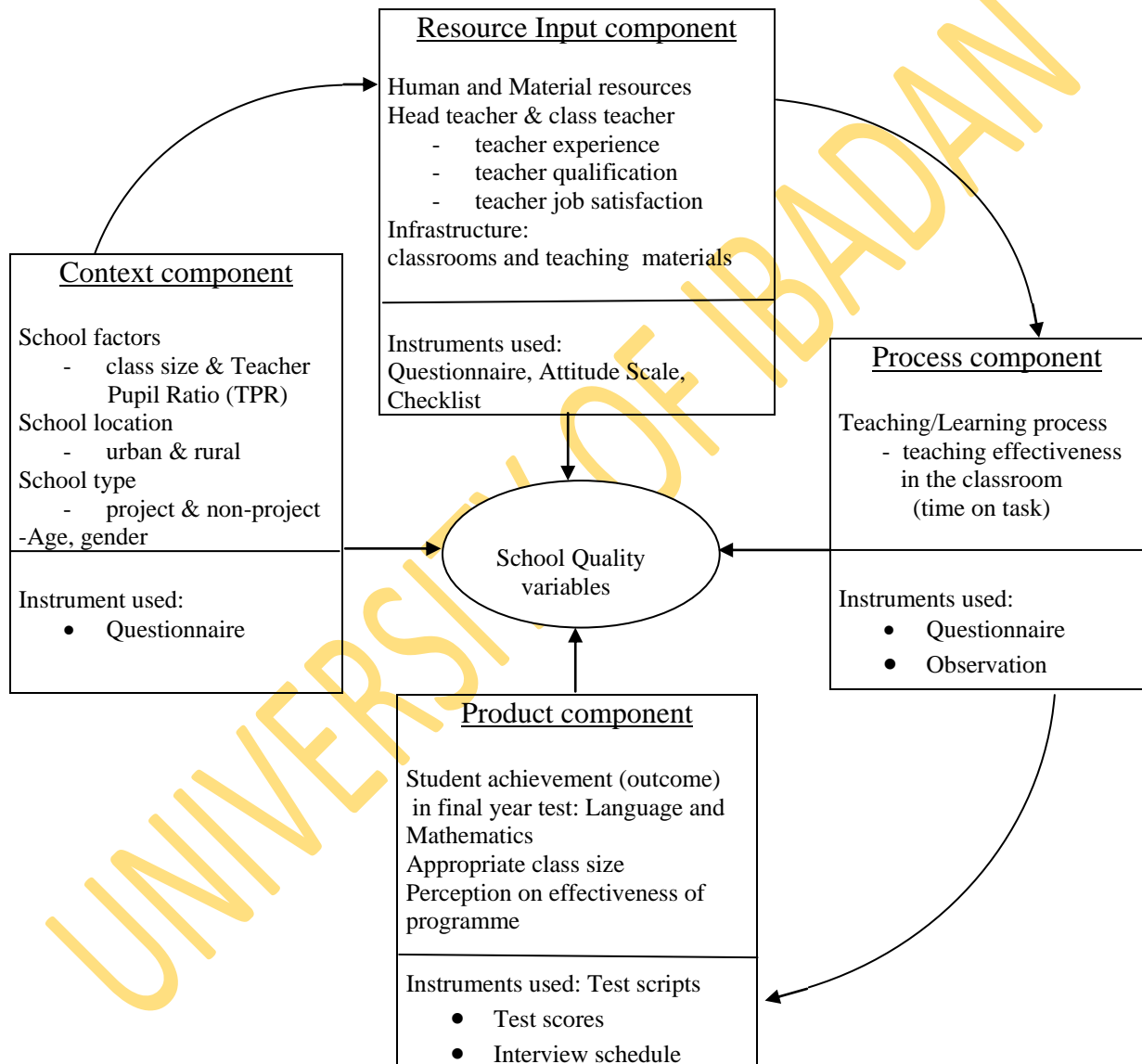
Source: (Egbe, 2013)

FIG 1: Conceptual Framework: A model adapted from the evaluation model (CIPP) for understanding School Quality variables and the objective of the EFA-FTI programme.

Amin (2004) asserted that any framework for the analysis of school quality is a measurement that identifies significant variables that affect education quality. It also facilitates the understanding and organisation of the different variables of school quality in terms of pupils' achievement. Accordingly, the above model introduces the conceptual framework with respect to the quality of primary education. It embodies concepts about quality and achievement in tests as regards the EFA-FTI programme objective; the attainment of which will improve quality and make possible better educational outcomes. Hence, this model demonstrates how 11 different indicators in the evaluation study are conceptualised and linked. The factors included therein that influence student outcomes (school quality) are divided into 4 components as follows:

a) school context factors
b) resource inputs;
c) teaching/learning process
d) student achievement (product)

The researcher evaluated or investigated the level of attainment of the programme objectives using the school variables in the designed conceptual framework. The context factors present the location (urban and rural) and type (project and non-project) of schools involved in the study. The model linked the context and input variables to the process component that together affected learning achievement/outcomes. All these indicators interacted within the school environment and eventually determined student achievement and consequently school quality.

2.3 Achieving literacy for all (EFA)

UNESCO (2005:158) defines a literate person as someone who can with understanding, read and write a short simple statement on his everyday life. Literacy is therefore related to written language as a means of communication and is closely linked to oral communication. Moreover, Literacy includes numeracy which concerns using numbers in written form. UNESCO (2005) expressed literacy simultaneously as an outcome (reading, writing and doing arithmetic) and a process (taught and learned through formal schooling) used to develop cognitive skills. A child denied the right to quality primary education wherein he/she learns to read, write and do arithmetic is handicapped for life, as lack of literacy is strongly related to ignorance and poverty. Easton (2006) revealed that men and women who are not literate represent the poorest segment of the population in the world. The

developing countries that have the highest number of illiterate people include China, India, Pakistan, Nigeria and Brazil (UNESCO, 2007). Literacy strengthens the capabilities of individuals, families and communities to access health, educational, political, economical and cultural opportunities and services (Lind and Agneta, 2008).

The vices of poverty resulting in inadequate literacy policies have been major constraints in the past (UNESCO, 2007). Today, there are signs that literacy is receiving increased attention. As noted above, the United Nations declared 2003–2012 the Literacy Decade-The United Nation Literacy Decade (UNLD). The World Bank in recent years launched Education-For-All Fast Track Initiative (EFA-FTI), a commitment by developing countries to accelerate efforts to achieving universal primary education. This was to enable a transparent global accountability framework and a commitment by donors to provide sustained financing (as much as possible on a grant basis), where credible plans to accelerate progress in primary education exist (EFA-FTI, 2002). Also, attention is focused here because literacy is viewed as instrumental to achieving economic growth and alleviating poverty (Cameron and Cameron, 2005). Sil (2003) recognises efforts made by NGOs, Trade Unions, Communities, Churches and private companies that support basic literacy programs to enable learners reach their full potentials and contribute to the development of their communities. The US, in trying to increase literacy rate in 1999, introduced 'Industry-Supported Literacy Campaign (ISLC)' which was aimed at encouraging everybody to enjoy reading books and magazines and spread the joy among young people.

Education-For-All Global Monitoring Report (UNESCO, 2005), has presented policies that could enable countries achieve literacy for all. The report recommends that countries could use the following to achieve literacy for all:

- Use mother tongue for communication at the early classes of the primary school;
- Carefully choose language of instruction and pay attention to transition from mother tongue to official language;
- Implement government-owned literacy policies through partnership with public, private and civil society stakeholders;
- Provide adequate human and financial resource allocation in government budgets;
- Provide access materials to information, reading materials, news paper and other media and computers to support teachers in their classrooms;
- Practise learner-centred teaching methods adapted to the competencies of the educators.

The aforementioned highlights the importance of quality literacy education (acquiring language and numeracy skills) in the achievement of EFA goals in the two years that remain until 2015.

2.3.1 The role of Mathematics in meeting societal needs

Mathematics is generally defined as a science of numbers and regarded as the bedrock of science which has permeated all aspects of human endeavour. Abedi and Lord (2001) acknowledge that Mathematics is at the base of all scientific, commerce and environmental professions. It is therefore a core subject in the curriculum of primary education. Egbe (2009) portrayed Mathematics as being made up of knowledge, skills and procedures that are used in descriptions, illustrations and interpretations, going through predictions to explaining patterns and relationships in number, algebra, shape and space, measurement and data organization. These qualities and characteristics make Mathematics an essential tool for the child as he/she seeks to think and communicate quantitatively and spatially at the same time solving problems, recognizing situations where Mathematics can be applied. Several methodologies have been proposed to improve performance in the subject, this includes the use of Mastery Learning Approach (Akinsola,1994); Computer and Text Assisted Programmed Instruction Approach (Gulek and Demirtas, 2005), Competence-Based Approach (MINEDUC, 2002) among others. The Mathematics teacher should use carefully planned instructional strategies to teach the subject. The decline in pupils' performance in Mathematics, calls for further investigation into the teaching strategies, which should aim at ways of improving pupils' achievement in the subject.

Mathematics stands out amongst other subjects as the main factor in developing a nation hence the prosperity of any country depends on the quality of mathematics offered its school system (Egbe, 2009). Brown (2005) opined that the quality of education is built on a solid foundation of mathematical literacy at the level of primary. This gives the child the opportunity to develop manipulative skills needed for him to function in the society. Knowledge from mathematics also provides the child with the basic tools he needs for trade that will enable him make useful living economically, politically and socially. It is at this level that the fundamentals of Mathematics are nurtured for future sound mathematical knowledge needed to ensure a chance of achieving the MDGs by 2015 and thereafter, to cope with the needs of society. Governments should therefore pay greater attention to mathematics at the level of primary to improve on the quality of education.

2.4 Concept of Quality of Education

The Jomtien Declaration in 1990 and more particularly the Dakar Framework of Action in 2000, through its sixth goal lay emphasis on the quality of education. This embraces commitments to improve all aspects of educational quality so that everyone can achieve better learning outcomes especially in literacy, numeracy and essential life skills (UNESCO, 2004). This includes commitment to improving all aspects of education quality so that every child can achieve better learning outcomes especially in literacy and numeracy. The World Bank in 2007 drew the attention of all countries that benefited from the EFA-FTI programme including Cameroon to the quality of education expected of them. Owing to its importance, UNESCO (2004) termed school quality, the 'quality imperative'. The following year, UNESCO affirmed that 'quality' is at the 'heart of education, a primary determinant of enrolment and achievement' (UNESCO, 2005). Donor Agencies presented three Education for All documents: the World Declaration on Education for All, the Dakar Framework for Action and the Global Monitoring Report (2005): on 'the Quality Imperative' (UNESCO, 2004). These facilitated the understanding of quality with emphasis on learning outcome. However, despite setting goals of quality, education makes use of a broad range of learning outcomes with progress in achieving quality restricted to the cognitive learning outcomes that are easy to measure using pen and paper tests (Barrett et al., 2006).

Several studies have been carried out the world over focusing on teachers, students, home factors and school materials as indicators for school quality in education (Burstein, Oakes and Guiton, 1992; Kellaghan, 1993 and Mosha, 1988). Barrett et al., (2006) conceptualised Quality of Education in developing countries as having three levels: Firstly, classroom quality concerned with the acquisition of measurable knowledge, learning skills as well as immeasurable behaviours and attitudes. Secondly, quality education that serves the economic goals of the community in which learners live. Thirdly, quality is judged by broader social criteria. UNESCO (2005) defined the last two criteria for quality education as "relevance" or "external quality" while the first criterion of quality involving teaching and learning in the classroom is measured using quantitative techniques; test scores as "internal quality". She went on to say that the first criterion measures the benefits of investments in education (UNESCO, 2005). She expressed fear as problems of education quality are coming up at a time of rapid expansion of primary education in low income countries, this is perceived as a threat to quality.

Meanwhile, multiple meanings have been attributed to school quality. Adams identifies a number of common usages of quality given by educators (Ross and Postlethwaite, 1992, Adams, 1997) as follows:

1. Quality as Context: The body of knowledge, attitude and skills to be transmitted through the school factors, location, type and curriculum that may favour content of higher quality.

2. Quality as Inputs and Resources: This is the most common usage of quality. Here, quality is seen in levels of provision of resources such as buildings, facilities, instructional materials, the characteristics of schools, teachers, administrators, their experience and levels of education with resources being the necessary conditions for outputs such as student achievement.

3. Quality as Process: Ross and Postlethwaite (1992) affirmed that one needs the interaction of students, teachers, administrators, and materials to determine quality. He held that because a blend of input and resources has failed to lead to an improvement in outcomes (quality), attention has been turned towards the processes (teaching/learning) within classrooms and schools.

4. Quality as Product/Outcomes: This is the most popular definition amongst stakeholders and policy makers as it refers to the consequences of education, which is of primary concern. The measures of this definition of quality as outcomes of students' cognitive achievement, in terms of scores or percentages in tests or examinations are what are used in defining quality in schools.

UNESCO (2003) stated that although the four commonly used definitions of educational quality as summarized above are acceptable separately, an operational definition of educational quality often includes a combination of context, inputs, processes and outputs, combined to produce the desired outcomes. Furthermore, Fuller (1987) reiterated that school quality is often defined as some combination of inputs, processes and outcomes as follows:

a) material inputs and non-material characteristics of schools have been shown to improve student learning (quoted in Adams, 1997).

b) the level of material inputs allocated to schools as per pupil (Boonen et al., 2013)

c) the level of efficiency with which a fixed amount of material inputs are organized and managed to raise pupil achievement (Wim et al., 2013).

To corroborate the aforementioned definitions, UNICEF (2000) defines school quality as:

a) context that is reflected in the curriculum, school location and materials used in the acquisition of basic skills.

b) processes through which trained and experienced teachers use child-centred teaching approaches in well managed classrooms.

c) outcomes that include the acquisition of knowledge, skills and attitudes.

In this study, the researcher viewed school quality as the combination of a quantifiable nature of inputs and processes; teacher qualification, class size and TPR, teaching/learning processes, teacher effectiveness and instructional materials to enhance pupils' achievement and thus quality of Education. The importance of quality of basic education was articulated in 1968 during the Paris International Conference on Education under the theme, 'The World Crisis in Education' as at that time education did not meet its objective of bringing up an individual who would use his acquired skills to contribute to making the society a better place.

The concept of quality ties with the UNESCO vision for global education whereby the learner is expected to learn all the three important domains (Barrett et al., 2006):

To Know (savoir), To Do (savoir faire) and To Be (savoir être) explained as follows:

• **Learning to know (Cognitive)** – is acquiring a sufficiently broad knowledge and understanding so as to comprehend the environment where you find yourself, develop communication skills, and be able to leave a life with dignity.

• **Learning to do (Psychomotor)** – is developing the competences to deal with different situations. This entails a shift from certified skills to practical technical or vocational skills. Young people need this form of learning to fit into today's technological world.

• **Learning to be (Affective)** – Quality education must take into account all aspects of a person's potential, reasoning, aesthetic sense, physical capacities and communication skills. This will enable one appreciate others and contribute to society, by using one's developed hidden talents, termed "the treasure within" (Delors et al., 1996).

At the primary school level in Cameroon, quality is determined by a pass in final or official examinations. Such examinations are organised at the level of the Ministry of Basic Education or a group of institutions. The examinations are usually of the same strength as the First School Leaving Certificate (FSLC)/Certificat d'Etude Primaire (CEP) Examinations or the Common Entrance examinations (CE)/Concours d'entree au sixieme (CE). Passing in these exams is an indicator of the attainment of basic skills including mathematics and English or French language that permit the pupil to operate in daily life. It is also an indicator of the efficiency (quality) of the primary school system (Fonkeng, 2007)

One approach to addressing these problems involves integrating school infrastructural resources such as the Information and Communication Technology **(ICT)**, based on teaching/ learning techniques in schools (UNESCO, 2005). ICT here refers mainly to computers and

the internet. An ICT-based education refers to educational approaches that attempt to utilize the computers and the internet in delivering educational content (Angrist and Lavy, 2000). Murillo and Romain (2010) carried out a research on the incidence of school resources on the performance of Latin American students and found that basic infrastructure (electricity, didactic materials, library and computers) had a high effect on primary students' performance. This was because students, teachers and families in different locations were able to access the same high quality educational resources. In some developed countries, the approach adopted is 'One Laptop per Child (OLPC)' model (Globe, 2007; Hall, 2007).

The proper use of computers and modern networking technology has the potential to effectively address the problems of quality in education. This does not appear to be the case in developing countries, including Cameroon, where schools are yet to reach the computer age. Gulek and Demirtas, (2005) acknowledge that ICT-based education can have a positive impact on education quality by changing classroom/teacher and student-level processes to improve quality. But effective teaching in ICT-based education requires adequate training. The possibility of having such training in the developing world including Cameroon is remote.

2.5 Quality of Education and dropout rates

One way of explaining the quality of education is by defining and measuring dropout rates in schools. Kaufman et al. (2001) define the status of dropouts as allotted to persons who have not completed school and who are no longer enrolled in school or program that can lead to school completion at a particular point in time. There are many causes to school dropout among which Kaufman, Kwon, Klein and Chapman (2001) say the leading cause is lack of money with the low-income families having a significantly higher rate than those of middle and high-income families. The National Education Longitudinal Study of 1988 reported other reasons why students dropped out: school-related reasons (64%), family-related reasons (20%), and work-related reasons (16%) (Bertold et al., 1998). However, Hargroves (1987) pointed out that the most specific reasons were "did not like school" (36%), "failing in school" (39%), "could not get along with teachers" (19%), and "got a job" (6%).

Countries particularly of Africa today have the challenge of improving the quality of education by increasing the completion rates of pupils and by making the school environment friendly and conducive to learning. The primary completion rate is a measure of the quality of the educational system. It helps to estimate the success of the education system as it reduces

repeat and dropouts rates thus improving retention that keeps pupil in schools to complete their primary education (UNESCO, 2005). Dropout is a process rather than the result of one single event, and therefore has more than one cause (Hunt, 2008). Leach et al. (2003) indicated that poverty appears to be one of the reasons for children's abandonment of school.

UNESCO (2005) observed that poor parents apart from being unable to pay fees and other costs of education also put pressure on their older children to drop out of school so as to work to earn income for the household. Third, difficult access to school, poor infrastructure, inadequate facilities, overcrowded classrooms, inappropriate language of instruction, teachers' absence and school safety in the case of girls and early pregnancies are common causes for school dropout (Colclough, et al., 2000, Leach et al., 2003 and Kelly, 2008). Some researchers found that behaviours such as premature sexual activity, early pregnancy, delinquency, crime, violence, alcohol and drug abuse, and suicide have been found to be significantly higher among dropouts (Bachman et al., 1971; Carbonaro, 1998; Ekstrom et al., 1986; Goldschmidt & Wang, 1999; Rumberger, 1995; Rumberger & Larson, 1998; Swanson & Schneider, 1999; Wehlage & Rutter, 1986) in Kaufman et al. (2001). These problems which breed large social costs are influenced by a lack of support and resources from families, schools, and communities especially in the rural areas (Egbe, 2009). Reducing the sizes of overcrowded schools by recruiting more teachers (EFA-FTI, 2007) and cutting down on teacher/pupil ratio has been found to be effective in countering the high dropout rates associated with many large schools.

2.6 Class size, Teacher/Pupil ratio and Pupils Achievement

The teacher spends most of his/her time in the classroom instructing or teaching situations that are sometimes affected by classroom context such as class size and teacher/pupil ratio. For several years, class size reduction programmes have been identified by researchers as a school mechanism that can increase pupils' achievement (Anderson, 2000; Konstantopolous and Sun, 2013). Class size and teacher/student ratio are both functions of school variables in developed countries. According to Blatchford (2003) class size refers to the number of students in a particular classroom while the Teacher/student ratio refers to the number of pupils in a classroom taught by one teacher at a given level. Teacher/student ratio (TPR) can be reversed to student/teacher ratio (PTR) (example; 1:40 is the same as 40:1) but the National Policy on Education (FRN) (2004) recommended TPR as a better appellation.

Isiugo-Abanihe and Labo-Popoola (2004) in their study on determinants of achievement in English language also revealed that class size makes a difference in achievement in English language. Class size studies also in developing countries have shown that reduced teacher/student ratios improve achievement. Class size has been repeatedly shown to have an important influence on student achievement. In the last 20 years, researchers such as Wisconsin (1996/97), Wenglinsky (1997), Blatchford (2003) and Blatchford et al. (2007) have used various techniques to study how class size affects the quality of education. They found a significant relationship between class size and student achievement. In some analyses, the researchers have used data about teacher/student ratios as a means to examine the class size effects because the original research lacked a direct measure of class size. Several major analyses have concluded that reducing class size is related to increased student learning and increased achievement (Wisconsin, 1996/97; Wenglinsky, 1997; Nye et al., 2000 and Ehrenberg et al., 2001).

There is also some evidence that lower teacher-student ratios (TPR) improve teacher job satisfaction and performance. "Having fewer children in class reduces the distractions in the room and gives the teacher more time to devote to each child (Mosteller, 1995)." Isiugo-Abanihe and Labo-Popoola (2004) and Inyang (2000) reported that school factors that relate to students achievement include school location, school type, school population, class-size and teacher-student ratio. According to them, these variables do not explain achievement in rural and urban schools, but do explain class size and teacher/student ratio as having an effect on learning achievement. Inyang (2000) established that although literature indicates that school location and type influence achievement, a teacher in a class with a high teacher-student ratio irrespective of location is not likely to make significant impact on student learning especially in language as would in schools with smaller classes.

In 1978, Smith and Glass published a meta-analysis combining the results of 77 empirical studies pertaining to the relationship between class size and achievement. Overall, they found that small classes were associated with higher achievement at all grade levels. Unfortunately, they found that the benefits of reducing class size occurred where the numbers of students in the class were fewer than 20, a number difficult to come by in the Cameroon primary school. Slavin (1989) employed a best evidence synthesis strategy to analyze empirical studies that met 3 specified criteria: a study was included only if class size had been reduced for at least a year; classes of less than 20 students were compared to substantially larger classes, he found that reduced class size had a small positive effect on students.

Contrary to the aforementioned results, other research analyses have concluded that class size reduction does not have an appreciable effect. For example, Tomlinson (1986) examined trend data from the 1950s to 1986 in the United States and did not find any consistent relationship between class size and standardized test scores. He concluded that the existing research did not justify a policy to reduce class size. Also, Odden reviewed the existing research and argued that a system-wide class reduction policy would produce only modest gains in student achievement and incur an unjustifiably high cost. Meanwhile, an analysis of the relationship between class size and student achievement for Florida students using 1993-94 school level data found no relationship between smaller classes and student achievement; however, the study's authors expressed caution about drawing conclusions from the analysis, based on the limitations of the available data.

That notwithstanding, more positive conclusions have been drawn from an analysis of a substantial database about the Texas education system. Using data from more than 800 districts containing more than 2.4 million students, Ferguson found significant relationships among teacher quality, class size, and student achievement. Again, using teacher/student ratio as a measure of class size, Ferguson found that student achievement fell as the teacher/student ratio increased for every student above a 1:18 ratio. Measures of teacher quality (that is, teacher literacy skills and professional experience) were even more strongly related to higher student scores. However, in 1997, Wenglinsky published research findings concerning the relationship between class size and student achievement based on the National Centre for Education Statistics data on fourth-graders in 203 districts and eighth-graders in 182 school districts across the United States. He found that class size served as an important link between school education spending and student mathematics achievement at both the fourth- and the eighth-grade levels where lower teacher/student ratios were positively related to higher mathematics achievement.

2.6.1 Teacher Pupil Ratio and student achievement

MINEDUC/PEII/CEP (2003) carried out a study to find out schools where graduate teachers could be posted to, and found a weak correlation between school enrolments and the numbers of teachers in each school because a majority of teachers were found (high TPR) mainly in the township schools, perhaps the reason why township schools with more teachers performed better. However, variations in teacher-pupil ratios between schools are typically very large in most African countries including Cameroon. For example, in the mid-1990s,

TPR ranged from 1 teacher to 70 to 1 teacher to 120 pupils. Recently, however progress is being made to balance teacher/pupil ratio to 1 teacher to 30-40 pupils in her schools.

'STAR', a Tennessee 4-year longitudinal study of kindergarten Project which began in 1985, compared 79 schools with more than 300 classrooms and 7,000 students. STAR (Student Teacher Achievement Ratio) compared classes of 13-17 students with classes of 22-26 students to 1 teacher to produce reliable evidence on class size effects and low teacher/student ratio on student attending school in small classes: The overall evidence from student testing showed that the students in the smaller classes outperformed the students in the larger classes. The Project STAR found that:

- Smaller class with lower TPR substantially outperformed larger class with higher TPR on standardized test (Stanford Achievement Tests) for smaller class students from inner city, urban, suburban, and rural schools.
- There were no significant differences in academic achievement for students in the larger classes.

The same results were found in the student achievement in Education (SAGE) project.

But taken altogether, the Tennessee studies concluded that smaller classes had an advantage over larger classes with high TPR in school performance in primary grades. Tchombe (2011) also found that smaller classes with low teacher/student ratio enjoy greater student satisfaction, high student morale and better student performance while larger classes are characterised by lack of interest, unfriendliness and frustration with insufficient achievement.

Despite this findings, she reiterated that the benefits of small class size gives teachers the ability to gain students' attention, interact with students, control class activities, pay attention to weaker students and provide individualised instructions necessary for positive academic achievement. Furthermore, Konstantopoulous and Sun (2013) after their research work on the teacher's effect in different class sizes on performance found that teacher effect is more felt in small classes with low teacher/pupil ratio than large classes. In addition, Ndukwu (2002) in her study on resource provision and utilisation in the primary schools found that when the teacher-pupil ratio is high, effective resources utilisation is hindered, and the amount of intellectual development imparted on the children is minimised.

2.7 Teacher Qualification and teaching effectiveness

In spite of the importance attached to the concept, teacher quality has been misunderstood and therefore hard to define (Darling-Hammond, 1999 and 2000; Goldhaber and Brewer,

2000). Attributes such as degree level and certification type, teaching experience and effectiveness measured by students' scores in tests or examinations are often used as proxies for teacher quality. According to Slavin (2003) from the aforementioned definitions, recruiting qualified teachers is recruiting teachers with high content (subject) experience, knowledge and pedagogic skills for effective classroom management resulting in positive interactive style with learners

Wim and Van de Grift (2013) observed that teacher education is the key to any educational development and an educated or qualified teacher brings about effective teaching. Without adequately trained teachers no country can expand her children's intellectual capabilities. This assertion was highlighted by Olatoye (2006) who pointed out that the quality of teachers is an important input in effective teaching and learning, since quality output demands quality input. Tchombe (2011) in her study also found that only a trained teacher can effectively manufacture or use available resources in the classroom. She buttressed this point by emphasizing that when teachers are well trained, their use of teaching aids/materials is better and teaching effectiveness is enhanced.

The findings of (Ndukwu, 2002; Olatoye, 2006; Tchombe, 2011 and Adeola, 2011) reveal that the quality of a teacher significantly influences his effectiveness and pupils intellectual development. This is because trained and qualified teachers comfortably use different teaching methods, manage low achievers tactfully and establish and maintain positive classroom climate. Besides, Michaelowa (2001) in her study on teacher effectiveness and learning achievement established that the most important factor affecting the quality of education is the quality (qualification) of the classroom teacher. Rice (2003) and Rivkin, Hanushek and Kain (2005) and Nsamenang and Tchombe (2011) also found that teachers' quality is among the most influential determinants of teacher effectiveness and student achievement.

Teaching effectiveness and teacher qualification in several researches carried out has been found to be significantly related (Adeola, 2011 and Rice, 2003).These researchers also found that the possession of a higher certificate in mathematics, language or other subjects makes the teacher more effective in teaching the subject. Hence, qualified teachers are effective in teaching the subjects they are trained in. Therefore, teachers' knowledge is vital to their capacity in providing effective instruction that boost students' learning. This cannot be the contrary to teacher knowledge gained from higher certificates in language as Isiugo-Abanihe and Labo-popoola (2002) explained nor can it be from higher certificates in mathematics. However, many primary school teachers do not realise that their pupils learn

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when they react positively to them than when they sit in front of the class as 'Lords' to be feared by their pupils. Commonly used criteria for recruitment most often is certification status; degree and professional certification as experience does not strongly correlate with learners' achievement (Goldhaber and Brewer, 2000).

2.8 School Location on teaching Effectiveness

Warwick (1992) identified the effects of school location on effective teaching/learning and achievement. According to him, schools in cities typically have better resources, and highly qualified teachers. This is because highly qualified teachers prefer to live in cities where intellectual teaching materials are available to learners (MINEDUC/EPII/PEU, 2004). She found that the advantages enjoyed by schools in urban areas typically influence their higher achievement than learners in rural areas. More so, teachers choose to work in urban schools as it enables them make more money (from other side jobs) for their families. Mulken (2005) found that teachers in rural areas may teach less than their colleagues in urban areas because they spend much time travelling rather than staying at their places of work (schools). They travel out to visit their doctors, go to the banks in towns to collect their salaries, shop in towns and even visit friends and family that work and leave in towns. They also find difficulties assessing current books and school materials as most often they have no libraries let alone ICT materials for research. Furthermore, parents in such areas who are generally less educated and poor provide little assistance to the rural schools and would not monitor teachers' teaching in such schools.

The school location in this study is measured with respect to urban or rural locations. Odinko (2002) revealed that the location of a school has a significant effect on the academic performance of the child. According to her, urban schools are likely to have pupils who are exposed to better and modern infrastructural facilities unlike their counterparts in the rural schools. Avwata, Oniyana and Omoraka (2001) and Han (2008) also found that, pupils' physical needs may only be found in urban areas where parents of high socio-economic status would provide. This is in contrast to rural/poor area where parents are incapacitated or believe their children's learning does not concern them (International Association for Evaluation of Educational Achievement (IAEEA, 1992) and Alexander and Fuller (2004). Odinko (2002) in her research on home and school factors determining literacy skills found that school location also influences school income, so urban schools that earn more income are more likely to provide textbooks, equipment and other instructional materials that would

enhance effective teaching whereas schools in rural areas are rarely provided with such materials.

It is pertinent to note that the location of a school will play an influencing role in the teaching and learning situation. A few studies have shown that there is a large mathematics achievement gap between rural and urban schools with some rural schools lacking qualified teachers but exhibiting good academic performance (Amin, 2004; Brown, 2003).

That notwithstanding, in a research conducted on the differences in performances between urban and rural primary school pupils in Cameroon, Amin (2004), found that teachers in the cities were typically more proficient than teachers in rural schools, but when compensatory teaching was introduced he found no significant differences between teachers and pupils in urban and rural locations. Furthermore, Isiugo-Abanihe and Labo-popoola (2002) findings on the study on environmental factors in learning English as a second language revealed that students in urban areas performed significantly better than those in rural areas and also this is in support of school location playing a significant role in academic performance of students. Keeves, 1975; Tupen, 1881; and Ntumi, 1983 in Odinko (2002) reported that school location is a possible correlate of teacher effectiveness in the teaching of mathematics and teachers and pupils in urban areas are likely to perform better than teachers and pupils in the rural schools.

2.9 Teacher Effectiveness and student Achievement

Meador (2013) declared that the most important quality that every teacher should possess is love and passion for teaching young people. Unfortunately, there are teachers who do not love teaching as they trained to be teachers as a last resort when all else failed. This factor, "love" can easily destroy a teacher's effectiveness, his output and thus his students' achievement. Ezeasor (2003) defines teacher effectiveness as "Teacher behaviour linked with student achievement". Olatoye (2006) regards teaching effectiveness as the moment when pupils' performances improve as the learners' exhibit a change of behaviour because of new experiences gained over time in the teaching/learning environment. Adeola's (2011) study on teacher effectiveness had close relationships with teacher quality that predicted students' achievement in Mathematics. Teachers should realise that the quality of the classroom interaction has a lot to do with their effectiveness, hence, a friendly relationship between the teacher and the student controlled by love is regarded as the most important factor in the

teaching/learning process. Teddler (2010) pointed out that students learn better when their teacher is effective, that is when he permits them to be carefully involved in the teaching/ learning process rather than when they are passive receivers of information. Moreover, McBer (2000) portrayed that when the relationship between the teacher and pupil is friendly, the teaching/learning process or classroom interaction becomes smooth. Also, Abe (1998) revealed that when students are involved in the teaching-learning process, they understand better and work better by so doing, they achieve better and thus perform better. As was confirmed by Ezeasor (2003), Olatoye (2006), Adeola (2011), Okgbo and Okeke (2011), teachers with high level of effectiveness will invariably produce students with high level achievement.

McBer (2000) explained teacher effectiveness by examining its influence on student achievement. The findings indicated among others, that student achievement is linked to teacher competence, which is seen through his lesson presentation, discipline and patterns of instruction. Although other factors contribute to students' academic achievement, research has shown that, among school-related factors, teachers play the most significant role. Again, when it comes to student performance on reading and mathematics tests, a teacher is estimated to have two to three times the impact of any other school factor, including services, facilities, and leadership.

Despite common perception, effective teachers cannot reliably be identified based on their qualification or experience. The best way to assess teachers' effectiveness is to look at their on-the-job performance, including what they do in the classroom and how much progress their students make on achievement tests. This has led to more policies drawn on evaluating teachers' on-the-job performance and students' achievement rather than their experience or credentials. Yoloye (1980) tried to close the gap of teacher effectiveness by using pupils' outcome as a measure of his effectiveness. He observed that classroom climate offers not only quantitative observable teacher behaviour but provides a qualitative interaction between the teacher and his pupils. These put together give a more complete picture of teacher effectiveness and students' achievement.

2.10 Job Satisfaction, teaching effectiveness and students' Achievement

The role of teachers in transferring knowledge to students is very vital. If teachers are satisfied with their job, there is a likelihood of a better transfer of knowledge and at the same time ensuring good performance of their students. Brief and Weiss (2001) define job satisfaction as a pleasurable emotional state resulting from the appraisal of one's job. Later,

in 2002, Weiss redefines it as an affective reaction to one's job. Ifinedo (2003) terms job satisfaction as the ability of the teaching job to meet teachers' needs and the degree of fulfilment of the teacher's work that improves his/her performance. Moreover, literature on teacher-job satisfaction has consistently shown a significant relationship between teacher-job satisfaction and student achievement.

Heller, Rex and Cline, 1992; Ifinedo, 2004 and Teddle, 2010, investigated and found a positive relationship among school facility characteristics, teacher's job satisfaction and students' achievement. For example, Katharine (2008) in her study on teacher job satisfaction and pupils learning in Francophone primary schools in sub-Saharan Africa found that teacher job satisfaction has a significant influence on pupils learning of French Language. Also, Sitha and Yoshinori (2003) in their study on achievement of Cambodian children in Mathematics found that teachers' job satisfaction has a strong relationship with primary school pupils' achievement in Mathematics. The results revealed that the most significant correlation was between teacher job satisfaction and student behaviour (Nwachuku, 2007). Moosung (2006) opined that job satisfaction is supposed to contribute to the quality of the teacher's work life, making his/her professional experience a personal fulfilment and growth.

Job satisfaction is considered to have an effect on the quality of teaching, its effectiveness and students learning achievement (Somech and Drach-zahavy, 2000; Simbo, 2003; Ifinedo, 2004; Moosung, 2006; Olatoye, 2006; Isaiah, 2013). Again, Teddle (2010) and Ladd (2009) in Clifford, Behrstock-Sherratt and Jenni (2012) found a relationship linking teacher working conditions, job satisfaction and teacher effectiveness with student achievement. Teachers may differ in their effectiveness to promote their students' academic achievement and this variation could depend on different teachers' characteristics such as qualification, certification or experience. Clotfelter, Ladd and Vigdor (2007a) reported that most of these characteristics have been examined using large sets of data in which teachers are linked to test scores. These researchers found some of these relationships weak and inconsistent across studies. Furthermore, Richardson (2008) found that there are many cases of teachers with advanced degrees, professional certificates and experience, who are not more effective than teachers who are neither with credentials nor certificates. Tchombe (2004) confirmed this fact from the results she obtained from her study on the effectiveness of teachers from the Teacher Grade one colleges in Cameroon.

2.11 Evaluation of teacher effectiveness

Evaluation of teachers' effectiveness is an assessment of the teacher at his job. This assessment can be carried out by the researcher, the learner, other teachers, the head teacher or a higher authority for example, an inspector from the Ministry of Basic education. The information expected of the evaluator which is both qualitative and quantitative in nature is made up of the teacher's knowledge of the subject he teaches, how he manages the classroom, his/her interaction with the pupils, his method of teaching and his attitude in the classroom. Here, self evaluation could not be the best method as it is assumed that the teacher may not be truthful in his responses. Sources of evidence of teacher effectiveness in the classroom could come from the reports of students taught by the teacher concerned, the head teacher who is supposed to know the teacher's productivity very well, the researcher's observation schedule and the students' achievement scores. Berk (2005) emphasized that using information from several sources including qualitative research source (triangulation), the researcher, students and head teacher, tape recorder or video, was more accurate and thus more reliable than from one source. In his study, to measure effective teaching, Berk used twelve strategies; self evaluation, video, students' interview, administrative ratings, teaching awards and students' outcome among others while in this study, the researcher used students' questionnaire, observation and students' test scores.

2.12 Teacher' Experience and students' academic achievement

Although experience was not considered during the recruitment of the EFA-FTI teachers, several studies conducted by Rivkin, Hanushek, and Kain, (2005) and other reseachers, revealed that experienced teachers are more effective as they are better in classroom management, mastery in the use of instructional materials, management of individual pupils' difficulties resulting in improved students' achievement. Viadero (2009) found that pupils taught by experienced teachers perform better than those taught by fresh-men from training schools. Clotfelter et al. (2007) also found that teacher experience has a significant positive effect on students' achievement in the first couple of years of teaching but thins down as the years increase especially between 21-27 years. At this time, their work gets too easy for them to pay more attention or put in effort and time. During this time also, the teacher expects the students to put in his personal effort (Clotfelter et al., 2007).

Benson (2007) says even though teaching experience influences pupils' performance, the differences contributed by teachers' experiences is minimal as pupils also have a role in their achievement. It is difficult therefore to determine how much effort comes from the teacher's experience. Rice (2003) argues that a teacher's experience must be combined with his/her qualification for him to be effective and show his influence on pupils' performances. Viadero (2009) on the other hand, disclosed that early career experience pays off steadily through to the 5th year in elementary schools and the impact of experience appears to be stronger than other teacher's characteristics. He reiterated that the two factors that are found to consistently lead to pupils' higher academic achievement are class size and teacher experience. Again, STAR Tennessee experiment revealed that teacher experience continues to yield more student gains up to 20 years especially in reading. Other studies confirm the fact that teacher experience continue to improve pupils' achievement until the 21st year when the effect declines.

2.13 School infrastructure and Pupils' academic achievement

School infrastructure consists of buildings used for classrooms, libraries, staffrooms, toilets, playgrounds etc. These rooms must be spacious and airy enough with enough windows and doors having toilets for both sexes (MINEDUC, 2003). The current study considers only classrooms, classroom furniture and materials for school infrastructure. In Cameroon as in other African countries, the availability or non-availability of infrastructure and their inadequacy in schools have an effect on the academic performance of primary school pupils. According to MINEDUB (2009/2010), availability of infrastructure helps to increase students' school attendance, enhances staff motivation and improves pupils' attitude to school and academic achievement of students. Obonyo (2011) found that the goal of infrastructure in schools is to increase attendance and improve on performance of pupils. Educationists believe that teaching materials facilitate teaching and learning activities, which result in effective teaching and improve academic performance.

Data collected by the OECD Programme for International Student Assessment (PISA) to answer the question whether school's physical infrastructure influence student performance does not provide a clear answer. PISA demonstrated that, on average across OECD countries, the PISA index on pupils performance due to school's physical infrastructure explains 1% difference in mathematics performance and most often, the index is small and not statistically significant. Moreover, Duran-Narucki's (2008) study of school

buildings, attendance, and academic achievement in New York City, found that school buildings were predictor of students' attendance and students' achievement on standardized tests. Also, Cash (1993), in a study of small rural high schools in Virginia found a connection between building condition and students' achievement as measured by standardized tests. O'Sullivan (2006) found similar results in his study of student achievement in Pennsylvania high schools. Using the same data, Crook (2006) examined the relationship between the condition of the physical environment and number of students who passed the Virginia Standards of Learning (SOL) examinations, and found building condition to be a predictor of student success. Obonyo (2011) illustrated in his study that the provision of adequate and appropriate school infrastructure and equipment are critical to the educational process and could determine to a large extent the academic standard of a school. From the results of the studies examined, one could therefore conclude that performance in schools is influenced by several factors, including the state of infrastructure.

2.14 The Language Question in Cameroon

The two official languages of Cameroon are English and French. At Reunification in 1961, English and French became the two official languages of Cameroon as the country opted for the policy of official language bilingualism (Echu, 2004). The official language bilingualism constitutes the main core of Cameroon's language policy. Article 1, paragraph 3 of the Constitution of 18 January 1996 is abundantly clear in this regard, as it reads: 'The official languages of the Republic of Cameroon shall be English and French, both languages having the same status. The State shall guarantee the promotion of bilingualism throughout the country'. Today, Cameroon operates under two official languages; French and English with equal importance, the heritage of Franco-British rule that was ratified between the end of the First World War and Independence (Chumbow, 1996). Cameroon adopted French as the official language in French-speaking Cameroon while English assumed the same status in the English-speaking sector.

To uphold the official language bilingualism, bilingual education has been implemented in Cameroon using the two official languages in education. Furthermore, to promote bilingualism, pilot centres were created at some regional headquarters for the teaching of the two languages. Bilingual primary and secondary schools are also created throughout the national territory (Chumbow, 1996). There is a bilingual university located in Yaounde called the University of Yaounde 1 (Centre Region) and an Anglo-Saxon styled

University in Buea (the South-West region). Also there is one higher teacher Training centre in Yaounde (French-speaking one) while the English-speaking one is in Bamenda (North-West region).

That notwithstanding, since most literate Cameroonians are bilingual, the students attend the institution of their choice irrespective of the medium of instruction. In all the state universities, both English and French are used as languages of instruction (Echu, 2004). Every lecturer uses the language he/she is comfortable with, while the students take down notes, do assignments and examinations in the language of their choice. All primary schools in Cameroon also have English and French as subjects on the timetable (Yembe, 1991). Echu (2004) and Fonlon (1963) advocated early bilingualism for the Cameroonian school child and today, children at the level of the primary school are learning in either French or English. In all the primary schools in the country, those found in the English-speaking sector (North-West and South-West regions) use English as the sole language of communication while those in the other eight regions, the French-speaking regions, use the French language in their schools; the reason why the researcher visited both French speaking and English speaking schools to present her instruments and tests in both languages.

2.15 Language Proficiency and Mathematics Achievement

Pupils of this study are heterogeneous in their language (English or French) cultural background and educational orientations because of their different colonial masters' course, resulting in the two distinct educational sub-systems. Despite these differences, students in the Cameroon primary schools share the same reality; they all are still in the process of learning the English or French language, a second language, which exposes them to many challenges in academic achievement due to their limited language proficiency. Language consists of four domains, namely listening, speaking, reading and writing. Chalhoub-Deville & Deville (2006) argued that reading and writing, as is the case in Cameroon (MINEDUC, 2003), are more important than listening and speaking. These domains are the skills needed by students to understand and respond to worded questions with reading having a greater effect on Mathematics achievement (Abedi & Lord, 2001; Freeman & Crawford, 2008).

Again, research has proven that proficiency in language made a difference in student performance while other common practices such as teaching method, effectiveness and extra time did not (Abedi & Hejri, 2004; Francis et al., 2006; Menken, 2000; Babatunde, 2012). Other researchers have provided different types of evidence that language proficiency affects

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Mathematics achievement. This has been documented and confirmed for all grades (U.S. Department of Education, DOE, 2008; Abedi and Hejri, 2004; Brown, 2005; Chang, Singh & Filer, 2009; Fry, 2007; and Butler & Castellon-Wellington, 2005). The impact of language proficiency on achievement in Mathematics has also been found amongst students irrespective of their economic status with correlation ranging from .40 to .86 (Abedi & Lord, 2001; Kelinger and Lee, 2000). Some studies found that when the predictive power of language reduces by controlling language proficiency its influence on Mathematics scores will also decrease (Freeman and Crawford, 2008).

Language proficiency is important in learning achievement but research has proven that Mathematics is itself a language that is more difficult to understand than everyday language (Gutierrez, 2002). In addition, Freeman and Crawford, 2008; Fennema, Peterson, Carpenter and Lubinski, 1990; Tschannen-Moran, Woolfolk, Hoy and Hoy, 1998 in Fang (2010) found no studies where teachers' confirmed that language proficiency could result in high Mathematics achievement. Because language proficiency is important in learning achievement, Fang (2010) opined that students need the appropriate language skills (language proficiency) to be able to read tests (even Mathematics tests) and respond to worded Mathematics questions set. Language proficiency is not the main construct under this study but because of its importance in the Cameroon two sub-systems of education (French and English), the study amongst other nine variables established the impact of language proficiency on Mathematics achievement. Chen (2010: 25) provided all types of evidence that language proficiency affects mathematics achievement as documented in the U.S. Department of Education, DOE (2001); Abedi and Lord (2000); Brown (2005); Chang, Singh & Filer (2009); Fry, 2007); Freeman and Crawford (2008); Abedi and Lord (2001) and Butler and Castellon-Wellington (2005).

However, other scholars argued that having a low-level of language proficiency is considered a "deficit" (Gutierrez, 2002) as this is not related to understanding Mathematics courses. He went on to say that in cases where there is a relationship, student's language proficiency has a negligible effect on learning Mathematics. Conversely, literature has provided consistent evidence that students who are proficient in language scored higher than those who are not proficient in Mathematics assessments because they are able to read, understand and apply complex Mathematics concepts (Abedi and Lord, 2001; Stevens et al., 2000; Wright and Li, 2008). However, some studies have established that language learnt in schools does not give students the opportunity to learn the content knowledge needed for

proper understanding of the Mathematics language (Herman & Abedi, 2004; Wright & Li, 2008; Matinez et al., 2009) in Fang (2010).

2.16 Route in Qualitative research

According to Obono (2008:72) qualitative research methods are a means of collecting, analyzing and interpreting social reality in which the researcher is involved. It answers the "why", "how", and "what" questions. Using both qualitative and quantitative methods in the same study helps the researcher understand better the complexities in the relationship of the variables of the study. There are several data collecting methods in quality research. This includes Focus Group Discussion (FGD), In-Depth Interview (IDI), Key Informant Interview (KII), Observation and Case studies/Life Histories (Ulin et al., 2002). Most often, the questions are open-ended that gradually move to more precise questions. Jegede (2008: 114) discovered from his work on how to analyze qualitative data that until now, researchers have not agreed on a specific pattern of analysis of qualitative study. Hence, qualitative data is analyzed by researchers using methods or approaches known to them. However, to analyze qualitative data most often, the researcher systematically examines the data to understand the pattern and the relationships, then codes and reduces data according to themes and then interprets considering the relationship between the dependent and independent variables. Interpretation of data in qualitative research tries to explain the meaning of the data making sure that the meaning is "trustworthy". It also communicates the essential ideas of the study to a wider audience (Ulin et al., 2002).

2.16.1 Conducting qualitative research

Jegede (2008) opined that for any research to be meaningful there must be a written report. The reports of qualitative data particularly deal with logical explanation that is trustworthy. Because participants' own words are shared with the public, ethical implications must be respected to guarantee no harm to participants by maintaining accuracy in what they said, non-malfeasance, presenting their viewpoints in their own words to convey indepth and detailed background information from the interviewee to the public (Denzin and Lincoln, 2000). Olayinka et al. (2008) refers to qualitative analysis as a process of analyzing and describing a mass of words collected during a field investigation. Furthermore, they stated that there were no specific techniques in analyzing qualitative research data because there are as many ways as the researchers.

2.17 Models of Evaluation

An evaluation model is a path way or paradigm in pictorial form that defines the parameters of an evaluation and helps the researcher explain the interrelationship of the major elements along the evaluation process. There are several evaluation models, among which are:

The **ATO model**, is a judgemental process (the worth) between objectives and outcome (performance) advocated by Robert Stake in 1967 to influence decision making. It consists of **antecedents**, the existing political, human and material resources and socio-economic conditions in the school, organization etc., before the start of the evaluation programme. The **transactions** involve the input and interaction that take place during the implementation phase. The **outcome** is the measurable effects on the transaction phase which strictly focuses on decision making. Antecedent is divided into context and input.

The **IPO model** consist of **Input** of human and material resources, **Process**, the implementation procedure and process used in the evaluation procedure and **Outcome**, the effect or impact of the implementation of the programme as compared to the goals of the programme, was designed by Obanya in 1987 as a comprehensive model for evaluating the quality of education. Because the context stage is left out in this model, it is not robust enough to ensure high quality and credible results.

The **Goal-Achievement Model** proposed by Tyler in 1965, regards education evaluation as the extent to which the goals and objectives are achieved. It considers three stages, the planning stage, the implementation stage and the evaluation stage. This model does not consider the process of implementation during which this goals and objectives are attained. They equally do not consider the unintended outcomes of the evaluation exercise.

The **Alkins Model** was advocated by Alkins in 1970. It provides facts and empirical evidence upon which decisions are made. The model goes through the process of selecting information from which data is collected and analysed and a summary report written to be followed for decision making. The model does not verify reliability of the input resources used to arrive at the results of the empirical evidence used in making decisions. For this reason, the researcher feels it is not reliable enough as it does not employ a robust methodology that ensures high quality and credible results to answer the questions of the objectives of the study.

The **CIPP Model**, a modification of the Stake's ATO model was advocated by Stufflebean in 1971 to improve accountability in schools through the evaluation of the

Context, Input, Process, Product components involved**.** The researcher prefers this model to others because it employs a robust methodology that ensures high quality and credible results that answers the questions of the objectives to be achieved. Furthermore, it exploits rigorous and scientific methods such as interviewing, questioning and observing to collect data. It provides a systematic A to Z procedure to follow, stressing the need of evaluating not only the input, process and outcome as in other models but also the context component.

2.18 Appraisal of Literature

The various explanations on why class size reduction increases student achievement are compatible with each other, and they do not exclude other possible influences from, for example, instructional materials. It may be that class size reduction improves student achievement because the student is more exposed to individualized attention and a better teacher/pupil relationship. Some of the literature reviewed showed that there is a significant relationship between class size, pupil/teacher ratio and other independent variables with achievement in mathematics (Nye et al., 2000; Adedoyin, 2013; Adeola, 2011). Moreover, other literature provided in the study showed no relationship between the aforementioned variables, for example, the analysis carried out by Anderson (2000) between class size and student achievement found no relationship among smaller classes, pupil/teacher ratio and student achievement.

Furthermore, the literature of the study also reveals conflicting relationship between class sizes, teacher/pupil ratio and other teacher and student characteristics like teacher qualification, effectiveness, job-satisfaction and students' achievement in the case of the Cameroon primary school. Besides, the literature did not show any direct relationship between teachers' qualification with teacher job satisfaction but shows the relationship between job satisfaction and teacher effectiveness that leads to pupils' achievement in mathematics. It was also found from literature that teacher's qualification has a direct effect on teacher's knowledge of the subject content which makes him/her more effective in the classroom thus improving pupils' achievement.

In addition, literature reviewed reveals that teacher experience influences his output or effectiveness in the classroom in the early years of the profession but wears down as the number of years increase up to about 20 years. At this stage, the teacher's experience has little influence on pupil's achievement as the child is expected to work hard for his success, featured in the literature. Also, literature revealed that infrastructure enables pupils' regular

attendance in school and the state of infrastructure in schools is directly proportional to student achievement. Research has equally provided evidence that the level of language proficiency differently affects Mathematics achievement. Some studies found that language proficiency has tremendous effect on Mathematics achievement but others found that predictive power of language reduces when language proficiency is controlled.

Language proficiency is linked with understanding of content particularly in worded mathematics questions and thus achievement in mathematics tests but generally teachers fail to consider this in the process of testing. Language proficiency is important in learning achievement but research has proven that mathematics is itself a language that is more difficult than everyday language to understand. The literature reviewed made use of all the variables of the study linking them directly or indirectly to students' achievement in mathematics.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter describes the research design for the study, population, sampling procedure and sample, instrumentation and instruments, data collection and treatment procedure and method of data analysis.

3.2 The Research design

The research is a non-experimental, ex-post facto type which adopted a causal comparative design. This survey does not involve manipulation of any variables, as their occurrences are deemed to have already occurred. It was concerned with not only the programme outcome but also the influences of different school quality indicators.

3.3 The Evaluation model

The researcher used the 1971 Stufflebeam's framework of Context, Input, Process and Product (CIPP) model to carry out the evaluation exercise as presented in table (3.1). CIPP provided the plan for the type of data collected, instrument used and research questions addressed. CIPP evaluation model encompasses the following sub-evaluation methodology:

Context evaluation The context provided in-depth background information that helped determine programme setting, target group and criteria for judging programme outcome. Variables in this study included class size and teacher/pupil ratio. Moreover, the location and types of schools and the perception of the director of human resources, the World Bank representative and National Pedagogic Inspectors from MINEDUB were also considered.

Input evaluation determined the use of human and material resources (qualitative and quantitative) to meet the goal established for the programme. In this study the input variables included teacher experience, job satisfaction, level of education (teacher quality/qualification) and funding by the EFA-FTI, the availability of school infrastructure and teaching materials.

Process evaluation The teaching/learning process was the most prominent activity here. It also included teacher effectiveness in teaching without leaving out time on task; it provided the implementation procedures and helped identify problems one could encounter

during the evaluation process. Inputs in themselves do not result in output until they are acted upon and efficiently utilized during the process stage.

Product evaluation measured and interpreted attainment (outcome) at appropriate stages within the programme. Through product evaluation, this study measured the outcome (or achievement) of the implementation of class-size and TPR reduction on primary school pupils, using mathematics test scores, the EFA-FTI goal of recruiting more teachers to achieve quality education for the Cameroon primary schools by the year 2015.

TABLE 3.1: Evaluation Framework based on the CIPP Model

Types of Evaluation	Variable indicators	Data Sources	Instrument For Data Collection	Research Questions to address
1. Context	Physical resources: i. Demographic data: sex, age, gender ii. Class size and PTR iii. School type iv. Recruitment and Deployment	MINEDUB records: Report from Regional Delegation of Basic Education Questionnaires School records Recruitment Decision	Head teacher questionnaire Checklist Teacher job satisfaction questionnaire	1, 2, 5, 6, 7
2. Input	A) Human Resources Factors Teacher recruitment i. teacher experience ii. Teacher qualification iii. Teacher job satisfaction B) Material resources: Infrastructure classrooms and materials	MINEDUB records: Department of Human Resources Teacher questionnaires Pupil questionnaires Head Teachers' reports	MINEDUB Documents Teacher Questionnaire Teacher attitude scale Checklist	3, 5, 6, 7
3. Process	Teaching and Learning process: i. Teacher effectiveness ii. Appropriate class size iii Proficiency in language	Effective teaching of mathematics and language instruction (French or English) World Bank records MINEDUB records	Observation attitude Scale Recruitment and Posting decisions School records Questionnaire	4, 5, 6, 7,

4. Product	i. Pupils achievement in mathematics ii. Increase teacher quantity and quality iii reduced class size iii low teacher/pupil ratio iv. Proficiency in Language (French or English) B) Perception of Effective-ness of the programme	Achievement scores in Mathematics Project and non-project schools enrolment World Bank representative, Director of Human Resources, Pedagogic Inspectors Proficiency scores in Language	Result sheets: Test scores Checklist Perception of EFA-FTI programme (IDI)	2, 3, 4, 5, 6, 7, 8, 8b

3.4. Variables of the Study

3.4.1 The independent variables are:

The independent variables of this study included:

1) class-size and teacher/pupil ratio

2) teacher academic qualification

3) teacher professional qualification

4) teacher experience

5) proficiency in language (French or English)

6) teacher effectiveness

7) school type

8) school location

9) teacher job satisfaction

10) infrastructure and materials

The idea of associating class size and PTR with other variables was to include those variables (intervening variables) that could also have an impact on pupils' achievement.

3.4.2 The Dependent variable

1) Achievement in Mathematics

3.5 Population and sample
3. 5. 1 The target population

The population comprised teachers, head teachers and pupils in all the primary schools in five regions of Cameroon, the Director of Human Resources, the World Bank

Representative and National Pedagogic Inspectors of the Ministry of Basic Education. The target population consisted of only primary six pupils in the government primary schools in these regions. This is because the recruited teachers (EFA-FTI teachers) were posted to government primary schools only.

3. 5. 2 Sample and Sampling Techniques

The researcher adopted a multi stage sampling procedure.

Stage one: The country, made up of 10 regions, was classified into two educational zones following the two education sub-systems (Anglophone (English-speaking) and Francophone (French-speaking)) of Cameroon. There are two English-speaking regions and eight French-speaking regions in all.

Stage two: Five regions were selected for the study; the researcher purposively selected the two Anglophone regions; the North-West and South-West regions while three Francophone regions were randomly selected from eight Francophone regions. The researcher classified the eight Francophone regions into three geographical zones (Table 3:2:1). Adamawa region was randomly selected from the Northern zone (Adamawa, North and Extreme North regions), the Centre region from the Central zone (Centre, South and Littoral) and the West region from the Western zone (East and West regions). In all, the researcher selected two Anglophone and three Francophone regions.

Stage three: From these five regions, 10 divisions (four Anglophone and six Francophone) were randomly selected for the study.

Stage three: From each division, schools were stratified along school locations (urban and rural) and school types (EFA-FTI and non EFA-FTI). From each stratum, 4 schools were randomly selected, 2 urban and 2 rural/division, with 2 EFA-FTI and non 2 EFA-FTI schools.

Stage four: From each region, a total of 8 schools were selected, 4 urban, 4 rural with 50 class six pupils per school. Also, the researcher worked with 1 teacher and 1 head teacher per school.

Stage five: The sample was made up of 2000 pupils, 40 head teachers (HT) and 40 teachers (T) from 40 schools, 10 divisions and 5 regions of the Republic of Cameroon.

For clarity, Tables 3.2.1 and 3.2.2 better explain the selection of the sample for the study.

In addition to the number of teachers, head teachers and pupils sampled, the researcher carried out an In-depth Interview (IDI) with two resource persons; one from the World Bank

and the other from the Ministry of Basic Education including 10 National Pedagogic Inspectors.

Table 3. 2.1 Sampling frame

Zones	Regions Sampled	No of Divisions Sampled	Number of Pupils/ region (50/class)	Sampled no. of classes	No of teachers sampled				total no. of Ts	no. of HTs
					Project		Non-project			
					Urban	**Rural**	**Urban**	**Rural**		
Anglo 1	SouthWest	2	400	8	2	2	2	2	8	8
Anglo 2	NorthWest	2	400	8	2	2	2	2	8	8
Franco 3	West	2	400	8	2	2	2	2	8	8
Franco 4	Centre	2	400	8	2	2	2	2	8	8
Franco 5	Adamawa	2	400	8	2	2	2	2	8	8
Total		10	2000	40	10	10	10	10	40	40

Table 3.2.2 Summary of Sample

Target Group	Sample Size	
	Proposed	Actual
Number of schools	40	40
Number of teachers	40	40
Number of head teachers	40	40
Number of primary six pupils	2000	1807
Number of Divisions to cover	10	10
Number of regions to cover	5	5
Number of geographical zones to cover	4	4
Number of educational zones to cover	2	2

Original pupil sample size was 2000; only 1807 filled and returned the questionnaire

3.6 Instrumentation

In this study, more than one data collection method was used. This approach complemented the data collection procedure to ensure reliability of the data collected. Some of the instruments used for collecting data were adapted, while others were developed by the researcher. The instruments used for data collection were as follows:

i. Class observation Rating Scale (Schedule) (CORS),

ii. Head Teacher Material Resources Checklist (HTMRC),

iii. Teachers' Job Satisfaction Questionnaire (TJSQ):

iv. Pupils' Evaluation of Teacher Effectiveness Scale (PETES)

v.   Proficiency in Language Test (French or English) (PLT)

vi.   Pupils' Achievement Test in Maths (PATM)

vii.   In-Depth Interview schedule (on the effectiveness of the programme) with the Director of Human Resources, World Bank Representative (IDI-DHR/WBR) and

viii. Interview Guide for National Pedagogic Inspectors (NPI).

These instruments are presented in appendices 1 to 7 (in English) and 1 to 7 (in French).

The questionnaire for head teachers resource materials checklist (HTMRC) and pupils' evaluation of teacher effectiveness rating scale (PETES) were developed by the researcher while the observation rating scale (CORS), the teacher job satisfaction questionnaire (TJSQ), interview schedule for the DHR, the WBR and Interview Guide for NPI were adapted. The instruments for the teachers and head teachers included their Bio Data: age, educational level, teaching experience, marital status and gender. The instruments developed by the researcher were presented to experts in the Institute of Education for face and content validity. Moreover, the criticisms and comments of the experts from the Institute were used to adjudge the content of the instruments. The questionnaire; PETES was pre-tested in schools not involved in the study and the internal consistency of items was estimated at .78 reliability coefficient. This instrument was corrected and administered to the pupils concerned.

3.6.1 Class Observation Rating Scale (CORS)

The teacher was observed using the Class Observation Rating Scale adapted from the Language Classroom Observation Form. The class observation rating scale was used to evaluate teacher effectiveness in the classroom. This rating scale consisted of Section A, and B. Section A described the classroom environment: name of school, type and location, teachers' names, sex and qualification. Section B containing 23 items was divided into 5 sub-groups: preparation, language use, lesson preparation, classroom management and classroom atmosphere. The researcher observed the teacher for 40 minutes using the rating scale of 'excellent, good, fair and poor' coded 4, 3, 2 and 1. The reliability and content validity of the instrument was established by implementing suggestions made by the supervisor and other members of staff. The internal consistency of the items was estimated at .86 reliability coefficient.

3.6.2 Head Teacher Material Resources Checklist (HTMRC)

This instrument was adapted from ICFEFA (1998) to collect data from head teachers on their background information including: gender, age, professional qualification, level of education, working experience as classroom teacher and working experience as head teacher. Section B was divided into two sections, both containing inventory questions, the first section contained 7 items and 7 items in the second. The head teacher provided information according to the prevailing situation in the sample schools and classrooms. The items included school factors such as: location of school, school enrolment, number of project teachers, and number of teachers on staff and availability of resource materials (classrooms, teacher's tables and chairs, pupils' desks and chalkboards). To determine the adequacy of school materials, a classroom must have at least 40 desks that could take 80 pupils (two pupils per desk), at least one teacher's table, one teacher's chair and one chalk board.

3.6.3 Teachers' Job Satisfaction Questionnaire (TJSQ)

This questionnaire consisted of two sections, A and B: Section A was on the bio data of the teachers, consisted of the teachers' gender, age, experience and qualification. Section B consisted of 20 items on how satisfied teachers were in their jobs along with a four options (Likert scale), disagree very much, disagree, agree, and agree very much, ranging between 1 and 4. This instrument was adapted from the work of Karen (2002). The internal consistency of the items was estimated at .76 reliability coefficient. This instrument was distributed and filled by the teachers concerned. This was to ascertain whether the project and non-project teachers were satisfied with the job conditions given by the World Bank or government.

3.6.4 Pupils' Evaluation of Teacher Effectiveness Scale (PETES)

This instrument presented 40 items with which the teacher's teaching was rated by the pupils he taught. The instrument that was developed by the researcher was made up of three sections; classroom environment, teacher effectiveness in language and teacher effectiveness in mathematics.

This rating scale consisted of Section A, and B, C and D. Section A described the classroom environment: name of school, type and location, student's names and sex. Section B contained 20 items on teacher's effectiveness in language teaching while section C contained 20 items on teacher's effectiveness in teaching mathematics. This instrument was distributed by the researcher and her assistants to the 50 randomly selected pupils in each school (classroom). The pupils rated their class teacher after teaching mathematics and again

after teaching English/French language using a four point scale of Strongly Agree, Agree, Disagree and Strongly disagree coded 4, 3, 2 and 1 respectively. Section D of PETES for the pupils' evaluation of the teacher had 20 items constructed by the researcher. The items were reviewed by experts in educational evaluation for language content and format, beginning with the supervisor of the work. The necessary corrections were made, and the internal consistency of items was estimated at .78 reliability coefficient. The reliability of the instrument was established using Cronbach Alpha methods respectively.

3.6.5 In-Depth Interviews (on effectiveness of the programme) with the Director of Human Resources and World Bank Representative (IDHRWBR)

This instrument was divided into three major sections: section A for the Director of Human Resources (DHR) at the ministry of Basic Education, Section B for the World Bank Representative and section C was the Opt-in Consent Form for the interviewees. Sections A and B had 10 open-ended questions each, adapted from 'A Guide to Monitoring and Evaluating Adolescent Reproductive Health Programs by Adamchak (2000). The interview guide was structured, based on pre-established elements that the informants were required to respond to based on class size, teacher effectiveness and school quality.

There are many approaches to qualitative data analysis but Olayinka et al. (2006: 129) presents four main approaches used in presenting qualitative reports; Problem-Solving (State and describe the importance of the project), Narrative (Tell the story chronologically pointing out problems), Policy (Present conclusion why process failed, it follows a pattern for busy readers who have little time for reading lengthy reports) and Analytic approaches (organizes findings in terms of theoretical or conceptual framework) (Rubin and Rubin, 1995). Creswell (2005) also presented his approach which deals with conducting, collecting data, evaluating and discussion; an 'up-to-down' approach. The researcher used the Policy Approach that uses qualitative data to show briefly how the process arrived at the reported conclusion.

The researcher carried out in-depth interviews (IDI) with the two persons with open-ended questions acting as a guide from which probing questions came. Two days to the interview date, the Opt-in consent form was signed by the two interviewees (see appendix 4). The interviewer started by introducing herself. This was followed by the interview proper which was on tape. The exercise took less than one hour. Alongside the audio tape facility, field notes were taken.

3.6.6 Pupils' Achievement Test in Mathematics (PATM)

This instrument developed by the researcher was based on the mathematics curriculum of the Ministry of Basic Education. The instrument consisted of two main sections: A and B. Section A consisted of the bio data of the pupil; the name of school, pupil's name, age and gender. Section B consisted of 70 mathematics items developed from five topics of the third term Cameroon primary mathematics curriculum. The test items were tested in 5 primary schools that were not part of the sample schools. The difficulty indices of the items retained ranged between 0.51 and 0.72 after deleting items that ranged between 0.20 and 0.48. This reduced the items to be administered to 43. Using the Kuder Richardson 20 formula, the reliability index of PATM was 0 .76.

The Test Blue Print of Blooms Taxonomy of educational objectives was constructed to select the right number of questions per topic based on the first three levels as follows:

Table 3.3: Test Blueprint of Maths Achievement Test

S/N	Content/Objective	Knowledge 25.6%	Comprehension 41.8%	Application 32.6%	Total
1	Arithmetic Processes 23.3%	1	4	5	10
2	Fractions 20.8%	3	3	3	9
3	Averages 16.3%	2	3	2	7
4	Calculations in area, length, perimeter and volume 23.3%	3	4	3	10
5	Sets 16.3%	2	4	1	7
	Total 100%	11	18	14	43

The content validity of the test was established using Lawshe method with 5 raters for assessment.

The Lawshe formula: $CVR = \frac{N_e - N/2}{N/2}$ was used to calculate the content validity

$\qquad$ CVR = Content validity ratio

$\qquad$ N_e = Number in groups that rated the item as good

$\qquad$ N = Total number of groups

The content validity coefficient was 0.69.

For the Lawshe method, the five members of the group assessed each of the questions in the test, if more than 50% (that is three and above) of the members rated the question as

valid, the researcher included that question on her list. On the other hand, when less than three members (less than 66%) out of five rated the question in view as valid, the question was rejected. This exercise was performed for all the questions of the test. Only the valid questions were compiled and administered to the pupils.

The test for the English-speaking subsystem consisted of three sections of 43 questions while that of the French-speaking subsystem consisted of three sections of 33 questions. In both cases, a maximum score of 100 was obtained with section A, B, C in the English-speaking and French-speaking sections scoring the same. Generally, the mathematics test was verbally loaded as the researcher at the same time tested pupils' proficiency in language.

3.6.7 Proficiency in Language Test (French or English)(PLT)

The proficiency in Language (French or English) test developed by the researcher was made up of two parts, sections A and B. Section A was made up of the bio-data: the name of school, pupil's name, age and gender. Section B consisted five sub-sections with 50 questions in all (excluding the essay test) from; Dictation (teacher read a short passage twice and students wrote down the sentences accordingly), Guided Writing (one passage was completed by 'Filling in the gap' with words chosen from a given list.), Composition (pupils chose a topic and described it following some guidelines), Grammar and Vocabulary (meaning of words, synonyms, chose best answer from four options, alphabetical arrangements of words) and Reading Comprehension (a passage and 10 questions to answer by completing sentences or ticking the right answer from a list of answers) in English.

Since the format of testing in the Francophone sub-system follows a different pattern, the French language test for the Francophone subsystem developed by the researcher consisted of five major sections: Dictée, Conjugaison, Production D'ecrits, Grammaire, Orthographe et Vocabulaire, Compréhension de texte, all followed different formats; the questions set for the Anglophones included 'essay' that was not in the Francophone test. The Francophone test also included 'conjugaison' that was not in the Anglophone test. However, there were 50 questions in both tests. The researcher used Z-Score to standardise the scores.

The test items were tested in 5 primary schools that were not part of the sample schools. The difficulty indices of the items retained ranged between .47 and .70 after deleting items that ranged between 0.23 and .46, the original 80 item test reduced to 50 (Anglophones and Francophones tests) that were administered. Using the Kuder Richardson 20 formula, the

reliability index of PLT was .72. Here also, the Test Blue Print of Blooms Taxonomy of educational objectives was constructed based on the first three levels as follows:

Table 3.4: Test Blueprint of Proficiency in English Test

S/N	Content/Objective	Knowledge 20%	Comprehension 41.4%	Application 38.6%	Total 100%
1	Dictation 14.3%	5	3	2	10
2	Guided Writing 14.3%	3	3	4	10
3	Composition 14.3%	2	4	4	10
4	Grammar and vocabulary 42.8%	3	15	12	30
5	Reading Comprehension 14.3%	1	4	5	10
	Total 100%	14	29	27	70

The Test Blueprint guided the researcher in selecting the right number of questions for each topic. The content validity of the test was established using Lawshe method with 5 raters for assessment. The Lawshe formula was used for both tests resulting in a content validity of 0.74 for the English proficiency test and 0.59 for the French proficiency test respectively with an average of 0.67.

3.7 Validity and Reliability of instruments

To establish the validity of the instruments, the initial drafts of all the instruments (including the developed tests for mathematics, French and English) were given to five primary six school teachers as well as four inspectors (two Francophone and two Anglophone) of the ministry of Basic Education in Cameroon for proof-reading. Corrections and adjustments were made as necessary. The item difficulty varied from 0.4-0.7. Using Kuder-Richardson (KR-20), items with high discrimination indices were discarded.

To ensure the reliability of the test instruments, the final copies of the tests were trial-tested twice (with a two-week interval) in five schools with 100 pupils; schools that did not take part in the study. The responses from the teachers, pupils and head teachers were positive as all the respondents had no difficulty answering the questions. The test-retest values ranged between 0.85 to 0.93 while the observation by the pre-selected research assistants yielded an inter-rater reliability ranging from 0.86 and 0.92. The researcher also used predictive reliability (compared the mathematics and language tests in French and English with First School Leaving certificate examinations for 2008, 2009 and 2010).

3.8 Data Collection Procedure

Firstly, letters of introduction were obtained from the University of Ibadan, International Centre for Educational Evaluation (ICEE) to facilitate collection of data from the study areas. This letter equally permitted the researcher gain access to the World Bank office in Yaounde. The researcher booked an appointment to interview the World Bank representative responsible for the EFA-FTI programme. Secondly, letters from the Regional delegates permitted the researcher to collect data from the schools (head teachers, teachers and pupils). She had visited the schools concerned to solicit the collaboration of the head teachers and staff beforehand. Thirdly, research assistants were recruited, adequately informed and properly trained and tested for inter-rater reliability before they went out to the field to do the job. The work was carried out in three months, April, May and June when all the roads were dry and passable. Furthermore, the schools were all in session during these months.

The researcher and her trained assistants visited the schools within this period and: administered the questionnaires to teachers and head-teachers, rating scales to pupils, and conducted interviews with the key interviewees. It was necessary later to conduct another interview with National Inspectors from the Ministry of Basic Education (MINEDUB). The data collected using these instruments were all put together for the analysis.

3.8.1 Data collection methods

The study used both qualitative (open-ended questions: interviews, observation) and quantitative (close-ended questions: questionnaires) instruments and achievement tests to collect data. Denzin and Lincoln (2000:164) pointed out that "the use of multiple methods, or triangulation, reflects an attempt to secure an in-depth understanding of the phenomenon in question". The use of multiple methods in the study added rigour, breadth and depth to the investigation. The schools used were those that benefitted from the EFA-FTI programme (the project schools) and the regular schools that did not benefit (the non-project schools).

3.8.1.1 In-depth interviews

The researcher used this technique that gave the participants a standpoint to gather qualitative information and opinions from twelve persons involved in the programme, that is, those in charge of designing the programme and programme implementation; the director of Human Resources in the Ministry of Basic Education and the World Bank representative. In addition, 10 National Pedagogic Inspectors of education were also interviewed. The interview was

conducted face-to-face involving the interviewer with one participant at a time. The researcher used the structured interview, with a categorized list of open-ended adapted questions. Regardless of the tape recorder used, notes were also taken to back up nonverbal information.

The programme evaluator implementer's instruments were given to experts of the International Centre for Educational Evaluation (ICEE) for content and face validity. Moreover, the interview questions for inspectors were given to directors and the Inspectors of Education in MINEDUB also for content and face validity. Using Cronbach alpha, the reliability coefficient was 0.76 and 0. 82 respectively.

3.8.1.2 Questionnaire

The questionnaires that were used consisted of a number of closed ended questions and a few open ended ones. The questionnaire also included questions whereby the respondents were given predefined statements from which to choose using the likert scale ranging from 1 for 'disagree very much' to 4 for 'agree very much'; 4 for excellent to 1 for poor and 1 for strongly disagree to 4 for strongly agree respectively. Besides, the respondents were equally given the opportunity to formulate answers to the open ended questions. Questionnaires were distributed to Head Teachers, class six teachers and pupils in every selected primary school of the study.

3.8.1.3 Observation techniques

The researcher trained three other assistants who observed some of the 40 teachers teach in their respective classrooms. The evaluators (researcher and assistants) observed the teacher/pupil interaction, classroom management, lesson presentation, language used during the teaching of Mathematics and language in the selected schools. This helped them evaluate also the effectiveness of the teacher and helped buttress the information got about the teacher's effectiveness from the perception of pupils using the questionnaire (PETES).

The schedule was given to the researcher's supervisor, a specialist in classroom observation and other experts from ICEE for content and face validity. Inter-rater reliability was established between the researcher and assistants with its determination indice of 0.76. The last version of the questionnaire was trial-tested in 10 schools (schools not taking part in the study) with 100 pupils. The data showed that no major problems were faced with responding to the questions as the reliability ranged from 0.82 to 0.90.

3.9 Scoring the instruments

The CORS and PETES questionnaires consisted of 40 items, to rate teachers' behaviour towards teaching the subjects and teacher's effectiveness in the classroom was scored using the Rensis Likert Scale (1930) rating scale, a 4-point rating scale. The positive items were measured on a four to one scale from '4- strongly Agree' through to '1- strongly Disagree' while the negative items were scored on a 'one to four' scale from '1-strongly agree to 4- strongly disagree. The observer (researcher) used a linear continuum model as follows:

Positive item: Strongly agree 4   Negative item: Strongly agree 1
Positive item: Agree 3   Negative item: agree 2
Positive item: Disagree 2   Negative item: disagree 3
Positive item: Strongly disagree 1   Negative item: Strongly disagree 4

Choices made indicated the extent to which the observer agreed or disagreed with the attitude statements. The choices gave a maximum score of 160 and a minimum score of 40. The bench mark for measuring the positive attitude was 80, whereby, a teacher had negative attitude when the total scores of the responses summed up to less than 80 (1-79) and positive attitude was recognised when the sum of the scores was above 80 (80-160).

3.10 Data Analysis

Data collected were analysed using both quantitative and qualitative methods involving descriptive and inferential statistics (mean, standard deviation, t-test, correlation and multiple regression analyses) and qualitative data analysis (transcription, thematization, reporting and discussing results). The data analyses for the study is presented in Table 3. 5.

TABLE 3.5: Data analysis methods

S/N	Research Question	Instrument	Respondent/ data Source	Method of Analysis
1	Is there any difference in the availability of infrastructure in the EFA-FTI (project) and non EFA-FTI (non-project) schools?	HTMRC	Questionnaires ,	Frequency Percentage

2	Is there a significant difference between EFA-FTI and non EFA-FTI schools in terms of class size and TPR?	PETES, HTMRC	School Questionnaires checklist	Frequency Percentage Mean, SD and T-test
3	What is the relationship between teacher quality and pupils achievement in mathematics in the Cameroon primary school?	PETES, HTMRC	Questionnaires Test scores	Pearson correlation
4	Is there any significant difference between pupils in EFA-FTI and non EFA-FTI supported classrooms in achievement in Mathematics?	PLT, PATM	Proficiency test scores and mathematics test scores	Mean, SD t-test
5	Does the obtained equation resulting from a set of the ten-predictor variables (teacher effectiveness, teacher job satisfaction, teacher academic and professional qualification, teacher experience; teacher effectiveness, school type, class size and PTR; proficiency in language and students' performance in mathematics) allow reliable prediction of achievements in mathematics?	CORS, PETES,TJSQ, HTMRC, PLT, PATM	observation, checklist, language proficiency score and test scores in mathematics, questionnaires	Mean, SD Multiple regression
6	Which of the ten-predictor variables are the most influential in predicting students' achievement in mathematics?	CORS,PETES TJSQ, HTMRC, PLT, PATM	Achievement scores in mathematics Personal observation	Multiple regression
7	Are they any predictor variables that do not contribute significantly to the prediction model?	CORS, TJSQ PETES, HTMRC	observation questionnaires	Multiple regression
8	What is the perception of the programme provider and implementer about the effectiveness of the Programme?	DHR, WBR	Representative World Bank, MINEDUB	Qualitative analysis
8b	What are the perceptions of the National Pedagogic Inspectors (NPI) about the effectiveness of the EFA-FTI programme?	NPI	National Pedagogic Inspectors	Thematical analysis

TABLE 3.5 could be summarized as follows:

3.10.1 Data analysis procedure

Research questions 1 was analyzed using frequency counts and percentages; Research question 2, frequency counts and percentages. Research question 3 was analysed using correlation and the researcher used mean, standard deviation and t-test for research question 4 while multiple regression was used for questions 5 and 6. Research question 7 used multiple regression, and Research questions 8a and 8b used qualitative thematic analysis.

TABLE 3.5 (1):   Summary Table showing Methods of Data Analysis

Research Questions	Statistical Analysis used
1	Frequency count, percentages
2	Frequency count and Percentages Mean, SD and t-test
3	Pearson Correlation
4	Mean and Standard deviation; t-test
5, 6	Mean, SD, Multiple Regression
7	Multiple Regression
8, 8b	Thematic analysis

Descriptive statistics made up of mean, standard deviation and variance of the respondents' scores to all the statements in each of the sections of the questionnaire and t-test comparing the scores of the two groups were computed. The test of significance was performed at the probability level of $p < 0.05$. Multiple regression analysis was used to determine the extent to which the independent variables under study explained the dependent variables. This method of analysis determined the extent to which a combination of all the independent variables explained the dependent variable using the coefficient of correlation R square of multiple R, standard Error (S.E) of estimate and ANOVA. The parameter estimate of standardized regression weight (B), unstandardized regression weight (b), S.E and F-ratio were used to determine the relative contribution of the independent variables to the explanation.

According to Amin (2005: 325) and Denzin and Lincoln (2000), the interpretation of qualitative data can take many forms adopted to convey personal or research-based meaning to situations. In view of this, the researcher used evidence in form of simple descriptors (responses) from In-depth Interviews (IDI) conducted with the Director of Human Resources from MINEDUB and the World Bank representative. Their responses conveyed their perceptions about the effectiveness of the EFA-FTI programme. The researcher through member-checking (taking the responses back to the MINEDUB interviewee who made a few

adjustments to what was originally presented) found that the adjustments made sum up to less than 10% of the responses originally keyed in. This exercise made the responses an open and honest narrative that added credibility to the report to readers.

The responses of interview questions were audio recorded and complimented by written notes (i.e. field notes).The procedure of qualitative data analysis was cumbersome but the researcher followed an adapted procedure that was broken down into three stages; data collection, data processing and data analysis as illustrated in Table 3.6.

TABLE 3.6 Qualitative data procedure of analysis, illustrated as figure 3.1 as follows:
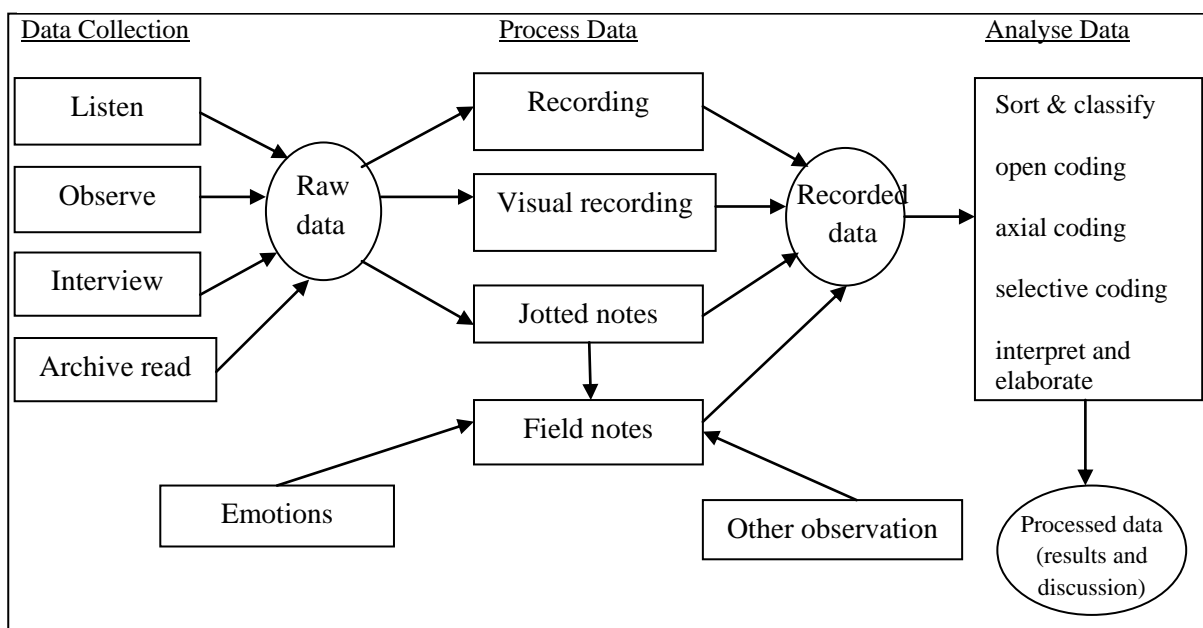
FIG 3.1: Qualitative Data Analysis
Source: www.youtube.com/watch?V=B-alq_ 36MAQ

Following Creswell (2005) "buttom-to-Up" (inductive) approach to analyzing qualitative data to make people understand the perception of interviewees, the researcher followed three main stages as illustrated in figure 3.1 above: Data collection, process data and analyze data.

Data collection: The researcher collected raw data from listening to, observing and interviewing the interviewees and reading notes from archives.

Data processing: During the interviewing, the researcher recorded, jotted down field notes of the verbal responses, emotions and other observations noticed during questioning the interviewee. The data; word verbatim responses to questions were transcribed.

Data analyzing: The researcher read and reread transcript line after line. The data were classified by breaking into chunks of data and codes were assigned to the chunks (open

coding or indexing). The open codes were reexamined and grouped (axial coding) using colored highlighters. Similar codes were grouped to make up fewer codes called themes or categories (selective coding). The researcher cut and put together similar codes with a pair of scissors. These themes were used to answer the research questions or objectives.

The Creswell (2005) "bottom-to-Up" (inductive) approach to analyzing qualitative data was simplified using the steps illustrated in figure 3.2:
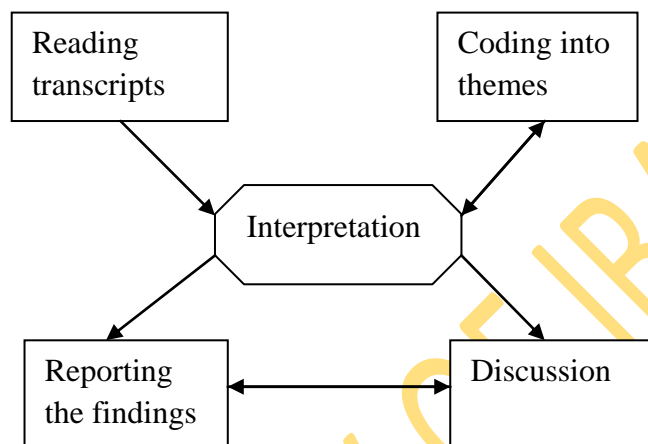
FIG. 3.2 Qualitative data analysis: step by step
Source: Adapted from Nuberman and Miles (1994) 'Data Management and Analysis
          Methods' In Denzin, N. K., Lincoln, Y. S. (eds)

Continuous reading of the different segments of the transcript from the field familiarized the researcher with the content (data) of the notes. As she read along, listening also from tape recorder, she was able to appreciate the responses and discovered the themes that were coded. Secondly, the accuracy of the data recorded was spotted out; this helped in the evaluation of the trustfulness of the data collected. Later, important themes or codes were assigned to segments of the text. These themes were represented in a few meaningful words representing segments of the text. Having done this, the researcher got into interpretation of the themes in relation to the segments. Interpretation explained the meaning of the data. After this stage, the researcher got to the explanatory phase whereby the reported findings were explained. The report summarized the data disclosing the point of view of the participants. This was backed by previous research findings supporting or contradicting the points raised.

Results and discussions: The responses were discussed by making comparisms; using studies that had similarities or differences with the results obtained.

3.11 Methodological Challenges

In a study of this magnitude, it was evident that the researcher faced some challenges. The major challenge was that of affording financial incentives for all the 40 teachers and 40 head teachers who participated in the study. Training of assistants to achieve inter-rater reliability before they were allowed to collect data was an uphill task as it was very demanding, with respect to time, effort and finances. It should be noted that Cameroon runs two parallel education sub-systems, the Anglophone and the francophone which were both considered in this study. Considering the fact that some pupils, teachers, delegates, the Director of Human Resources and the Minister of Basic Education are French-speaking while other participants including the World Bank representative are English-speaking compelled the researcher to present all the instruments in both English and French. Translating all the instruments used was financially burdensome.

3.11.1 Challenges related to data collection procedure

It was observed that some teachers did not fill in the questionnaires perhaps because they thought disclosing certain information could be detrimental to their promotions. Incentives given performed the magic. It was equally difficult for the pupils to evaluate the effectiveness of their teachers. Because the researcher sensed some reluctance from the pupils, she asked the teachers to leave the class during the exercise. She assured the pupils and teachers of confidentiality of their responses especially as their names were not written on the questionnaires.

3.12 Ethical Considerations

Prior to data collection, the researcher sought permission from the Director of Human resources in the Ministry of Basic Education who authorised the researcher to carry out research using human beings from five regions in Cameroon. The researcher explained to the authorities: the DHR, the regional delegates and the teachers concerned, the whole essence of the study assuring them of confidentiality in all the information provided. Anonymity was also respected as only codes were used to differentiate respondents and interviewees' responses. The consent of the participants was equally sought using the opting out form. Participants were also informed that they could opt out of the research any time they felt uncomfortable to continue.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

This chapter deals with the presentation of the research findings; the results, interpretation and discussion of the findings. The data used here were collected from in-depth interview (IDI) with the Director of Human Resources (the representative of the Minister of Basic Education), the World Bank representative and National Pedagogic Inspectors. Data were also collected from responses to questionnaires by teachers, head teachers, pupils and classroom observation of teachers by the researcher and her research assistants. Presentation of results and discussions were carried out in the order in which the research questions were stated in chapter one.

The first part of this chapter, presented the characteristics of the respondents (teacher, head teacher and pupil) by category: sex, age, qualification and experience:

TABLE 4.1 Characteristics of respondents (teachers (T) and head teachers (HT))

Variables	Sources of variation	Frequency		Percentages	
		T	HT	T	H/T
Sex	Male	28	22	70	55
	Female	12	17	30	42.5
	Missing	/	1	/	2.5
Age	under 20 years	1	0	2.5	0
	21-30 years	8	1	20	2.5
	31-40 years	17	6	42.5	15
	41-50 years	12	19	30	47.5
	51-60 years	2	14	5	35
Academic Qualification	FSLC	1	1	2.5	2.5
	GCE O/L	26	3	65	7.5
	GCE A/L	8	19	20	47.5
	Degree (B.A, B.Sc, B.Ed)	5	17	12.5	42.5
Professional Qualification	Teacher GR. 2	3	2	7.5	5
	Teacher Gr. 1	36	36	90	90
	No professional certificate	1	2	2.5	5
Working Experience	0 -5 years	6	3	15	7.5
	6 -10 years	9	4	22.5	10
	11-15 years	10	15	25	37.5
	16 -20 years	8	10	20	25
	above 21 years	7	8	17.5	20

Table 4.1 presented the characteristics of teachers by sex. The table showed that among the staff who participated in the study, there were more males 50 (62.5%) than females 29 (36.2%) teachers. Again from the statistics above, though randomly selected, more male teachers (55%) than female (42.5%) occupied positions of responsibility.

Table 4.1 also revealed that most teachers fell within the ages 31-40 (42.5%) with just 2.5% of the teaching staff below 20 years of age and 5% close to the retirement age (60). The same trend was recorded among head teachers, whereby 47.5% were of the ages 41-50 years with only 2.5% being under 30 years of age. The fact that only 2.5% of teachers less than 30 years of age were appointed as head teachers may explain why such positions in the primary schools were given to older people with more experience. Moreover, more head teachers 14 (35%) than classroom teachers 2 (5%) were close to retirement that is, within the age range 51-60 years. Furthermore, to every one classroom teacher, there was a corresponding seven HTs approaching the retirement age (60 years). This could be due to the fact that headship of a school is a function of years of experience as a classroom teacher.

According to table 4.1, 67.5% (20% teachers and 47.5% head teachers) of the sampled teachers were holders of GCE A/L certificates and 55% (12.5% teachers and 42.5% head teachers) had a university degree. With respect to these statistics, more head teachers than classroom teachers were degree holders perhaps because they wanted to justify their positions by acquiring a degree certificate. From inspection, a majority of teachers (65%) in the study had at least GCE O/L as their academic qualification while 90% of the head teachers had the higher certificates; the A/Ls and university degrees.

In addition, the findings of table 4.1 indicated that teachers as well as head teachers of the sample schools were professionally qualified as more than 96.25% held a teachers' Grade One and Two Certificates (professional) while less than 7.5% (2.5% (teachers) and 5% (head teachers) had no professional certificate at all. It could then be argued that most of the teachers involved in the programme had the teacher Grade Two certificates, the minimum professional certificate required for one to teach in the primary school.

Also, the statistics in Table 4.1 revealed that a majority of the teaching staff and head teachers had a working experience of 11- 15 years (25%) and (37.5%) respectively. Also, 22.5% of classroom teachers and 20% of head teachers had a working experience of 6-10 years. The analysis also found that only 17.5% of teachers and 20% of head teachers had a working experience above 21 years while 15% of teachers and only 7.5% of head teachers had a working experience below 5years.

TABLE 4.2: Comparative Table on Staffing and Quality of EFA-FTI and non EFA-FTI teachers in the five sampled regions of the programme

Variables	Sources of variation	EFA-FTI Teachers	Non EFA-FTI Teachers
Staffing	South West	4630	3600
	North West	5388	5300
	West	6918	4415
	Centre	8884	5416
	Adamawa	4214	2344
	Total	29994	21194
Teacher Qualification	FSLC	304	3960
	GCE O/L	12540	13664
	GCE A/L	14368	3438
	Degree (B.A, B.Sc, B.Ed)	2934	766
	Total	30146	23828
	Teacher Grade 2	2808	4096
	Teacher Grade 1	24872	11394
	No qualification	1686	6428
	Total	29366	21918
Teacher Experience	0 -5 years	2600	1350
	6 -10 years	26000	4236
	11-15 years	2220	2530
	16 -20 years	2972	2438
	above 21 years	2596	2140
	Total	36388	14686
Teacher Effectiveness	Positive: score > 80 (80-160)	17480	13346
	Negative: score < 80 (1-79)	6708	13842
	Total	24188	27188

Source: Statistics Yearbook 2012-DPPC/MINEDUB, Cameroon

Table 4.2: illustrates the staffing situation of the EFA-FTI and non-EFA-FTI schools in the five sampled regions after the end of the EFA-FTI programme (2011). There were more EFA-FTI (29994) teachers in the five regions than the non EFA-FTI teachers (21194) with the Centre region having the highest number of teachers in both EFA-FTI (8884) and non EFA-FTI (5416) schools. Adamawa had the least number of EFA-FTI (4214) and non EFA-FTI (2344) teachers respectively. This revealed that the programme increased the number of teachers (quantity) in the Cameroon Primary schools, particularly in the EFA-FTI schools.

Considering teacher qualification in the two school types, the EFA-FTI teachers were more qualified both academically (A/L; 14368 and Degree; 2934 vs. A/L; 3438 and Degree; 766 respectively) and professionally (Teacher Grade One; 24872) than the non EFA-FTI teachers (Teacher Grade One; 11394) respectively. Moreover, in view of the number of

teachers who taught with no qualification at all, the non EFA-FTI teachers (6428) overshadowed the EFA-FTI (1686) teachers. This could be explained by the fact that the programme increased the teacher quantity and quality in the primary school. Furthermore, most teachers were found amongst those who had 6-10 years teaching experience (EFA-FTI (26000) and non EFA-FTI (2530) perhaps because this is when the recruitment took place. Fewer numbers of teachers, EFA-FTI (2600) and non EFA-FTI (1350) belonged to the 0-5 years teaching experience. Finally, considering the effectiveness of teachers on the field, EFA-FTI (17480) teachers are more effective (score > 80) than non EFA-FTI (13346) teachers and more of the non EFT-FTI teachers (13842) are less effective (score < 80) than the EFA-FTI (6708).

TABLE 4.2 (1): Statistics of public primary school teachers in MINEDUB (2011/2012) (At end of EFA-FTI programme)

Region	Teachers	TPR	Pupil/ classroom ratio	Class size
Adamawa	3519	1/67	67/1	**67**
Centre	10173	1/45	46/1	**45**
East	3885	1/60	60/1	56
Extreme North	10662	1/80	80/1	80
Littoral	5520	1/70	70/1	70
North	7372	1/86	86/1	80
North West	6450	1/52	52/1	**50**
West	9055	1/50	50/1	**50**
South	4142	1/31	31/1	30
South West	5191	1/42	42/1	**45**
Total	65947	1/58	58/1	58

Source: Basic Education in Figures; MINEDUB, Edition 2011-2012

Table 4.2.1 illustrated the statistics of teachers in the public primary schools in all the 10 regions at the end of the programme. The inference that can be drawn here is that the programme reduced class sizes and teacher/pupil ratio in all the ten regions (see table 1. 3) of the country. For example, the class size of Adamawa was 89 (1/89) reduced to 67 (1/67), Centre 61(1/61) reduced to 45 (1/45), East 80 (1/80) reduced to 56 (1/56), Extreme North 106 (1/106) reduced to 80 (1/80), Littoral 107 (1/107) reduced to 70 (1/70), North 106 (1/106) reduced to 80 (1/80), North West 69 (1/69) reduced to 50 (1/50), West 66 (1/66) reduced to 50 (1/50), South 41 (1/41) reduced to 30 (1/20) and South West 71(1/71) reduced to 45 (1/45). Despite this reduction across the country only the South region (30, 1/30) (not in the programme) had a small class with reference to World Bank recommended class size of 40

and UNICEF recommended class size of 37. Considering the five regions of the study (Adamawa, Centre, North West, West and South West) none met either the UNICEF or the World Bank recommendations, as Centre and the South West with the smallest class sizes had class sizes of 45 each.

There has been an overall average reduction in class size from 85 (TPR, 1:85) to 57 (TPR, 1:57), that is an overall class size reduction of 26.

Distribution of Pupils by sex

TABLE 4.3 Distribution of pupils by sex

Sex	Frequency	Percentage
Boys	984	54.5
Girls	760	42
Total	1807	100
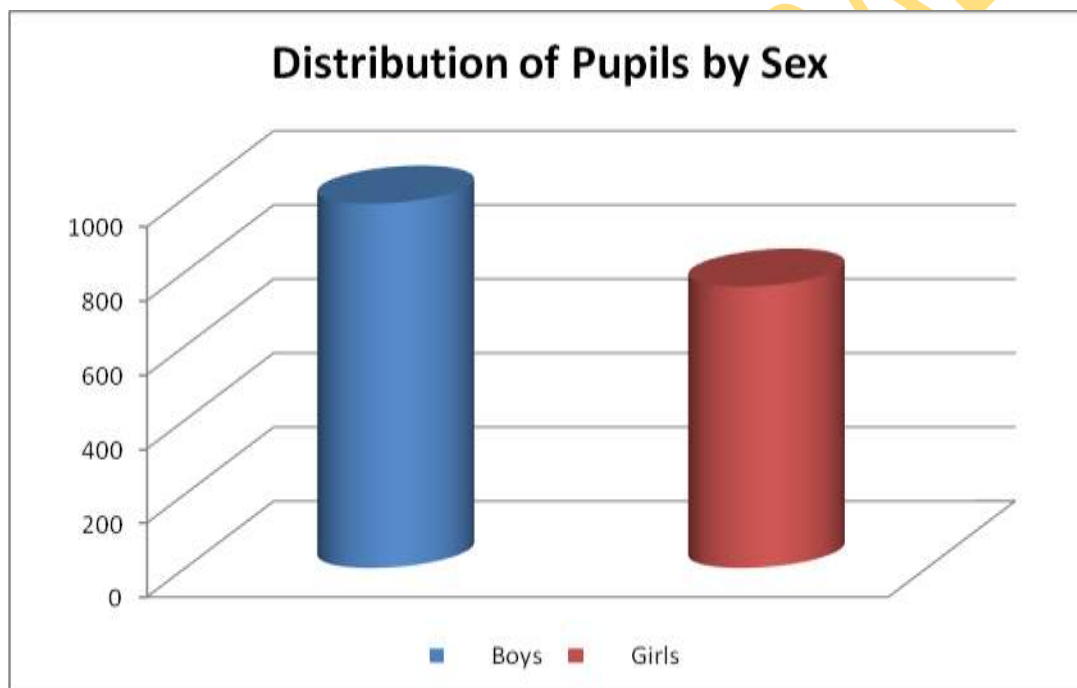
Fig. 4.3 Distribution of pupils by sex

Table 4.3 showed that the sample of pupils for the study had more boys, 984 (54.5%) than girls, 760 (42%). Furthermore, the analysis revealed that even though 2000 pupils were randomly selected for the study only a total of 1807 (90.4%) pupils were able to fill and return the questionnaire (to appreciate the teacher in the classroom) to the researcher.

Glancing at figure 4.1, one observes the same results as shown in table 4.3 and figure 4.3 but the cylinders facilitated the appreciation of the difference faster; the cylinder representing the boys has a higher sample number than the one representing the girls.

Presentation of the correlation matrix

Amin (2004:301) and Cohen (2008) reported that in multiple regression and any other linear procedures, interdependence of the independent or predictor variables most often affect analysis. It was therefore essential to begin regression analysis with the description of the correlation of the independent variables. Also, in most investigations involving the use of many IVs with one DV, none of the IV used singly can significantly correlate with the DV. A combination of a number of IVs produces the coefficient between the IVs (how related the variables are to each other) indicating the importance of each combination in the model. This analysis began with the presentation of a correlation matrix containing all the variables.

TABLE 4.4: Correlation Matrix of Variables

	MAT	ST	TAQ	TPQ	TWE	CS & TPR	SI	PL	TEF	JS
MAT	1.000									
ST	.187	1.000								
TAQ	.264*	.212	1.000							
TPQ	-.117	-.213	-.121	1.000						
TWE	-.200	.059	.035	.135	1.000					
CS & PTR	.145	-.387*	-.281*	-.161	-.050	1.000				
SI	.111	-.326*	-.331*	-.091	-.081	.747	1.000			
PL	.675*	.080	.190	-.187	-.008	.182	.202	1.000		
TEF	-.071	.017	-.196	.270*	-.011	.003	.245*	.151	1.000	
JS	-.239	-.063	-.174	.366	-.047	.136	.140	-.198	-.306*	1.000

*=sig. at p≤ 0.05.

MAT =Achievement in mathematics, ST =School type, TAQ =Teacher academic qualification, TPQ=Teacher professional qualification, TE =Teacher work experience, CS§TPR =Class size and TPR, SI = School Infrastructure, PL = Proficiency in language, TE =Teacher effectiveness, JS =Job satisfaction, PC =Pearson Correlation.

Table 4.4 presented an inter correlation matrix of Pearson-moment correlation coefficients that showed the correlation (interrelationship) among each predictor variable in predicting the dependent variable. For each of the variable, the r-value, the significance level and the number of cases were given (three tables fused together). There were negative as well as

positive correlations between variables. Cohen (2008) identified three different correlation strengths: **.1-.29 is small, .3-.49 medium and .5-1.0 large).** This enabled the researcher to understand the level of correlation among the variables, for example; If variables X_1 and X_2 were highly correlated ($r_{(xy)} = 1$), the correlation will be senseless as there will be duplication. When the correlation is moving towards '0', the relationship is moderate or medium, so the combination in such relationship of the IVs is better appreciated. The correlation matrix revealed that the mathematics test was verbally loaded ($r_{(xy)} = .675$) and proficiency in language correlated highest with achievement in mathematics.

Research Question 1

Is there any difference in the availability of material resources in the EFA-FTI (project) and non EFA-FTI (non-project) schools?

TABLE 4.5 Availability of material resources

Items	Quantity				Condition			
	Number available		Shortage		Number Good		Number Needing Repair/replacement	
	EFA-FTI schools	Non EFA-FTI schools	EFA-FTI schools	Non EFA-FTI schools	EFA-FTI schools	Non EFA-FTI schools	EFA-FTI schools	Non EFA-FTI schools
Class-rooms	20	15	0	5	15	5	5	15
Teachers' Tables	18	15	2	5	15	12	5	8
Teachers' Chairs	20	20	0	0	16	12	4	8
Chalk Boards	19	20	1	0	15	10	5	10
Pupils' Desks	316	300	204	200	300	250	220	250

Table 4.5 gives a picture of the state of some material resources (classrooms, teachers' table, teachers' chair, chalkboards and pupils' desks) found in the EFA-FTI and non- EFA-FTI schools visited. The criterion for saying that an infrastructure is 'good' is when the infrastructure is fully utilized in the classroom by the teacher and/or the pupil.

There were 40 classrooms of the 40 schools visited. Of this number, only 15 classrooms of the project schools were good enough while only 5 of the non-project schools were good with

20 (5 and 15 respectively) needing repairs or expecting to be replaced accordingly. The situation of teachers' tables was pathetic as out of the 33 (18 and 15) found only 27 (15 and 12) out of 40 were good with 13 (5 and 8 respectively) needing repairs or replacement. The same trend was observed with teachers' chairs, 40 available with 28 (16 and 12) good ones. There was no shortage so every teacher had a chair to sit on when necessary, but 12 (4 and 8) chairs needed to be replaced or repaired.

The chalkboard, another important material resource was equally insufficient as out of the 39 (19 and 20 respectively) available in the 40 classrooms, only 25 (15 and 10) were good with 15 (5 and 10) needing repairs or replacement. Most important for the learners, the classrooms visited lacked 404 (204 for project and 200 for non-project schools) pupils' desks as out of the 616 (316 and 300) available, 550 (300 and 250) were good. The classrooms experienced a shortage of 404 (202 and 200 respectively) desks as 470 (220 and 250) needed to either be repaired or replaced (generally, only two pupils could sit on a desk in the primary school, so one needed to see 1000 desks for 2000 pupils of the sample). The table therefore presents a situation of inadequate infrastructure and material resources in the sample schools of the programme. On the whole, the resources were inadequate in both the EFA-FTI and non EFA-FTI schools but worse in the non EFA-FTI schools.

Research Question 2

Is there a significant difference between EFA-FTI and non EFA-FTI schools in terms of class size and TPR?

The second research question was to find out whether there was a 'significant difference in class size and TPR between EFA-FTI and non EFA-FTI schools'. To determine this, a table was drawn to illustrate the distribution of class size (TPR) by school type and by school location and the results presented in percentages. This was followed by an independent sample t-tests conducted using the two main school types, the EFA-FTI (project) and non-EFA-FTI (non-project) as described by the researcher.

TABLE 4.6 Distribution of class size by school type and by school location

Region	Average Class Size or (TPR)/ Region	Class Size/School Type/School Location							
		EFA-FTI				Non EFA-FTI			
		Urban	% (A§B)	Rural	% (A§B)	Urban	% (A§B)	Rural	% (A§B)
Adamawa	58.25 (1:59)	54	23.18 15.70	55	23.61 24.34	68	29.18 18.28	56	24.03 23.93
Centre	61 (1: 61)	71	29.10 20.64	54	22.13 23.89	59	24.18 15.86	60	24.59 25.64
North West	55.5 (1: 56)	73	32.88 21.22	37	16.67 16.37	75	33.78 20.16	37	16.67 15.81
South West	56.75 (1: 57)	62	27.31 18.02	30	13.22 13.27	105	46.26 28.23	30	13.22 12.82
West	65.5 (1: 66)	84	33.60 24.42	50	20.00 8.85	65	26.00 17.47	51	20.40 21.79
Total		344		226		372		234	
Average class size (TPR)		68.8 (1: 69)		45.2 (1:46)		74.7 (1:75)		74.4 (1:75)	
		57 (1:57)				74.6 (1:75)			

Key: % A = Regional average/school type/school location
% B = Sample average/school type/school location

Table 4.6 illustrated the distribution of class size by school type (EFA-FTI and non EFA-FTI schools) and by school location (Urban and Rural). Table 4.6 statistics revealed that the West Region had the highest average class size (65.5/1:66) followed by the Centre (61/1:61). Amongst the regions of the study, the North West had the list average class size (55.5/1:56). That notwithstanding, all the five regions still had an average class size that was greater than the recommended class size of 40 (World Bank, 2006) and also greater than the 37 recommended by UNICEF, hence the Cameroon classrooms were still overcrowded. The distribution of class size by school type revealed that class sizes were more reduced in the EFA-FTI schools than at the non EFA-FTI schools.

Also, the urban schools in both the EFA-FTI and non EFA-FTI locations had lower class sizes than the rural EFA-FTI and non EFA-FTI schools (344 (68.8 (1/69) and 226 (45.2 (1:46) as compared to 372 (74.7 (1:75) and 234 (74.4 (1: 75) respectively). The increased number of teachers in urban areas could be attributed to the fact that more teachers obtained transfer to urban than rural areas. This resulted in more teachers being in urban areas with reduced class sizes. Comparing class sizes according to regions, Adamawa EFA-FTI urban schools had the smallest class sizes, regional average (23.18%) or sample averages (15.7%)

while the West Region EFA-FTI rural schools have the least class sizes (20% and 8.85% respectively). Considering the non EFA-FTI schools, the Centre Region non EFA-FTI urban schools had the smallest class sizes; regional average (24.18%) and sample averages (15.86%) while the South West Region non EFA-FTI rural schools have the least class sizes (13.22% and 12.82% regional and sample averages respectively). From the statistics presented in table 4.6, the regional average class sizes for EFA-FTI and non EFA-FTI schools were 57 and 74.6 with TPR of 1:57 and 1: 75 respectively. Again, a t-test analysis was carried out to illustrate the differences in class sizes/TPR in the 40 schools selected for the programme.

TABLE 4.7: Mean score and t-test for class size and TPR in EFA-FTI and non EFA-FTI schools.

School type	N*	Mean	SD	Mean Diff.	t	df	Sig. or p-value	Cohen's d
EFA-FTI (Project Schools)	20*	57.00	21.9213					
Non-EFA-FTI (non-Project Schools)	20*	75.04	30.4725	18.14	2.24	38	.038	.054

N* = number of schools in the sample school types

From table 4.7, the average class size of project schools was 57.00 (1: 57), while that of non-project schools was 75.04 (1:76). The result showed that class size and TPR of the non-EFA-FTI (non project) schools were higher (mean = 75.04; SD = 30.47) than that of the EFA-FTI (project) schools (mean = 57.00; SD = 21.92). The mean difference between the two groups was 19 (75.04-57.00) and the 95% confidence interval for the mean difference between the two groups was between 2.07 and 44.12. The result of the independent t-test showed that the difference between the two groups was significant (t = 3.00, df = 38, p< 0.05). To conclude, there was a significant difference between the project and non-project schools in terms of class sizes (57.00 and 75.04) and TPR (1:57 and 1:76) respectively. The effect size of 0.054 (cohen's d) was extremely small.

Research Question 3

What is the relationship between teacher quality and pupils achievement in mathematics in the Cameroon primary school?

This research question was used to establish the relationship between teacher quality and pupils' academic achievement. Teacher quality was conceptualized in terms of teacher qualification (academic and professional) and teacher effectiveness (in lesson preparation, language used in teaching, classroom management, and classroom atmosphere) as observed by the researcher.

TABLE 4.8: Correlations

	TAQ	TPQ	TE	PAA
TAQ	1.000			
TPQ	-.121	1.000		
TE	-.196	.270	1.000	
PAA	.264	-.117	-.071*	1.000

KEY: TAQ=teacher academic qualification; TPQ= teacher professional qualification;
TE=teacher effectiveness; PAA=pupils academic achievement;
*=sig. relationship

Table 4.8 illustrated data collected using teacher rating scale and class observation. These data were analyzed quantitatively using Pearson Product Moment Correlation. According to the findings of the study, the output/correlation matrix illustrated that: teacher academic qualification was positively related to pupils' academic achievement but not significant as (r=.264, p>.05). Teacher professional qualification was negatively related to pupils academic achievement but not significant (r = -.117, p>.05) while teacher effectiveness was significantly related to pupils academic achievement (r = -.071, p< 0.05).

There was a complex interrelationship between the three quality variables; teacher academic qualification, teacher professional qualification and teacher effectiveness as two (TAQ and TPQ) out of three were not significantly related to pupils achievement but teacher effectiveness was. From the results of the analysis, there was no statistical reason why either teacher academic qualification or teacher professional qualification could cause changes in pupils' academic achievement.

Research Question 4

Is there any significant difference between pupils in EFA-FTI and non EFA-FTI supported classrooms in achievement in Mathematics?

To verify the pupils' language strength in solving the verbally-loaded mathematics questions, the language proficiency of the pupils was compared and then the mean scores of the mathematics questions were computed using two independent t-tests; firstly, four school types (urban project, urban non-Project and rural project, rural non-Project) and then combined to make up the values of the two main school types (project and the non-project) to determine the differences in pupils' proficiency in Language and then pupils' academic achievement in Mathematics. The statistics was presented in Tables 4.9 (1and 2) and 4.10 (1and 2) respectively.

TABLE 4.9 (1): t-test for comparing Language proficiency between EFA-EFI (project) and non EFA-FTI (non-project) pupils in urban and rural schools

School type	N*	Mean	SD	F	t	df	Sig (2-tailed)	Decision
Urban project	475*	58.057	12.7447	0.382	2.996	937	.003	sig. difference
Urban non-project	463*	55.490	13.4764					
Rural project	449*	49.974	16.5568	53.324	-.5138	868	.003	sig. difference
Rural non-project	420*	44.960	11.8313					

N* = number of pupils in the various school types

TABLE 4.9 (2): Combined four school types into two main: project and non-project schools

School type	N*	Mean	SD	Mean difference	F	t	Df	Sig (2-tailed)	Cohen's d
Project	924*	54.013	14.6007	3.790	26.853	1.7549	1805	.050	.07
Non-Project	883*	50.225	12.6539						

N* = number of pupils in the combined school types

Table 4. 9 (2) presented the independent t-test results for pupils' language potency in the EFA-FTI and EFA-FTI schools. From this table, the average mean score from project schools was 54.01, while that of non-project school was 50.23. The result showed that pupils' mean score of the EFA-FTI (project) schools was higher (mean = 54.01; SD = 14.60) than that of the non EFA-FTI (non-project) schools (mean = 50.23; SD = 12.65). The mean difference

between the two groups was 3.79 (54.01-50.23) and the 95% confidence interval for the mean difference between the two groups was between -20.45 and 4.75. The t-test showed that the difference between the two groups was significant (t = 1.75, df = 1804.73, p≤ 0.05). Therefore, there is a significant difference in pupils' language proficiency score between the project and non-project schools with an extremely small effect size of 0.069 (cohen's d). Therefore pupils of the project schools had a stronger language (French or English) potency than pupils from the non-project schools.

TABLE 4.10 (1): t-test for comparing pupils' achievement in Mathematics between EFA-FTI and non-EFA-FTI schools in urban and rural areas.

School type	Sample size N*	Mean	SD	F	T	df	Sig (2-tailed)	Decision
Urban project	475*	54.213	16.9264	2.324	4.316	937	.000	sig. difference
Urban non-project	463*	49.658	15.3641					
Rural project	449*	30.443	19.5915	47.945	-10.378	868	.128	No sig. difference
Rural non-project	420*	42.693	14.8743					

N* = number of pupils in the various school types

TABLE 4.10 (2): Combined four school types into two: project and non-project schools

School type	Sample size N*	Mean	SD	Mean differ-ence	F	t	Df	Sig. (2-tailed)	cohen's d
project	924*	42.328	18.2590	3.847	26.65	3.7195	1805	.064	.07
Non-project	883*	46.175	15.1192						

N* = number of pupils in the combined school types

Table 4.10 (2) presents t-test for pupils' achievement in mathematics in the EFA-FTI and non-EFA-FTI schools. From this table, the average mean score from project schools was 42.33, while that of non-project school was 46.18. The independent t-test result showed there was no significant difference between the two groups (t = 3.72, df = 1805.31, p> 0.05). However, the pupils' mean score of the non-EFA-FTI (non-project) schools was higher (mean = 46.18; SD = 15.12) than that of the EFA-FTI (project) schools (mean = 42.33; SD = 18.26). The mean difference was 3.85 (46.18-42.33) and the 95% confidence interval for the mean difference was between -11.51 and 5.06. Therefore, there was no significant difference in pupils' achievement in mathematics between the project and non-project schools. Considering the means of the two school types, the difference was influential but not

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significant with the non-project schools performing well above the project schools. The effect size of 0.07 (cohen's d) was extremely small.

For the next four questions, Multiple Regression was used in presenting one or more predictor variables in predicting the criterion variable; achievement in mathematics. The results of the analysis were displayed in tables titled: Descriptive Statistics, Correlation, Model Summary, ANOVA and Coefficients.

Research Question 5

Does the obtained regression equation resulting from a set of ten-predictor variables (teacher effectiveness, teacher job satisfaction, teacher quality (academic and professional qualification), teacher experience, school type, class size and TPR; school infrastructure and students' proficiency in language (English and French) allow reliable prediction of achievements in mathematics?

Adegoke (2012:51) revealed that journal editors require authors to first present descriptive statistics table showing 'mean' and 'standard deviation' and 'inter-correlation matrix' that revealed the importance of the predictor variables in predicting the dependent variable.

TABLE 4.11: Descriptive Statistics: Mean and Standard Deviation of variables

Variables	Mean	Std Deviation
Achievement in mathematics	44.56	12.882
Class Size and TPR	58.32	28.544
School Type	2.50	1.132
Teacher Academic Qualification	2.80	.853
Teacher Professional Qualification	1.25	.742
Teacher Working Experience	2.60	1.533
School Infrastructure	12.78	7.526
Teacher Effectiveness	85.15	6.716
Proficiency in Language	52.76	8.799
Teacher Job Satisfaction	50.78	7.381

Table 4.11 presented a summary descriptive statistics for all the variables concerned. The table showed the mean and standard deviation of each important independent variable and the dependent variable in the data set of the study. Although the table did not interpret the regression model, it presented a summary of the data collected. By inspection, teacher effectiveness was more prominent in predicting achievement in mathematics with a mean

score (85.15) followed closely by class size/TPR (58.21/1:59) and third, proficiency in Language (52.73). The least and less prominent mean score in predicting achievement in mathematics was obtained from teacher professional qualification (1.25), followed by school type with mean score of 2.50. Also, with the highest standard deviation (28.544) the class size had the biggest distribution with increased variability that was more wide spread than teacher professional qualification (.742) that was least with reduced variability (Field, 2005:11).

TABLE 4.12: Correlation Matrix of Variables

	MAT	ST	TAQ	TPQ	TWE	CS & TPR	SI	PL	TEF	JS
MAT	1.000									
ST	.187	1.000								
TAQ	.264*	.212	1.000							
TPQ	-.117	-.213	-.121	1.000						
TWE	-.200	.059	.035	.135	1.000					
CS & PTR	.145	-.387*	-.281*	-.161	-.050	1.000				
SI	.111	-.326*	-.331*	-.091	-.081	.747	1.000			
PL	.675*	.080	.190	-.187	-.008	.182	.202	1.000		
TEF	-.071	.017	-.196	.270*	-.011	.003	.245*	.151	1.000	
JS	-.239	-.063	-.174	.366	-.047	.136	.140	-.198	-.306*	1.000

MAT =Achievement in mathematics, ST =School type, TAQ =Teacher academic qualification, TPQ=Teacher professional qualification, TWE =Teacher work experience, CS&M =Class size and TPR, SI = School Infrastructure PL = Proficiency in language, TE =Teacher effectiveness, JS =Job satisfaction, PC =Pearson Correlation, S =Sig. (1-tailed).
*=sig. at $p \leq 0.05$.

Table 4.12 presented an inter correlation matrix of Pearson-moment correlation coefficients that showed the correlation among each predictor variable in predicting the dependent variable (pupils achievement in mathematics). For example, the correlation coefficient between achievement in mathematics and proficiency in language (MAT and PL) was positive and large (.675), indicating that the more proficient a student was in language the better his/her performance in mathematics. These two variables that correlated positively r=.675 shared $(.675)^2$ = .46= 46% of variance. The correlation was statistically significant at p=.000 (p< .05). Examining MAT and TEF, the correlation coefficient was negative and small

(-.071) indicating a negative correlation between achievement in mathematics and teacher effectiveness. This meant that when teacher's effectiveness reduced, failure in mathematics achievement increased. These two variables that correlated negatively r= -.071 shared $(-.071)^2 = .005 = 0\%$ of variance. The correlation was not statistically significant (p> .05).

This helped detect multicollinearity among the independent variables. From the correlation matrix of variables, there was glaring proof that all the ten predictor variables correlated with each other as the correlations all lied between -1 to +1 that is $-1 \leq r \leq 1$ (perfect linear negative correlation and perfect linear positive correlation) (Amin, 2005).

Multiple Regression output generated from model summary and ANOVA tables was used to easily illustrate the prediction of the criterion:

TABLE 4.13: Regression ANOVA

Model		Sum of squares	df	Mean Square	F	Sig.
1	Regression	3915.060	9	435.007	5.104	.000[a]
	Residual	2557.034	30	85.234		
	Total	6472.094	39			

Model Summary	
Model	1
R	.778[a]
R Square	**.605**
Adjusted R Square	.486
Std. Error of the Estimate	9.2323

a. Predictors: (Constant), Teacher Job Satisfaction, Teacher Working Experience, School Type, Proficiency in Language, Teacher Academic Qualification, Teacher Effectiveness, Teacher Professional Qualification, School infrastructure, Class Size and TPR

Table 4.13 illustrated the multiple correlation (R), the multiple correlation squared (R^2) and the adjusted squared multiple correlation (R_{adj}) which revealed how well the set of 10 predictor variables allowed reliable prediction of the criterion variable. The model had a positive and high correlation (r= .778). The R^2 (as N>30) which estimated the variance was .605. From the model the researcher deduced that about 60.5% of the variance (that contributed to all the independent variables) accounted for achievement in mathematics $F_{(9,30)}$ =5.104, P= 0.000. Table 4.13 equally showed that the combination of all the independent variables allowed reliable prediction of achievement in mathematics.

Table 4.13 as well presented the standard F-test that examined the relationship to which the independent variables (IVs) and dependent variable (DV) were linear. The F-ratio of 5.104 was significant (p< .001) thus the model significantly predicted the DV. The

probability that the F-ratio this large occurred by chance was less than .001(actually .000) therefore the combination would not have occurred by chance. Hence, values from the tables indicated that the ten IVs taken together, significantly predicted students' achievement in mathematics. R^2 = .605, R^2= .486, F(9,30) = 5.104, p = .000. As the F-test was significant (p< .05), the relationship is linear and the model allowed reliable prediction of the DV (achievement in mathematics).

Research question 6

Which of the ten predictor variables are the most influential in predicting students' achievement in mathematics?

Multiple Regression output generated three tables at this level; model summary, ANOVA and Coefficients that illustrated the prediction of the criterion variable.

TABLE 4.14: Regression ANOVA

Model		Sum of squares	df	Mean Square	F	Sig.
1	Regression	3915.060	9	435.007	5.104	.000[a]
	Residual	2557.034	30	85.234		
	Total	6472.094	39			

Model Summary	
Model	1
R	.778[a]
R Square	**.605**
Adjusted R Square	.486
Std. Error of the Estimate	9.2323

a. Predictors: (Constant), Teacher Job Satisfaction, Teacher Working Experience, School Type, Proficiency in Language, Teacher Academic Qualification, Teacher Effectiveness, Teacher Professional Qualification, School infrastructure, Class Size and TPR

TABLE 4.15: Regression Coefficients

Model		Unstandardized Coefficients		standardized Coefficient	t	Sig.	Correlation			collinearity
		B	Std. Error	Beta			Zero order	Parti al	part	tolerance
1	Constant	19.814	23.627		8.39	.408	.187	.322	.213	.726
	School Type	2.851	1.533	.251	1.860	.073	.264	.184	.117	.781
	Teacher academic qualification	2.006	1.960	.133	1.023	.314	-.117	.297	.196	.674
	Teacher professional qualification	4.136	2.426	.238	1.705	.099	-.200	-.354	-.238	.957

Teacher working experience	-2.045	.986	**-.243**	**-2.074**	**.047***	.145	.172	.110	.357
Class size &TPR	.083	.087	.184	.956	.347	.111	.038	.024	.369
School infrastructure	.067	.323	.039	.206	.838	.675	.658	.550	.770
Proficiency in language	.917	.191	**.627**	**4.792**	**.000***	-.071	-.226	-.146	.695
Teacher effectiveness	-.935	.264	**-.275**	**-2.270**	**.021***	-.139	-.176	-.116	..425
School location	.335	.232	.175	1.172	.214	-.236	-.200	-128	.719
Teacher Job satisfaction	-.264	.236	-.151	-1.117	.273	.264	.184	.117	.781

Dependent variable: Achievement in mathematics
*=sig. at p≤ 0.05.

Table 4.15 reported the Unstandardized Coefficients (B) and Standardized Coefficient (beta weight), t, p values and the zero order, partial and part indices, tolerance and VIP factors.
To answer this question, standard multiple regression was conducted to determine the accuracy of the ten independent variables (predictors) in predicting students' achievement in mathematics. The tolerance statistics presented in the coefficient table indicated that all the IVs correlated among themselves (table 4.9) and was tolerated in the model (the tolerance statistics range fell within the tolerated range (.3 to .9)(Amin, 2005 & Adegoke, 2013).

The beta weights in table 4.15 specified that only 3 variables; proficiency in language (the main) teacher working experience and teacher effectiveness were most influential in predicting pupils' achievement in mathematics; the three variables are as follows:

Proficiency in Language ß = (.627), t(30) = 4.792, p=.000 (p<.001)

Teacher working experience ß = (-.243), t(30) = -2.074, p=.047 (p<.05) and

Teacher effectiveness ß = (-.275), t(30) = -2.270, p=.021(p<.05)

This beta value indicated that for every one unit change in teacher working experience, proficiency in language and teacher effectiveness, there was a corresponding increase of -.243, .627 and -.275 in achievement in mathematics respectively. To determine the predictors that were not useful in the model, the t-values of table 4.15 that were less than 2.0 in magnitude was used to indicate that the predictor was not significant (Amin 2005: 408). The three significant predictor variables above had their t-values greater than 2 (4.792, 2.074 and 2.270). The other seven were not influential in predicting pupils' achievement in mathematics.

Research Question 7

Are they any predictor variables that do not contribute significantly to the prediction model? To answer this question, standard multiple regression was conducted and the regression coefficient was used to determine the contributions made by the ten independent variables (predictors) in predicting students' achievement in mathematics.

TABLE 4.16: Regression Coefficients

Model		Unstandardized Coefficients		standardized Coefficient	t	Sig.	Correlation			collinearity
		B	Std. Error	Beta			Zero order	Partial	part	tolerance
1	Constant	19.814	23.627		8.390	.408	.187	.322	.213	.726
	School Type	2.851	1.533	**.251**	1.860	**.073**	.264	.184	.117	.781
	Teacher academic qualification	2.006	1.960	**.133**	1.023	**.314**	-.117	.297	.196	.674
	Teacher professional qualification	4.136	2.426	**.238**	1.705	**.099**	-.200	-.354	-.238	.957
	Teacher working experience	-2.045	.986	-.243	-2.074	.047*	.145	.172	.110	.357
	Class size &TPR	.083	.087	**.184**	.956	**.347**	.111	.038	.024	.369
	School infrastructure	.067	.323	**.039**	.206	**.838**	.675	.658	.550	.770
	Proficiency in language	.917	.191	.627	4.792	**.000***	-.071	-.226	-.146	.695
	Teacher effectiveness	-.935	.264	-.275	-2.270	**.021***	-.139	-.176	-.116	..425
	School location	.335	.232	**.175**	1.172	**.214**	-.236	-.200	-128	.719
	Teacher Job satisfaction	-.264	.236	**-.151**	-1.117	**.273**	.264	.184	.117	.781

Dependent variable: Achievement in mathematics
*=sig. at p≤ 0.05.

Considering Table 4.18 above that illustrated the contributions significantly made by each prediction variable in predicting the model, the beta weights here (< 2.0) (Amin, 2005) with tolerance (>.1) (Adegoke, 2013:54) were found in the following seven variables:

School Type ß = (.251), t(30) = .1.860, P=.073; Class size and TPR ß = (.184), t(30) = .956, P=.347; Teacher academic qualification ß = (.133), t(30) = .1.023, P=.314; Teacher professional qualification ß = (.238), t(30) = 1.705, P=.099; School Infrastructure ß = (.039), t(30) = .206, P=.838; School location ß = (-.175), t(30) = -1.270, P=.214 and Teacher job

satisfaction ß = (-.151), t(30) = -1.117, P=.273 were not significant (p>.05). These variables did not significantly contribute to the prediction model. The findings here confirmed that all the ten school quality variables accounted to some extent to pupils' achievement in mathematics but seven did not contribute significantly to the model, thus seven predictor variables were not good predictors of pupils' achievement in mathematics.

Research Question 8

What is the perception of the programme provider and implementer about the effectiveness of the EFA-FTI programme?

According to Amin (2005: 325), the analysis and interpretation of qualitative data can take many forms adapted to convey personal or research-based meaning to situations. Transcription and coding were the main procedures used here in analysing the data. From the transcripts, important themes were identified and coded representing the main ideas that emerged from the transcripts. The data were analyzed and later discussed.

TABLE 4.17: In-depth Interview (IDI) with Director of Human Resources Ministry of Basic Education (word verbatim responses)

S/N	Interview Transcript (**Segments of the text (ST)**	Codes;**themes**
1	**I:** Teachers' recruitment: Criteria: a. Experience b. Qualification c. person responsible. **R:** The Ministry of Basic Education used the lists established by the Regional Delegates on the bases of applicants' qualification (academic and professional) with or without teaching experience. Delegates know the field better than personnel in the Central administration, the Ministry of Basic Education. **D:** Though experience is a distinguishing factor in teacher quality it was not taken into consideration during the recruitment process. This was in line with Benson (2007) findings that the difference between the experienced and inexperienced teacher in the classroom is minimal. Meanwhile, table 4.15 revealed a significant (p= .047) relationship between experience and achievement in Mathematics while Table 4.18 revealed an insignificant (p= .099) relationship. Consideration was given to qualification only, improve pupils' learning as confirmed by some researchers (Alexander and Fuller, 2004; Darling-Hammond, 2000, Odinko, 2002).	Recruitment criteria: --Experience --Qualification (academic and professional) --Delegates

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2	**I:** Follow up strategies for the deployment of the recruited teachers. **R**: The donor agencies used reports on teachers' recruitment and deployment from the ministry including copies of the deployment decision at the start of each academic year. **D**: Relying on the reports from MINEDUB is not good enough especially as the reports were not as regular as they ought to be. Moreso, the 'on the field' follow up strategy pays off better than inadequate reports. This was confirmed by the World Bank representative during the IDI.	Follow up strategy: --Ministry reports --Deployment decisions
3	**I:** Effect of project on class size **R:** Yes and No. No, because teachers who were posted to schools particularly in the rural areas did not stay in the schools, partly because of lack of basic facilities (water and electricity) and in all the schools teachers had no salaries to sustain them (Salaries were paid almost six months after recruitment) there was therefore no incentive to stay. Yes, in a few schools; the surplus pupils from these reduced classes study in classrooms constructed by ADB or Japanese government (Don Japonais) **D:** The project recruited enough qualified teachers and deployed them to schools in need. But teachers could not stay in most of these schools (to cut down class size) as there were sent to areas that lacked basic facilities. Because of no salary in the first 6 months, the teachers had to go to leave with relatives who could feed them. Research revealed that reducing class size enhances learning and thus achievement (Blatchford, 2003, Isiugo-Abanihe and Labo-Popoola, 2004; and Blatchford et al., 2007). There are also studies that found no difference in achievement attributed to reduced class size (Fry, 2007; Chang et al, 2009)	Class size effect: Teacher absences --Basic facilities --Salary situation --Additional classrooms
4	**I:** Strategies to evaluate work of teachers on the field **R**: From time to time, the Divisional inspectors went to the field sometimes once in a term to inspect the teachers teach. It was not as often as necessary because of limited means **D:** Divisional inspectors went to the field only once every 4 months. The expected objectives could not be obtained because the visits were too few. Many researchers argue that regular follow up and supervision pays off (Trautwein et al. (2006), Galindo (2009) and Fonkeng (2007).	Supervision: --Inspection --Limited means --Divisional Inspectors
5	**I:** Comparism of teachers of the two school types (EFA-FTI & non-EFA- FTI schools) **R:** As at now, the difference is visible in a few schools but generally, the reduced numbers of pupils in some classrooms did not have	Teacher effectiveness: --Teaching/ learning

	significant effect on the achievement of their pupils as one still found schools with extremely huge class sizes and high Teacher/Pupil ratio (TPR) performing very well . **D:** Pupils in schools with reduced class sizes performed better (McBer, 2000, Ezeasor, 2003 and Teddle, 2010). These studies also established that peoples in huge classes equally performed better in some cases.	process --Reduced class size --Pupils' achievement
6	**I:** Challenges in the implementation process of the programme **R**: It has been difficult keeping the deployed teachers at their places of work. Despite the large number of teachers recruited for the programme (37,200), there were schools even at the periphery that could not boast of two qualified teachers on the staff. Moreover, salaries were not paid on time, due to unnecessary bottle-necks at the ministry. Supervision was almost absent as there was no financial allocation for this. **D:** The programme was not successful because of too many irregularities including salaries that were not paid on time. Classrooms were empty as many deployed teachers faked health and marriage certificates to be transferred to towns.	Programme Evaluation: --Deployment --Retention --Salaries --Supervision
7	**I:** Effect of this programme on the quality of education in Cameroon **R**: I said before that the quality of education with respect to pupils' proficiency in language and achievement mathematics has been very sluggish even in the EFA-FTI schools. Teachers in the EFA-FTI as well as the non EFA-FTI schools were less effective perhaps because of their modest remuneration and no incentive for them to work well. Therefore, the quality of education did not improve significantly notwithstanding the EFA-FTI programme. **D:** From analysis and responses of the world Bank, the effect of the project was not encouraging. Consequently, increase in pupils' achievement (quality) in mathematics was insignificant.	Achievement: --Teacher effectiveness --Incentive remuneration --ineffective
8	**I:** Government's recommendations to make it work **R:** The government should put in place control mechanisms for the implementation of such programmes, making sure, no teacher is moved out of his initial posting before a minimum period of time. MINEDUB recommends the WB should provide facilities such as school infrastructures, teachers' accommodation and incentives to keep the deployed teachers in their places of work. Salaries provided by the World Bank and other financial institutions should not take up to six months before they are paid to the personnel concerned. Postings should be made at	Recommend-ation: --Control mechanism --Bond

	least a month to school reopening to permit teachers and head teachers make adequate arrangements pertaining to their movements before schools begin. **D:** MINEDUB proposed that the government should spend part of her huge budget in providing houses and incentives for teachers especially in rural areas. Moreover, if new teachers sign an undertaking to work in schools to which they are posted for at least three years without asking for transfer, they will stay. If the World Bank provided housing for teachers and other school infrastructure in addition to better salaries paid on time, teachers would be encouraged to stay at their places of work. With such amenities in place, even those in township schools will like to work in the rural areas. According to Obonyo (2011), Duran-Narucki (2008) and Crook (2006), such facilities will improve teacher effectiveness and pupils' achievement.	-- Infrastructure --Incentives --Salaries --Postings --Appointment --Amenities --Transfer
9	**I:** challenges during the implementation of this programme **R:** Almost 50% of women recruited submitted marriage certificates of husbands who work in townships, MINEDUB was obliged to post them to join their husbands. Also, medical certificates of all sorts of fatal diseases emerged from some of the newly recruited teachers as soon as the postings were done asking to be transferred to township where there are big and specialised hospitals. Because of the aforementioned reasons, teachers who were posted to schools in rural areas, obtain their 'assumption of duty' and shortly after are reposted out of their workplace without having put in even one year of service. Also, there was the advent of regular absenteeism by teachers who stayed away from their schools because they have to travel long distances to collect their salaries from Banks located only in towns at the end of each month. **D:** Difficult retaining deployed teachers at their places of work. Transfer requested with tangible reasons: 'married, to meet husband or medical certificate to be closed to one's doctor' that emerged after postings, constant trips to town for salaries shopping and family visits turned out to be real challenges that were difficult to deal with. This made implementation difficult.	Challenges: --Falsehood --Absenteeism --Transfer
10	I: Recommendation on enhancement of the programme in the future **R:** Applicants should be made to sign an undertaking to work for at least three years at wherever they are sent to before asking for transfer. Government should provide financial resources for supervision and follow up. Salaries and other incentives for	

	EFA-FTI teachers should be paid as soon as they start work. The salaries for such teachers should be better than that of the regular teachers. The World Bank should not assist government by providing only salaries; she should also provide other resources like teachers' houses, school infrastructure and school materials to attract teachers to stay in their schools. Also, only teachers in good health who sign an undertaking should be recruited. **D:** Apart from signing a bond to put in at least three years before transfer, only healthy teachers as is done the military should be recruited subsequently. Incentives for teachers on the field should be provided. Salaries should be paid regularly starting with the first month after recruitment. Resources should be made available for regular supervision and follow up of teachers' work on the field.	Recommendation: --Bond --Supervision --Follow up --Infrastructure --Salaries --Health certificate

TABLE 4.18: IDI with the World Bank Representative (WBR)

S/N	Interview Transcript (**Segments of Texts**)	Codes; **Themes**
1	**I.** The desired outcomes of this project **R.** We expected to have a reduction in class size and TPR in select areas; from about 1:80 in urban and 1:45 in rural areas to 1:40 to improve quality of education. Also, to support regional equity by encouraging posting of teachers to remote areas. **D:** The desired outcome of the World Bank (WB) was to recruit 32,700 qualified teachers, to enable schools even in the hinterland benefit from the largesse of reducing class size and TPR (to 40 and 1:40) to improve achievement and therefore school quality as advocated by Isiugo-Labo-Papoula, (2004), Blatchford, (2003) and Nye et al., (2000).	Outcome --Class size reduction --Regional equity --Improve achievement (quality)
2	**I:** The Ministry's ways to monitor teachers' output **R:** We worked with the Ministry of Basic Education on the process of implementation by auditing their records two times during the project. The government reported on the money disbursed for the project every six months. Meanwhile, the intermediate and mid-term review was done two years after the launch of the project. The World Bank received monthly synthesis of all their sponsored projects on accountability. The ministry did not report progress of teachers on the field as there was 'no study, no follow up of the outcome of the recruited teachers of the	Accountability: --Monitor --Audit --Report

	programme during the implementation period'. **D**: The WB audited MINEDUB records twice during the five years of the programme. Records were based mainly on money disbursed (financial accountability). MINEDUB paid little attention to other aspects of the programme as confirmed by the WB representative. USAID (2005), Fry (2007) underscored the importance of follow up of projects.	--Review --Synthesis --Neglected follow up
3	**I:** Criteria for recruitment of EFA-FTI teachers **R**: The explanation is basic and simple; government recruit teachers and we paid their salaries for five years (recruited teachers on contract bases with a salary of 136000frs/month). Regarding quality, we could not make out the impact of contractualisation at the end of project because of the inadequate reports. We intend to start a new project that would include infrastructure and textbooks. **D:** The WB explained her choice of the programme objective to increase number of teachers in schools to cut down on class size. She regretted this and promised to carry out a better programme in 2015 that would include the provision of infrastructure and textbooks to schools. This as seen by Isiugo-Labo-Papoula, 2004, Blatchford, 2003, Nye et al., 2000 would improve achievement and quality of education.	Recruitment criteria: --Teachers pay --Contract --New project --Infrastructure -- provision of text books
4	**I:** Steps to guarantee programme evaluation :**R** Although MINEDUB was in charge of the implementation process, we follow up by carrying out an external audit of the money spent on the project. **D:** No mechanism was put in place to follow up or evaluate the project as they relied on MINEDUB records that were not regular. This was not a trustworthy approach to follow up or evaluate a project. The donor agencies would have designed a follow up strategy to evaluate the project on the field. Rand (2012) argued that if a project is abandoned to itself without follow up, the efforts and finances put in will yield no benefit. He went on to say that, errors are corrected during follow up.	Evaluation: --Accountability --MINEDUB --External audit --follow up strategy
5	**I:** Assuring progress towards the desired outcomes **R:** We carried out internal and external audit and ask government through MINEDUB to present her balance sheet (income and expenditure of funds) that was compared with our records.	Progress assurance: --Follow up Comparism --Audit

	D: The WB planned used internal and external audit using a balance sheet made up of money disbursed for salary, presented by MINEDUB, two years after the end of the project. This had nothing to do with the project objectives. Moosung (2006), Teddle, (2010) and Roy (2003) disclosed that no project is considered successful until it meets its objectives.	--Spending
6	**I:** Perceived worth of infrastructure **R**: We did not think this was necessary at the time, as other organizations were involved in this. There is a partnership, in which all other donor agencies provide their programs, and "we cannot do all the work" (quote). Moreover, we have done rehabilitation in some of the existing structures. Now, we shall use lessons learnt to improve on our next project. **D:** Infrastructure was left out as the WB thought she could rely on other agencies that were constructing classrooms. She said, 'we cannot do all' and continued with, 'there is a partnership in which other donors provide their programs'. The programme did not meet her objectives because the WB neglected an important phase, follow up of teachers' effectiveness on the field. Their errors enabled them to plan a more promising project that would include the missing variables by 2015.	Worth of Infrastructure: --Negligence --Interest --Dependence --Arrogance --Neglect
7	**I:** Evaluation of effect of programme to improve quality of primary education in Cameroon **R**: We have done our best so far but we have not been able to reduce Class size and TPR in the far North. We cannot definitely say that the project has improved quality of primary education because we have no data on the impact of the project on quality to show that quality has improved or not. Infact, there has been no official procedure, study or follow up of the outcome of the EFA-FTI programme since its inscription. All the teachers are trained but without pedagogic follow up. Moreover, MINEDUB sent irregular and appalling inspection reports from inspectors on the field. Generally, the project does not seem to have met her goals, because the policy of deployment of the recruited teachers has been very difficult to implement. **D:** The WB initially thought the programme was effective in the south, as she stated that the programme was not effective only in the North. The WB was frustrated as she could not lay hands on any data to justify this assertion. Furthermore, the WB	Programme Evaluation: -Disappointment --Doubt --absence of statistics, follow up reports --Bad reports --Pedagogy --Deployment

	representative expressed his disturbance in the insufficiencies of the reports from MINEDUB. He concluded that their goals were not met partly because there was no clear cut policy on teacher deployment in Cameroon and also no statistics to rely on.	
8	**I:** Outcome and implementation enhancement **R:** The project does not seem to have made a noteworthy contribution to quality but the next project will be different as we will recruit Parents Teachers Association (PTA) teachers who will like to work in the villages where they live. For now we realised that even if we recruited 50,000 teachers, they will all come back to urban schools after postings. We will also provide text books and monitor teaching and learning process in our next project. **D:** WB reported that the programme made no significant contribution to quality as the recruited teachers did not remain in the rural schools hence the idea of reducing class size was not met. WB expressed disappointment when she said, ''Even if 50000 teachers were recruited and posted to rural areas, they will all be found in urban schools shortly after postings. Perhaps the new project approach will be more productive because the PTA teachers recruited locally will be more prone to remaining in the rural areas than teachers in the original programme. Besides, such lofty approaches without follow up may still not meet the set objectives. This idea was confirmed by some researchers who said execution of any project devoid of any follow up and/or evaluation yields no benefit (Isaiah, 2013; Clotfelter et al., 2007).	--Disappointed --Proposal --Contribution --PTA teachers
9	**I:** Sustainability of program in terms of continuous payment of salaries to the teachers. **R:** We reached an agreement with the Ministry of Finance for the Government to retain sustainability of the programme at the end of the project. We are confident it will work out for the good of this sector and the country as a whole. **D:** In terms of sustainability in view of payment of teachers' salaries, WB revealed there has been an understanding reached with the Ministry of finance (MINFI) who has effectively taken over the payment of salaries of teachers recruited by the programme. Since the end of the programme (2011), payment of salaries has posed no problem.	Expectations: --Confidence -sustainability

10	**I:** Sustainability of the EFA-FTI programme	
	R: Cameroon education at this level needs to be truly free as parents still pay teachers salaries, buy books and other materials for children. Consequently, there exists a high drop-out rate from schools due to lack of funds. The government should make primary education effectively free. The government should also use a better course of action to keep teachers in their places of work	Recommendation: --Free education --Salaries --Materials --Poverty -- Policy
	D: At the end of the IDI, the WB representative made pertinent recommendations that will go a long way to improve the quality of education at the level of primary. One of them was; the implementation of the non-payment of fees at this level so as to meet the millennium goal of access to quality education by the 2015 deadline. The WB also invited the government to develop a policy that would keep all teachers at their places of work, especially the newly recruited ones particularly in rural areas.	

Research Question 8b

What are the perceptions of the National Pedagogic Inspectors (NPI) about the effectiveness of the EFA-FTI programme?

TABLE 4.19: Interview with the National Pedagogic Inspectors of Education (NPI)

S/N	Interview Transcript (**Segments of the text (ST)**	Codes;**themes**
1	**I:** Teachers' recruitment: Criteria: a. Experience b. Qualification **R:** The Ministry of Basic Education used the lists established by the Regional Delegates of all the ten regions according to their qualification **D:** Though experience is a distinguishing factor in teacher quality it was not taken into consideration during the recruitment process. This was in line with 20% of the inspectors responses, 80% had no idea about the criteria used. Benson (2007) found that the difference between the experienced and inexperienced teacher in the classroom is minimal. Table 4.15 revealed a significant (p= .047) relationship between experience and achievement in mathematics while Table 4.12 reveals a correlation that is extremely small and negative (-.200)	Recruitment criteria: -- Qualification: -- academic and -- professional
2	**I:** How World Bank followed up teachers' postings **R:** Have no idea as we were not involved in the programme. **D**: Only 20% of the National Inspectors' responses confirmed that the WB did not follow the teachers' postings and the other 80% had no idea at all. The WB audited MINEDUB records twice during the five	Follow up Monitor Financial accountability

	years. This was based on money disbursed (financial accountability) only. She paid little attention to other aspects of the programme as confirmed by the WB representative. The WB (2011) underscored the fact that there was 'no follow up of the outcome of teachers recruited by the programme during the implementation period'. 80% of the inspectors did not understand what is happening with respect to control and follow up.	Negligence Absence of data
3	**I:** Effect of project on class size, teacher effectiveness, language proficiency and mathematics achievement **R:** Yes and No. No, because teachers posted to rural areas do not stay in some of the schools due to no basic facilities (water and electricity) any salaries to sustain them (Salaries were paid almost six months after recruitment), there was no incentive to stay. Yes, there has been some effect in a few schools where achievement in mathematics has improved. **D:** The project recruited enough qualified teachers and deployed them to schools in need. 60% of the inspectors revealed that teachers could not stay in some of the schools (to cut down class size) as the schools were found in areas that lacked basic facilities. Moreover, having no salary in the first 6 months, worsened matters as teachers had to be where relatives could feed them (The view of 50% of the National inspectors). That notwithstanding, research has shown that reducing class size enhances teacher effectiveness, learning and thus achievement in maths (Blatchford, 2003 and Blatchford et al., 2007).	Class size reduction motivation achievement conveniences encouragement
4	**I:** Strategies to evaluate work of teachers on the field **R**: From time to time, the Divisional inspectors go to the field, sometimes once a term or less to inspect the teachers teach. It was not as often as necessary because of limited means **D:** Owing to the limited number of inspectors' visits to the field, the expected objectives could not be achieved because of inadequate inspection as follow up is an important aspect in the successful implementation of any new programme (Blatchford, 2003, Blatchford et al., 2007). 70% of the inspectors feel the same.	Inspection and follow up
5	**I:** Comparison of teachers' effectiveness of two school types (EFA-FTI and non-EFA- FTI schools) **R**: As at now, many EFA-FTI schools have more teachers and reduced pupils in the classrooms but these schools do not demonstrate superior performance of pupils as pupils in some overcrowded classes and high Teacher/Pupil ratio (TPR) perform very well. Teachers of this programme needed to be retrained because some of them exhibit incompetence as they cannot even write a	Efficiency/ effectiveness Achievement Incompetence Lack ability

	good essay themselves. (60% of the Inspectors had experienced this) **D:** Although some researchers (McBer, 2000, Ezeasor, 2003 and Teddle, 2010) opined that pupils in schools with reduced class sizes perform better, this study has proven that pupils of huge classes equally perform better in some cases. With the ineffectiveness observed by 80% of the inspectors, one is tempted to question the criteria that were used for recruitment if some of these teachers are inept and therefore unfit to teach. Things are even worse because there is no refreshal course organised for the recruited teachers. The big question here was, Who recruited such qualified but ineffective teachers for the Programme?	Teacher effectiveness
6	**I:** Challenges in the implementation process of the programme **R:** Separation of families, wives posted away from husbands. Despite the large number of teachers recruited for the programme teachers were not in their schools. No Supervision due to limited financial allocation to inspectors to enable them do the job. Moreover, women recruited submit marriage certificates of husbands who work in township. Recently, this is no longer respected as women are posted away from their husbands. But, medical certificates are most often valued even for newly recruited teachers. Other unexplained conditions transfer teachers away from their schools less than one year after postings. **D:** 80% of inspectors are of the opinion that the programme has not been successful because of too many irregularities. Classrooms are empty as many deployed teachers fake health and marriage certificates, and use other unscrupulous methods to be transferred to towns. 90% of inspectors frown at this phenomenon because most rural schools in the country lack teachers because of one reason or another. Wives posted away from their homes abandon their posts of responsibility to join husbands. The government needs a sturdy policy to combat this	Supervision Absenteeism Falsehood policy
7	**I:** Effect of this programme on the quality of education in Cameroon **R:** No significant outcome was experienced as teachers in the EFA-FTI as well as the non EFA-FTI schools were less effective because of their modest remuneration and no incentive to work well. 100% of the National inspectors feel that the quality of education has not improved significantly notwithstanding the EFA-FTI programme. **D:** From the analysis of the responses, almost all (90%) of the National inspectors revealed that the effect of the project has not been encouraging because teachers (new and old) all feel that they are not	Achievement: programme effectiveness Disgruntleness

8	**I:** Inspectors' recommendations to Government and the World Bank	Recommend-ation:
	R: Follow up and control mechanisms should be put in place. The government should spend part of her huge budget in providing houses and incentives for teachers especially in rural schools. Salaries provided by the World Bank and other financial institutions should be paid one month after postings. Postings should be done in time (at least one month before school reopening) to permit teachers and head teachers make adequate arrangements concerning their movements. Teachers should be given incentives to work in rural areas. 100% of the National inspectors are of the opinion that the World Bank should provide classrooms and teaching materials, housing for teachers and other school infrastructure in addition to better salaries that would keep the teachers at their places of work. **D:** 100% asked MINEDUB to provide school facilities and better working conditions to the teaching career. 100% asked the WB to provide housing and other incentives for the newly recruited teachers to keep them at their places of work. 60% agreed to the signing of an undertaking to work in schools to which they were posted for at least three years without asking for transfer.	Control mechanism Bond Incentives facilities
9	I: Recommendation to enhance the programme in the future	
	R: 70% of the inspectors recommended that applicants be made to sign an undertaking to work for at least three years wherever they are sent to before asking for transfer. 100% say, Government should provide financial resources for supervision and follow up. 100% say salaries and other incentives for EFA-FTI teachers should be paid as soon as they start work. 100% cry that the World Bank should provide teachers' houses, school infrastructure and school materials to attract teachers to rural schools. Only 40% are of the opinion that the government should recruit only healthy teachers (as in the military) and spell out the conditions of recruitment before recruiting teachers. **D:** Apart from signing a bond to put in three years before transfer as recommended by 100% of the inspectors, the idea of recruiting only healthy teachers as in the military was unpopular as only 20% of the inspectors approved of this idea. 100% said resources for teachers on the field should be provided. 90% were for salaries to be paid regularly	Recommend ation: Bond Supervision Follow up Health certificate

well treated by the government in terms of remuneration and conditions of work. Thus, teachers' effectiveness is low resulting in insignificant improvement in pupils' achievement in mathematics.

	starting with the first month after recruitment. 100% agreed that financial resources should be made available for regular supervision and follow up of teachers' work on the field.100% recommended regular refresher courses for these recruited teachers.	
10	I: Lapses of the implementation phase R: No idea D: 100% of the inspectors expressed their frustration as they were completely ignored during the implementation of the programme.	

Key: **I** =Interview Question

   R= Interviewee response

   D= Discussion

The researcher followed the recommended process of Miles and Huberman (1994) of presenting the interview questions posed, responses made and discussions of the responses in tables as illustrated above. The researcher presented in three tables 4.17, 4.18 and 4.19 transcription of the responses from interviewees using the first level coding that was fact-oriented (direct/ verbatim responses reduced to 'statements of texts'). The statements were derived from listening to the audio recording, reading and understanding of the field notes. Relevant words were regrouped, to become codes or themes. The emerging codes developed into themes were presented in the third columns of the tables. According to Kvale (1996), Amin (2005) and Denzin and Lincoln (2000) such codes/themes put together gave the true picture of the responses to questions posed by the researcher. The responses were synthesized using the themes that emerged from the analysis of the two IDI interview transcripts and 10 interview transcripts from the National Inspectors of MINEDUB.

The information in the groupings illustrated some link (as discussed in the tables) with the outcome of class size and TPR on achievement in mathematics.

Discussions

The study examined the characteristics of stakeholders that gave the distribution of respondents by sex, age, qualification, experience, language of instruction and effectiveness of the teacher in the classroom.

The first characteristics of 'sex' gave the impression that male teachers dominated the sample in numbers and appointment. The male teachers were more privileged in the selection process than the females. This could be attributed to the fact that female teachers were not opportuned to benefit from high positions of responsibility in the schools perhaps because they were overwhelmed with household chores including child-bearing exercise. Besides, it could be

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that the female staff was simply discriminated against for that reason fewer females than males were appointed head teachers at this level. Despite this, it is worth noting that gender issue including discrimination against the woman folk is an essential focus of globalization today, hence the effects of female employment and appointments cannot be undermined not even her efforts in classroom management and pupils' achievement (Tella, 2007). The next demographic variable 'age' if researched could probably have an effect on the teacher's effectiveness in the classroom. Voris (2011) analyzed the role of job satisfaction, age, and other demographic variables and found that as compared to the other variables, age has little or no effect of teacher's effectiveness. Previous research conducted by Dewey (1938) suggested that the elderly and matured teachers viewed all new ideas and knowledge through the lens of their own experiences and applied those experiences to make sense of new information. We all agree that as adults begin to age, the number of experiences they have increase resulting in active participation in teaching. It is a generally accepted fact that the number of years spent in teaching influences the quality of instruction in the classroom.

There is also a popular belief as confirmed by Tchombe (2011) that schools with experienced teachers usually have pupils performing better than those with inexperienced teachers. According to Ndukwu (2002), the most profitable years of teaching experience for language are two years with three years for mathematics, after which the experienced teacher has insignificant difference in his effectiveness and his pupils' achievement compared to the inexperienced teachers. The results of studies investigating the effects of teacher's experience did not always confirm the expected positive effect. According to Darling-Hammond (1999: 9) the effects are not always significant or linear.

The years of teaching experience of the project school teachers were generally higher than those of the non-project school teachers but this did not give the project school pupils an edge over those of the non-project schools in mathematics achievement. There were supporting as well as opposing results from many studies on the effect of years of teaching and student outcomes. Hanushek (1986) found that several studies revealed that experience is significantly related to student achievement; while others found that additional years of experience had a negative impact on student achievement. Meanwhile, Rivkin, Hanustrek and Kain (2000) found that the benefit of experience levels off after a few years. However, Rice (2003) argued that for experience to have an effect on student achievement it must be combined with teacher qualification. Although Ndukwu (2002) and Dills and Placone (2008) believed experience has some influence on students' learning achievement, Rice (2010) argued that teacher experience only has a relationship with classroom management.

Clotfelter, Ladd and Vigdor (2007) justified the importance of teacher experience in students' achievement in mathematics. In this study, however, a majority of teachers (72.5%) are found within the '11- 21 years' teaching experience. The results illustrated in table 4.11, that experience had a very low mean score (2.60) in predicting achievement in mathematics. This means that many teachers of the study did not contribute significantly to students' achievement in Mathematics. Moreover, from the researcher's 15 years experience on the field, many teachers get into the teaching field and remain there until retirement without making an impact in the students they teach. Because most teachers of the study (72.5%) had more than 11 years of experience, the researcher concluded that the effect of experience in the study was insignificant as teachers' effectiveness decreased with increased experience.

Hicks (2012) analyzed how related classroom management, teacher age, and effectiveness were, but the findings revealed no significant relationship between effectiveness and teacher's age. However, a study conducted by Hoy and Tschannen-Moran, (2007) and other researchers (Meador, 2013; McBer, 2000; Henry, 2008) found that older teachers were more comfortable with their teaching methods, but needed more time for better teaching/learning. Hence, it was wrong to conclude that teacher experience greatly affected achievement as the results of the study provided the contrary.

Teachers' academic and professional qualifications were seen to influence teacher effectiveness resulting in better achievement in mathematics. Zuzousky (2003) opined that teacher quality had a strong impact on student achievement. Later, Richardson (2008) found teacher qualification to be a major determinant of student achievement in mathematics. In addition, Parker (2004) pointed up that good subject matter knowledge (academic qualification) and pedagogic content knowledge (professional qualification) were essential for effective teaching. Certainly, the urban schools were staffed with more qualified teachers compared to the rural schools. It was then a paradox as the analyses indicated that the rural schools had higher mean scores in mathematics than the urban schools. This result confirmed the results of Okoye (2008) and Brown (2003) who revealed that school location had an insignificant relationship with pupils' performance. The reason in this case could be that the rural school teachers put in more effort than the urban as the results of the study revealed that teachers in towns are preoccupied with other activities because their salaries cannot meet the challenges of leaving in township. Could one also say that children in township schools also have more distractions than those of the rural areas? Egbe (2009) found that children in the rural settings had mothers who engaged them in measurements at home and on their farms.

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Since they also handled money as they sold in the markets, they developed the aptitude for better mathematics achievement than children in urban areas not exposed to such realities.

Teacher quality involved teacher qualification and effectiveness. Research revealed that teacher education had a positive correlation with student achievement. At times also, the teacher's education contributed very little to the child's achievement (table 4.1). Goldhaber and Brewer (2000) revealed that there was a significant contribution when the qualification was on a particular subject. This explained that when a teacher specialises in mathematics or Language, for example, the pupils he/she teaches achieve more than those taught by the teacher who is a generalist. This is the case with almost all the primary school teachers in Cameroon. Tchombe (2011) observed during her study on teacher education in Cameroon, that the Grade one teacher training colleges offered general education to her student teachers. Consequently, as observed by the National Inspectors of Education, these teachers are not very effective when they are recruited and posted to teach in schools. They is need for the Ministry of Education to regularly provide opportunity for them to participate in refreshal courses to enable them improve on their effectiveness in the classroom.

This study confirmed that about 67.5% (27) of the teachers selected for the study had the prerequisite academic qualification (GCE A/L) that qualified them to teach at the primary level. In Cameroon, it requires a pass in at least two subjects at the GCE A/L to qualify to write the entrance examination into the Grade One Teacher Training College. Adepoju (2002) explained that teacher characteristics like teacher qualification and experience exerted strong influence on pupils' outcome. Rivkin, Hanushek and Kain (2005) concluded that "teachers' qualification had a powerful effect on reading (Language) and Mathematics achievement. The study carried out by Rice (2003) found substantial positive effects for certified teachers and substantial negative effects for uncertified teachers, with correlations with pupils' achievement of .71 to -.51 respectively.

As was found in the results of the study, teachers' quality and pupils' performances had no significant relationship. Consequently, these characteristics (teachers' preparation and presentation of lessons, proper use of appropriate language, maintaining a positive classroom climate and managing the class well) did not exhibit the teacher quality that could affect pupils' academic achievement. The results simply supported research that only qualification in a particular field, for example, having a degree in mathematics or language, improved students' achievements. Since most of the Cameroon primary school teachers who had degrees or higher professional certificates did general education, their qualification had little impact on student achievement. Therefore, there was no relationship between teacher

qualification and pupils' achievement. Also, studies carried out by Olatoye (2006) and Ifeyinwa (2012) respectively, did not corroborate the previous findings that revealed a close link between teacher qualification and students' academic achievement. This could be as a result of different location of the studies, time lag, and other societal values.

Class sizes and teacher-pupil ratio are key input indicators used as a measure for education quality and efficiency within the education sector. Ampiah (2008) established that class sizes in the urban schools were higher than in the rural schools. The situation of class size and TPR of the sample by school type (project and non-project) whose means were 57 and 75 (see table 4.6) indicated that there was a difference between the class sizes and TPRs but none of these two school types met the required EFA-FTI recommendation of a TPR of 1: 40 as their TPR were 1:57 and 1:75 respectively. The findings of the study revealed that there existed a significant difference in class size and TPR between the EFA-FTI and non EFA-FTI schools. The mean score confirmed this sizeable difference which was visible to the researcher during the class observation exercise. Similarly, in this study, the combination of the large urban project and the small rural project (project schools) was higher than the combination of the large urban non-project and the small rural non-project (non-project) schools. Hence, this study revealed that the project (EFA-FTI) schools had smaller classes than the non-project (non-EFA-FTI) schools.

That notwithstanding, it was observed in both school types that, classes were larger than the EFA-FTI recommendation (40), hence, difficult to manage, with many indiscipline problems that sometimes resulted in low academic achievement. Although the urban project and rural project classes were classified as smaller classes, their TPR of 57 was still regarded as large (>40). There was actually a need for the Cameroon classes to reduce her class sizes to the recommended class size and TPR of the World Bank EFA-FTI (40) as some studies reveal that teachers were effective only when class sizes were small and controllable. Howley-Rowe (2000) revealed that small class sizes help teachers to be more effective resulting in better achievement of pupils. Also, Ehrenberg et al. (2001) found class size to have a strong influence on pupils' achievement, the lower the class size, the better the pupils' academic gains. On the contrary, Tomlinson (1986), found no relationship between class size and pupils' achievement. Furthermore, Projects STAR, (Student/Teacher Achievement Ratio) and SAGE, (Student Achievement Guarantee in Education) both point at one conclusion; there is little reason to believe that smaller class sizes logically yield higher student achievement. One could conclude that some studies point in the STAR and SAGE direction, however, almost an equal number of studies present results in the contrary direction.

The findings of the differences between EFA-FTI and non EFA-FTI classrooms in pupils' Language potency and achievement in mathematics revealed that there was a significant difference in proficiency in Language but not in achievement in mathematics. Also, the mean score of the proficiency in Language was higher in project than non-project schools while the mean scores in the achievement in mathematics were higher in the non-project than the project schools. This implied that the programme on the improvement of quality in the primary school by the introduction of EFA-FTI programme had an effect on the beneficiary group, in terms of proficiency in language. One could conclude that EFA-FTI teachers under this World Bank project were not statistically better than the non EFA-FTI teachers with respect to their pupils' achievement in mathematics. The World Bank embarked on this project of paying teachers' salaries because she taught it would serve as an incentive to make teachers stay at their places of work and be effective in the classroom, to improve education quality in the Cameroon primary school but the outcome seemed to have fallen short of their expectations.

The use of English or French as the language of instruction in the primary school is a complex issue as far as Cameroon is concerned. This is because Cameroon has been a Bilingual country since Reunification (October 1, 1961) with two official languages inherited from the colonial masters. Cameroon has a dual system of education, French and English, and both English and French are taught as compulsory school subjects. Besides, in the primary school all subjects are taught in either English or French and an Anglophone is expected to pass in English and a Francophone in French for employment and higher education. Infact, being bilingual in Cameroon is becoming a pre-requisite for admission into higher institutions of learning and an added advantage for employment. However, the achievement rate of pupils studying in English was higher than that of pupils studying in the French language. The same trend of events was observed by MINEDUB in 2008 and 2009.

Although, Gillani et al. (2010) recommended that the medium of instruction should be understandable to teachers and students, the francophone children followed up classes taught in the French language and the English speaking pupils, classes taught in English. The medium of instruction was a matter of great debate among teachers, educationists and parents alike in Cameroon. Some language specialists in the ministries of education said that neither English nor French should be the medium of instruction at the level of primary rather they preferred the mother tongue to be taught as a subject right from the very beginning of school (MINEDUB, 2013). It is difficult to institute this in Cameroon because there are 258 dialects

in Cameroon (Echu, 2004). However, English and the French languages occupy a very important place in the educational curricula since the two also remain the languages of diplomatic affairs, legal proceedings etc in the country. Although French is spoken by eight out of the ten regions of Cameroon, of all the languages in the world today, English is taken as the primary language (Fonlon, 1963). From observation, because of its importance in the world, many Francophones in Cameroon today send their children to English-speaking schools where English is the principal language of instruction.

Proficiency in Language and teacher working experience were influential in predicting pupils' achievement in mathematics. Language proficiency was the most influential variable for predicting mathematics achievement of all the ten predictor variables of the study. Adegoke and Ibode (2007) discovered that knowledge of English language was a predictor of student's cognitive achievement in mathematics. Results of the study equally show that the type of school that performed well in the language test also did well in the mathematics achievement test. The findings confirmed that proficiency in Language contributed significantly and had the highest correlation with achievement in mathematics (DV) (table 4.4). With respect to effectiveness, Menix (2007) evaluation study on learning and program effectiveness, found learning achievement as an integral component of any educational programme that uses achievement as a determinant of school effectiveness and quality in an educational system. Barry (2010) illustrated the importance of teaching effectiveness on pupils' achievement. Powers (2004) corroborated that improvement on school quality through the improvement in students' academic achievement came through the vigorous evaluation of the teacher, student and school component of education.

The research question (RQ 8 and 8b) that demanded the perception of the programme provider and implementer about the effectiveness of the EFA-FTI programme was answered using Interview responses. From the responses of these two key interviewees and the National Pedagogic Inspectors (after transcription and identification of themes and generation of codes), the quality of education has not improved significantly as the EFA-FTI schools still had an average class size of 57 (greater than the WB recommendation of 40) and a high TPR (1:57). There is also empirical justification that pupils in the EFA-FTI schools did not have better scores than those in the non EFA-FTI schools in mathematics.

 The analysis which was presented hereafter related events that chronologically developed the conceptual framework that enabled the reader, the funding partners and the beneficiary, the government of Cameroon gain background knowledge that could influence decision making.

Recruitment of the EFA-FTI teachers was done based on quality (qualification) with or without experience. The teachers were recruited on contract bases (conceptualization) on a salary of 136000 FCFA/month (MINEDUB, 2008). Although experience was not considered during the recruitment process, some of the teachers recruited from the pool of Parents Teachers Association (PTA) teachers had gained experience on the job as compared to those who just graduated from teacher training institutions. The World Bank (WB) relied on MINEDUB for the follow up strategy using semester reports that were accompanied by posting decisions. Furthermore, the WB carried out internal and external audit, and used their balance sheet (on finances disbursed) to compare with the ministry's reports.

Talking about the main theme of the project; reduction of class size and TPR did not make significant progress in attaining the objective of improving achievement in mathematics as set at the beginning (2007) of the programme. Although increase in teacher quantity was meant to reduce class sizes and increase achievement, teachers posted to rural areas did not stay in their schools for various reasons including non-payment of salaries and absence of basic facilities in such schools and locations. MINEDUB had to put in place, structures for inspection and supervision of teachers on the job, but because of limited means, inspectors hardly went to the field thus, the work was not effectively done. Even though the WB expected a monthly synthesis of all projects financed by them, the government reported on the EFA-FTI program only twice during the implementation period (2007-2011). Moreso, their reports were basically on financial accountability rather than pedagogy that could have had an effect on pupils' achievement and thus, quality of education at the primary level.

In spite of the EFA programme, the quality of education in Cameroon has not improved as the status-quo was unbroken in both school types. Teachers in both EFA-FTI and non EFA-FTI schools were less effective in their classrooms. Surprisingly, the non EFA-FTI schools achieved better in the mathematics test than the EFA-FTI schools with all the available human and material resources. Unfortunately, in the EFA-FTI schools one still found overcrowded classrooms and worse still, there were schools in village communities with one (the head teacher) or two teachers despite the 37,200 teachers just recruited for primary schools in the country. One could conclude that many factors not in this study must have contributed to this unanticipated outcome of this programme.

At this point in time, one could not say that the EFA-FTI programme attained its objectives, because from the interviewees' responses and the results of the test administered, the project seemed to have partially achieved the set objectives to reduce class sizes, increase teacher quality and quantity and improve achievement in the primary school. In spite of this,

pupils' proficiency in language was significantly different in the two school types (EFA-FTI and non EFA-FTI) with language proficiency having the highest correlation coefficient with achievement in mathematics (r=.625).

With respect to measure to ensure the effectiveness of the programme, the interviewees recommended that the government should put in place control mechanisms whereby no teacher was transferred out of his/her place of work before 3 years after posting. Government was also to provide financial resources for supervision and follow up of newly recruited teachers on the field. Salaries and other incentives for EFA-FTI teachers should be paid as soon as the teachers start work. The only consoling aspect of this exercise was that the WB decided to design a new project that would recruit mainly PTA teachers who could conveniently leave and teach in their villages and other rural areas. The WB should equally provide text books and monitor the teaching and learning exercise in classrooms in the next project.

The EFA-FTI programme had a number of challenges in its implementation. The fact that most women recruited under the programme (EFA-FTI) produced married certificates at the time of postings requesting to be posted to join husbands in the cities was a cause for concern. In addition, a good number of teachers also produced poor health certificates claiming they had to work near equipped hospitals at the time of postings made it difficult for the posting exercise to be efficiently done. Again, there were long periods of absence by teachers who travelled long distances to collect their salaries from banks found only in towns. All these reasons contributed to the EFA-FTI project not properly meeting her goals. The World Bank expert response during the In-depth interview that "before now, there has been no procedure, no study, statistical data or follow up of the EFA-FTI programme" That is awful. It was necessary for MINEDUB to follow up and report to the World Bank the impact of the programme on the quality of primary education in Cameroon. This was not the situation, seven years after its launch. The follow up would have given basis for monitoring and adjustments in the implementation of the EFA-FTI programme. This would have improved pupils' achievement and made the enhanced quality of primary education in the Cameroon education system a reality.

CHAPTER FIVE

SUMMARY CONCLUSION AND RECOMMENDATIONS

5.1 Summary of the findings

The main objective of this study was to evaluate the EFA-FTI programme in Cameroon that had as objective to recruit more qualified teachers to cut down on class size and TPR and thus improve the quality of education at the primary level. Under the study some important independent variables were considered: class size and TPR, school type and school location, teacher academic qualification, teacher professional qualification, school infrastructure, teacher working experience, teacher effectiveness and teacher job satisfaction, proficiency in language and the only dependent variable was achievement in mathematics. The researchers evaluated the effects of these variables with regard to achievement using test scores of a core subject, mathematics. The study examined the effects with respect to the two school types; EFA-FTI (project) schools and non-EFA-FTI (non-project) schools.

The study used both qualitative and quantitative methods (triangulation) in generating data.

This entailed the use of in-depth interviews, questionnaires, observation techniques, filling in biodata of participants, checklist, rating scale and achievement tests. The CIPP evaluation model that encompasses context evaluation, input evaluation, process evaluation and product evaluation was used for the study. Data collected were analyzed using transcription, frequency and percentages, t-test and ANOVA, Pearson correlation and multiple regression.

The major findings of the study are summarized as follows:

i. There was empirical evidence that quality of education has not improved significantly (with the introduction of the EFA-FTI programme) as the EFA-FTI schools still had an average class size of 57 (greater than the WB recommended; 40) and a high TPR (1:57). Despite the recruitment of 37,200 teachers resulting in increased teacher quality and quantity, pupils of the EFA-FTI and non EFA-FTI schools were not significantly different in their mathematics achievement scores.

ii. The study revealed that for such projects to be effective, government needed to provide financial resources for supervision and follow up of teachers on the field.

iii. It also revealed that teachers' effectiveness was low resulting in insignificant improvement in pupils' achievement in mathematics.

iv. There was need for the Government to put in place a policy that would retain teachers at their places of work for at least three years before requesting for transfer.

v. They were more male teachers and head teachers than females in the sample schools of the study and more male teachers than female occupied position of responsibility.

vi. Most teachers of the study fell within the ages 31-40 years but most head teachers fell within the ages 41-50 years with only 2.5% being under 30 years of age. However, more head teachers than classroom teachers of the sample were close to retirement that is, were found within the age range 51-60 years.

vii. 67.5% of the sampled teachers were holders of A/L certificates and 55% held a degree, while 72.5% held at least the GCE O/L as their highest academic qualification. Also, most teachers were professionally qualified as 90% of teachers in the study held a teachers' Grade One certificate (professional qualification)

viii. A majority of the teaching staff had a working experience of 11- 15 years while a majority of head teachers had a working experience of more than 21 years. It could be argued that more experience was needed for appointments.

ix. 40% of the teachers used English while 60% used French as the language of instruction in their classrooms.

x. The sample of pupils for the study had more boys (54.5%) than girls (42%). Only 90.4% of the total number of 2000 pupils (1807) filled and returned the questionnaire to the researcher.

xi. School type (Urban project, Urban non-project and Rural project, Rural non-project) grouped into project and non-project, had no significant effect on teacher effectiveness

xii. There was a significant difference between the EFA-FTI (project) and Non EFA-FTI (non-project) schools in terms of class sizes and TPR.

xiii. There was a significant difference in terms of class sizes and TPR between 2006/07 (baseline, before start of the programme) and 2011/12 (end of programme).

xiv. Teacher academic qualification was positively related to pupils' academic achievement but not significant.

xv. Teacher professional qualification was negatively related to pupils' academic achievement but not significant.

xvi. Teacher effectiveness was significantly related to pupils' academic achievement as it predicted the DV in the model.

xvii. Classrooms that used English as medium of instruction had higher achievement scores than those that used French.

xviii. The result of analysis showed that there was a significant difference in proficiency in Language between EFA-FTI (project) and non EFA-FTI (non-project) classrooms.

xix. The result also illustrated that pupils with high language proficiency performed better in mathematics that those with low language proficiency.

xx. The obtained equation resulting from a set of the ten predictor variables allowed reliable prediction of achievement in mathematics, the dependent variable.

xxi. Proficiency in language, teacher working experience and teacher effectiveness were the most influential IVs in predicting achievement in mathematics and the relationship between language proficiency and mathematics achievement was highly positive and statistically significant. School Type, Class size and TPR, Teacher academic qualification, Teacher professional qualification, material resources, school location and Teacher job satisfaction were predictor variables that did not contribute significantly to the prediction of achievement in mathematics. The results showed that language proficiency was much more important for predicting mathematics achievement than each of the other nine predictor variables.

5.2 Implications

The World Bank: to ensure that the welfare of the teachers is taken into consideration

MINEDUB: to ensure that there is proper control and supervision, follow up and regular reporting of teachers on the field

Teachers: to ensure hard work, patience and perseverance in the teaching job

5.3 Conclusion

The findings of this study revealed that introducing a programme with a restricted independent variable without consideration of other contributory factors has a tendency of not succeeding. Moreover, focusing on one MDG as has been the case in this WB project, neglects the other seven goals. This does not satisfy the holistic vision of achieving quality education as recommended in the Dakar Framework for Action (2000). The holistic vision of quality focuses on 8 UN Millennium Development Goals (MDGs). Furthermore, the EFA-FTI programme in Cameroon did not meet its objective of improving school quality in terms of increasing pupils' achievement in mathematics in the primary school.

Teacher efficiency should be improved by providing incentives that would arouse teachers' job satisfaction and thus improve their effectiveness in schools. The teachers from the EFA-FTI schools who have no employee motivation resulting in ineffectiveness could be the main reason why pupils in the EFA-FTI did not perform well in the pupils' achievement test in mathematics.

There should be more recruitment of teachers in order to reduce the overcrowded classrooms; cut down on class size and TPR to meet the WB recommendation of 40 and 1/40 respectively.

Teachers posted to schools particularly in rural areas should be made to stay at their places of work, by providing them incentives to improve their condition of work. To reduce attrition, married women should not be posted to areas far away from their families. For this project to fully be successful, teachers must stay at their places of work, salaries need to be paid in time, there ought to be thorough follow up, control and supervision of teachers on the field.

There was empirical evidence to show to administrators, educationists, parents and pupils alike that language proficiency is primordial in carrying out any academic endeavor. Pupils would be aware that they need to be efficient in language to understand the concepts in mathematics and improve their achievement in mathematics. Generally, quality of education in schools was based on test scores particularly in the core subjects. Our findings showed that the impact of language proficiency on mathematics achievement was significant as language proficiency was extremely important in predicting students' achievement in mathematics. These findings also revealed that pupils' having a low level of English proficiency were disadvantaged as they also had a lower score in mathematics. The findings were supported by the research reviewed earlier which argued that mathematics content itself demands a high degree of language (English or French) proficiency.

For the government to keep the teachers deployed to schools particularly in the rural areas, the national Inspectors suggested that applicants be made to sign an undertaking to work for at least three years wherever they are posted to before asking for transfer. Only applicants who were prepared to meet under this condition would be recruited. The study revealed that for such projects to be effective, government need to provide financial resources for supervision and follow up of teachers on the field. Good salaries and other incentives for EFA-FTI teachers will boast the morale of the teachers and serve as the spring board for effective work in the classroom.

Evaluation of the EFA-FTI programme has provided empirical basis for ascertaining the impact of small class size and TPR, improved teacher quality and quantity and improved proficiency in language (French or English) on pupils' performance in mathematics. This will at the same time provide donor agencies, the government of Cameroon, evaluators and other researchers the possibility to visualize difficulties encountered in the implementation of such programmes to prepare them for consequent eventualities.

5.4 Recommendations

- To cut down of class size and TPR, there is need to evolve policies and strategies that would keep recruited teachers at their places of work.
- The Government should make the teachers to sign an undertaking to stay at their work places for at least three years before applying for transfer to other schools.
- The government should provide financial resources for supervision and follow up with salaries and other incentives to EFA-FTI teachers as soon as they start work.
- Moreover, the government should provide books and other school materials for pupils, financial resources for incentives to teachers posted to rural areas.
- The World Bank EFA-FTI programme of recruiting 37200 qualified teachers and payment of their salaries does not pay-off, she should also provide other resources like accommodation for teachers, and basic facilities like electricity and water, to enable the teachers stay especially in schools in the rural areas.
- The WB should also follow up, supervise and control the execution of their sponsored projects on the field.
- The government should put in place control mechanisms for the implementation of such programmes, making sure, no teacher is moved out of his initial posting before an approved minimum period.
- Teachers should undergo thorough medical examination as is done in the military and those with severe and incurable diseases not recruited.
- There is need for the Government to collaborate with the National Pedagogic Inspectors in terms of funding supervision, control and follow up of newly recruited teachers on the field.
- Refreshal courses should be organised for the recruited teachers to enable them improve on their content knowledge and teaching skills in schools.

> ➤ Postings should be made at least a month to school reopening to permit teachers and head teachers make adequate arrangements pertaining to movements especially of their families before schools begin.

The aforementioned recommendations will not only shape future work but give the required impetus for others to venture into conducting such evaluations involving both qualitative and quantitative analyses.

5.5 Contributions to Knowledge

The study:

- Provided empirical evidence that pupils with high language proficiency obtained a higher mathematics test score than those with low language proficiency;

- There was empirical evidence that class sizes have not improved significantly (with the introduction of the EFA-FTI programme) as the EFA-FTI schools still had an average class size of 57 (greater than the WB; 40) and a high TPR (1:57);

- Has provided the needed empirical evidence; the evaluation of the very important EFA-FTI programme which had all along not been evaluated.

- Revealed that failure in the regular follow up in the implementation of programmes, minimizes the successes of the expectations of such programmes irrespective of the magnitude of the endeavour in terms of money spent;

- Demonstrated that the success of any educational investments or financing from donor agencies without total collaboration in monitoring, follow up and control would fail as their efforts would be hampered by the deep rooted factors that determine successes of the country's actions.

5.6 Limitations of the study

5.6.1 Limitations for data collection procedure

Some respondents (193 pupils) did not fill in their questionnaires perhaps because they did not understand the importance of the research. The researcher found that some people did not want to cooperate perhaps because of lack of interest or want of incentives. There seem to have been poor rapport between head teacher and his/her class teacher that could have prevented the teacher from complying. Some participants were reluctant to participate because they wanted payment for the exercise before compliance. One could not possibly pay all the people concerned because of limited finances. The National Inspectors demonstrated

less concern during the interview exercise as they complained that they were not involved in the implementation of the project.

5.7 Suggestion for further studies

i. Future study could examine class size and teacher management techniques for effective teaching. The techniques on school administration and discipline in schools would be beneficial to establishing the reason for pupils' achievement in class.

ii. The study was limited to evaluation of class size on achievement in mathematics; a quasi-experimental study could be carried out using cultural beliefs that influence class size in nomadic areas and the effect on pupils' proficiency in language and achievement in the primary school.

iii. Apart from these ten predictor variables used for this study, one could consider other variables like teaching method, availability of textbooks and other school materials, etc that could shed light on the effects of class size and TPR on achievement in language.

iv. A future study could investigate reasons why students in larger classes equally perform well in some schools. This will reveal the quality of teachers that handle such classes and the management approaches used for their pupils to understand.

v. A comparative study on the effects of class size and teacher quality on pupils' performances in mathematics in the Francophone and Anglophone regions of Cameroon could be carried out.

vi. To better explore the influence of language proficiency on mathematics achievement in schools, a longitudinal study is recommended.

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Appendix 1: Class observation Rating Scale (CORS)

This observation rating scale was used to collect data on the effectiveness of the teacher in the classroom in order to evaluate the EFA-FTI programme in Cameroon.

SECTION A: Background Information

Fill in the dashes and tick the rectangles and brackets (√) where necessary.

Name of school: ————————————————————————
School type: ——————————— Location:————————————
Teacher's name: ————————————————————(optional)
Sex: ——————————— male (   ) ——————————— female (   )

Teacher's qualification: ——academic: FSLC   [   ]
                                       GCE O/L   [   ]
                                       GCE A/L   [   ]
                                       BA, BSc, BEd   [   ]
                   Professional: Teacher Grade 2   [   ]
                           Teacher Grade 1   [   ]
                      Higher teacher diploma (ENS) [   ]
Working experience as classroom teacher: (   ) 0-5 years
                                     (   ) 6-10 years
                                     (   ) 11-15 years
                                     (   ) 16-20 years
                                     (   ) 21 years and above

Teaching subject: ————————————————————————
No. of pupils in the classroom ————————————————————

SECTION B

The following statements are used to rate the teacher's activities in the classroom during the teaching and learning process. The researcher in observing the teacher teach would among others, rate the teacher's effectiveness at every stage by ticking the column that is closest to the teacher's performance in class.

S/N	Item	Excellent 4	Good 3	Fair 2	Poor 1
	PREPARATION				
1	Distribution of time in lesson notes				
2	The plan based on the use of simple to complex language				
	LANGUAGE USE				
3	The teacher used suitable language fluently				

	(English/French) in the classroom.				
4	How adequate was language used for the prepared course materials.				
LESSON PRESENTATION					
5	How did he accept students answers				
6	Use of activities/exercises to achieve the objectives of the lesson				
7	Transitions between activities				
8	Communicate appropriately with students				
9	The proportion of teacher talk to student talk				
10	The amount of teacher feedback was adequate				
11	The organisation of students' participation in class discussion				
12	Marking pupils' written work				
13	Usage of a variety of teaching method				
14	Pupil participation in written class work				
CLASSROOM MANAGEMENT					
15	The use of small group discussion during each activity.				
16	The seating arrangement facilitating learning				
17	Use of audio-visual and technical teaching materials				
18	How teacher instils discipline among students				
CLASSROOM ATMOSPHERE					
19	Active and lively student participation in class work				
20	Relationship between student and teacher				

Appendix 2: Head Teacher Material Resources Checklist (HTMRC)

This questionnaire is administered to collect data for a study on the Evaluation of the EFA-FTI programme in Cameroon. Try to be as frank as possible as the information you give will be treated with utmost confidentiality. The Head teacher will consider the materials found in the classroom.

SECTION A   Background Information
Fill in the dashes and tick bracket (√) where necessary.
Name of school...
Name of Head teacher..
Professional qualification..
Level of education (academic)..

Tick the most appropriate
Age of head teacher .... (   ) under 20 years
                                      (   ) 21-30 years old
                                      (   ) 31-40 years old
                                      (   ) 41-50 years old
                                      (   ) 51-60 years old

Working experience as Head teacher:	Working experience as classroom teacher:
( ) 0-5 years	( ) 0-5 years
( ) 6-10 years	( ) 6-10 years
( ) 11-15 years	( ) 11-15 years
( ) 16-20 years	( ) 16-20 years
( ) 21 years and above	( ) 21 years and above

SECTION B
1. Location of school...................... (   ) Urban .... (   ) Rural ....
2. Type of school .... (   ) Project .... (   ) Non-Project ....
3. School enrolment...
4. Number of project teachers...
5. Number of teachers on staff...
6. Number of teachers that have attended in-service training workshops...........
    i, project teachers (   ) ....ii. non-project teachers (   )
7. Medium of instruction ....tick one (   ) English............ (   ) French

SECTION C

a) Please fill the appropriate cell

Items	Quantity				Condition			
	Number available		Shortage		Number Good		Number Needing Repair/replacement	
	EFA-FTI schools	Non EFA-FTI schools	EFA-FTI schools	Non EFA-FTI schools	EFA-FTI schools	Non EFA-FTI schools	EFA-FTI schools	Non EFA-FTI schools
Classrooms								
Teachers' Tables								
Teachers' Chairs								
ChalkBoards								
Pupils'Desks								

Appendix 3: Interview Guide for In-depth Interview (IDI) of the Director of Human Resources and World Bank Representative

Section A: Director of Human Resources (DHR)

The EFA-FTI is a project initiated by the World Bank with the aim of:

- reducing class size by recruiting teachers in the public education system and deploying them in an equitable manner.
- paying salaries of the 37,200 recruited teachers of the project for 4 years
- helping to reduce the pupil/teacher ratio in classrooms across the regions of Cameroon.
- Improving school quality by improving achievement in mathematics

With these aims in view, the researcher would like to ask the Director of Human Resources the following questions. The questions should be answered as frankly and truthful as possible. Your responses would be used purely for this study and will be treated with utmost confidence

The questions are as follows:

1. How was the recruitment conducted: a-Criteria b. Experience c. Qualification? Why?
2. How did the donor agencies of this programme follow up the postings of the recruited teachers?
3. Has the project actually cut down on class size? If no, Why? If yes, where did you keep the surplus number of pupils when the class sizes reduced?
4. What strategies did you put in place to evaluate the work of the teachers on the field?
5. What was the difference in teacher effectiveness (teaching/learning process and achievement) between the EFA-FTI and non EFA-FTI classes?
6. What did not worked well in the implementation process of this programme? Please elaborate.
7. What was the effect of this programme on the quality of education in Cameroon at this level?
8. What recommendations would you like to make to the government, the World Bank for future efforts of this kind to be more rewarding
9. What challenges did you encounter during the implementation of this programme?
10. What do you think could be done to enhance the programme in the future?

Thank you for your time and contributions to this project.

Section B: The World Bank Representative (WBR)

The EFA-FTI is a project initiated by the World Bank with the aim of:

- reducing class size by recruiting teachers in the public education system and deploying them in an equitable manner.
- paying salaries of the 37,200 recruited teachers of the project for 4 years
- helping to reduce the pupil/teacher ratio in classrooms across the 10 regions of Cameroon.
- Improving of school quality by improving achievement in mathematics

With these aims in view, the researcher would like to ask the World Bank representative the following questions that should be answered as frankly and truthful as possible as the answers that would be used purely for this study will be treated with utmost confidence.

The questions are as follows:

1. What were the desired outcomes of this project?

2. How often did you monitor the work done in the ministry of Basic education (recruitment and posting of teachers) the teachers output on the field (improved teaching method) and the students' improvement of quality (Improved results in tests and exams)?

3. Could you explain why you chose the recruitment of more teachers as the sole quality indicator at this primary education level?

4. What steps did you take to ensure that the goals of the programme were attained?

5. What did you use to ascertain that the ministry was making progress towards the desired outcomes? Elaborate

6. Why did the EFA-FTI programme not include increased number of classrooms and other infrastructure like teachers table and chair, pupils' desks and chalkboards?

7. Would you say the project helped to improve the quality of primary education in Cameroon? If yes, In terms of what? And how?

8. Do you think your efforts have been worthwhile? If 'yes', what is the way forward? If 'no', how would you ameliorate the implementation of such programmes if you were called upon to carry out the same programme in another country?

9. What happened to the payment of the teachers' salaries at the end of the programme?

10. Is there anything you would like to add pertaining to the sustainability of this programme?

Thank you for your time and contributions made towards the realisation of this project.

Section C: Opt-In Consent Form-World Bank Representative, Director of Human Resources and National Inspectors of the Ministry of Basic Education

Date..

Name of researcher   ....

Address..

Telephone number and email address...

For us to attain quality Education for All (EFA) by the year 2015, it was of great importance to evaluate the efforts made by the World Bank in the process of accelerating endeavours made towards the Millennium Development Goal. The researcher used some school variables to investigate the quality of education after the implementation of the EFA-FTI programme.

 I am therefore, writing for your consent to carry out an in-depth interview with you in this regard

My study has been reviewed and given clearance by the Ibadan University Research Ethics Committee; consequently, the information collected from you will be treated with confidentiality and anonymity. You have the right to accept or refuse to take part in the research or withdraw at anytime. If you are willing to participate I shall be grateful if you could sign and date the consent form.

Yours faithfully

University of Ibadan.

International Centre for Educational Evaluation

…………………………………………………………………Cut here, sign and submit.

I consent to take part in the study and declare that:

I have read and understood the project to be carried out.

- I understand all the participants will be protected by the rules governing research involving human participants set by the Ethics Committee of Ibadan University.

- I understand that acceptance to participate is voluntary and one can withdraw at any time

    Name: …………………………………………………………...........................

    Position held: …………………………………………………….....................

    Name of the establishment to take part in the study: ...……………………..................

    Signature: ……………………...

Appendix 4: Interview Guide for the National Pedagogic Inspectors (NPI) in the Ministry of Basic Education.

The EFA-FTI is a project initiated by the World Bank with the aim of:

- reducing class size by recruiting teachers in the public education system and deploying them in an equitable manner.
- helping to reduce the pupil/teacher ratio in classrooms across the regions of Cameroon.
- Improving of school quality by improving achievement in mathematics

With these aims in view, the researcher would like to ask the Director of Human Resources the following questions. The questions should be answered as frankly and truthful as possible. Your responses would be used purely for this study and will be treated with utmost confidence

The questions are as follows:

1. What were the criteria for recruitment: a-. Experience b. Qualification? Why?
2. How did the World Bank of this programme follow up the postings of the recruited teachers?
3. Has the project actually cut down on class size? If no, Why? If yes, where did MINEDUB keep the surplus number of pupils when the class sizes reduced?
4. What strategies did your ministry put in place to evaluate the work of the teachers on the field?
5. What was the difference in teacher effectiveness (teaching/learning process and achievement) between the EFA-FTI and non EFA-FTI classes?
6. What challenges did you as a National inspector of Basic education encounter during the implementation of this programme?
7. What was the effect of this programme on the quality of education in Cameroon at this level?
8. What recommendations would you like to make to the government, the World Bank for future efforts of this kind to be more rewarding
9. What did you think could be done to enhance the programme in the future?
10. What did not worked well in the implementation process of this programme? Please elaborate.

Thank you for your time and contributions to this project.

Appendix 5: Teacher Job Satisfaction Questionnaire (TJSQ)

This questionnaire is administered to collect data for a study on the Evaluation of the EFA-FTI programme in Cameroon. Try to be as frank as possible as the information you give will be treated with utmost confidentiality.

SECTION A

Name of school: ———————————————————————

School type: Project ( ) — Non-project (   ); location: Urban ( ) — Rural ( )

Teacher's name: ————————————————————

Teacher's qualification: (academic) ————— (professional) —————

Teaching experience as classroom teacher: (   ) 0-5 years

(   ) 6-10 years

(   ) 11-15 years

(   ) 16-20 years

(   ) 21 years and above

SECTION B

The following statements are meant to measure the level of the teacher's job satisfaction. The teacher is expected to tick the appropriate box that expresses how satisfied or dissatisfied he is with his job on a four point scale of 'disagree very much, disagree, agree, and agree very much'. 1= disagree very much 2= disagree 3= agree 4= agree very much'.

S/N	Items	DM	D	A	AM
1	There are really limited chances for promotion in the teaching job				
2	When one does a job well, he/she receives recognition for it.				
3	The application of many administrative rules make the teaching job uninteresting				
4	One is not obliged to like the people one works with				
5	The teaching job is not satisfying				
6	Those who do well on the job stand a fair chance of being promoted				
7	The work people do is not appreciated by hierarchy.				
8	Teachers' efforts are seldom blocked by hierarchy				
9	One needs to work harder to get the incentives				
10	Teachers are unappreciated by the government considering the salary they get at the end of the month				
11	Our head teacher shows little interest in subordinates				
12	The benefit we have is equitable to what we do				
13	Working with my co workers is quite an experience				
14	The teaching job is a mean career to fit in for life				
15	Teaching has chances for salary increase				
16	There are deserving benefits which we do not have				
17	Teaching requires too much paper work to do				
18	The teaching job is disgusting				
19	The teaching job is enjoyable				
20	Work assignments are not fully explained				

Appendix 6: Pupils' Evaluation of Teacher Effectiveness Scale (PETES)

This questionnaire is administered to collect data for a study on the Evaluation of the EFA-FTI programme in Cameroon. Try to be as frank as possible as the information you give will be treated with utmost confidentiality.

SECTION A: Background Information

Fill in the dashes and tick the bracket (√) where necessary.

Name of School----------------------------------- School Code --------------------------
Name of student -- Class-----------------------------
Sex -------------------------------------- Girl (   ) ------------------------------- Boy (   )

SECTION B. Teacher Rating Scale

The following statements are to find out how you perceive your teacher in the classroom. For each statement choose the response that reflects your opinion by ticking the appropriate column/box.

SA= Strongly Agree   A= Agree   D= Disagree   SD= Strongly Disagree

Your answers will be treated with utmost confidentiality so try to be as honest as possible.

S/N	Statement	SA	A	D	SD
	Teacher Effectiveness (Language)				
1	Our English teacher explains every topic very well				
2	Our English teacher does not answer questions whenever he/she is asked				
3	Pupils are unable to do exercises given by the English teacher				
4	Only difficult English assignments are given for homework				
5	Our English teacher accepts and corrects the ideas of the less intelligent pupils				
6	The English teacher usually re-teaches those who do not understand				
7	The English teacher uses big words while teaching				
8	Our class English teacher uses the computer to teach English				
9	Our class teacher does not explain the steps of a new topic very well				
10	Our take home assignment is never corrected by our English teacher				
11	The English teacher always rushes through his lessons				
12	The English teacher comes to class with many English books to make us understand the lessons better				
13	Our English teacher canes any pupil who gets an answer wrong				
14	I cannot wait to see my English teacher leave the class when the bell				

	is rung				
15	Pupils do not like English teacher using very difficult stories for comprehension topics.				
16	Our English teachers handwriting on the board is very bad				
17	Our English teacher does not tolerate noise making when he/she is teaching				
18	The English teacher marks our assignment always				
19	Our English teacher puts us through all the difficulties pupils face in Language				
20	Our English teacher makes the subject very interesting and stimulating				
Teacher Effectiveness (Mathematics)					
1	The maths teacher of my class makes the subject matter interesting and stimulating				
2	Our maths teacher responds to pupils' questions always during lectures without complaining				
3	Our maths teacher does not accept students ideas in the class				
4	Our maths teacher has control over the classroom				
5	Our maths teacher presents his lesson logically and sequentially				
6	The maths teacher of my class gives assignments that stimulate students' interest				
7	Our maths teacher's test questions are very difficult				
8	In class our maths teacher uses many examples to simplify new topics				
9	Our maths teacher relates maths concepts to everyday life situation				
10	Our maths teacher discourages pupils who give the wrong answers				
11	The explanations given by our maths teacher is always complicated				
12	Only one teaching method is used to solve Maths problems in class				
13	My maths teacher does not speak clearly when teaching				
14	Our take home assignment is never marked by our maths teacher				
15	My maths teacher teaches without instructional materials				
16	The most difficult and boring lesson in class is taught by the maths teachers				
17	Our maths teacher does not stay long in class				
18	Our maths teacher goes through our note and assignment books regularly				
19	The teacher never copies maths examples from text books, he instead solves all the problems in class				
20	Our maths teacher gives assignments at the end of each lesson				

APPENDIX 7a: Achievement Test in Mathematics (1hour)

Name of school :…………………………………………………………………………
Location :................................ Urban ( ) ……………………………..……….………Rural ( )
School type:…………….………Project ( ) ………………………………....Non-Project ( )
Name of pupil: …………………………………………………………………………………
Class : 6   N° :……….…...

MATHEMATICS

SECTION A. (40 MARKS)

Study these questions and write down only the answers in the spaces provided

1. On a receipt is written the sum of one million, two hundred and twenty-five thousands and sixty-three francs in words. Write this amount in figure_____

2. Multiply 4 by 7 in mod 7 _____

3. What is ¼ as a percentage? _____

4. Add 4+3 in base 5 _____

5. The average age of four boys is 13years. Three of the boys are 12years, 14years and 15years old. How old is the fourth boy? _____

6. Divide 1,500frs in the ratio 1:3 _____

7. Solve: 65÷13+5 _____

8. Given that set M = {1,3,5,7} and N = {2,4,6,8}. Find M U N _____

9. Find the perimeter of a square with one side 13m _____

10. If oranges are sold at 4 for 100frs. What is the cost of 200 oranges _____

11. Find the height of a triangle of area 32m² and whose base is 8m long _____

12. If a bag was bought for 200frs and sold 225frs. Find the gain percent _____

13. What is the simple interest on 7000frs for 5years at 20% per annum? _____

14. Ashu leaves town A to town B, a distance of 1,200km. He runs at 60km/hr. how much time does he take to cover the distance? _____

15. What is 25.384 correct to three significant figures? _____

16. Find the H.C.F of 12, 16 and 32 _____

17. Write 329 in Roman numerals _____

18. What is a gross minus a score? _____

19. How many minutes are there in 11hours? _____

20. If N = 5, find the value of $\underline{(2N + N)}$ _____

                                                   $3 + 2$

SECTION B: (30 marks).

Mark an X across the right letter corresponding to the correct answer.

21. One fifth of a school with a population of 2000 pupils attends a celebration where only 275 seats were available. How many pupils had no seat?

(A) 125   (B) 155   (C) 400   (D) 160   A B C D

22. The difference between the L.C.M and H.C.F of 15 and 20 is:

(A) 5   (B) 10   (C) 60   (D) 55   A B C D

23. A clock loses 5 minutes every 3 hours. How many minutes does it lose in 21 hours?

(A) 35mins   (B) 15mins   (C) 30mins   (D) 1hour   A B C D

24. Which of these numbers is not a square number? 1,9,15,16

(A) 15   (B) 1   (C) 16   (D) 9   A B C D

25. Subtract 1.75kg from 3.25kgs

(A) 1.75kg   (B) 2.5kg   (C) 1.5kg   (D) 1.55kg   A B C D

26. Arrange these fractions in descending order of magnitude 1/4, 5/8, 1/6

(A) 5/8, 1/4, 1/6   (B) 1/6, 5/8, 1/4

(C) ¼, 5/8, 1/6   (D) 5/8, 1/6, 1/4   A B C D

27. A cyclist covers a distance of 186 km between Bamenda and Bafang is 6 hours. What is his average speed in km per hour?

(A) 186km/hr   (B) 93km/hr   (C) 62km/hr   (D) 31km/hr   A B C D

28. Write down the first two numbers in the series 8, 4, 2

(A) 8, 16   (B) 16, 12   (C) 32, 16   (D) 110, 8   A B C D

29. 0.05 expressed as a fraction in its lowest terms is

(A) 20%   (B) 5/100   (C) 1/20   (D) 2/10   A B C D

30) If 4km on the ground is represented by 2 cm on the map. Calculate the number of kilometers on the ground which will be represented by 5.5 cm on the map.

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(A) 11km   (B) 8km   (C) 22km   (D) 10.5km   A B C D

SECTION C

Show full and clear working. Each sum carries 10marks (30marks)

1. If 4 men clear 8 hectares of grass in 5 days working at the same rate, how many hectares will 15 men clear in 12 days?

2. Below is a graph showing the test scores of Irene in the First Sequence Test
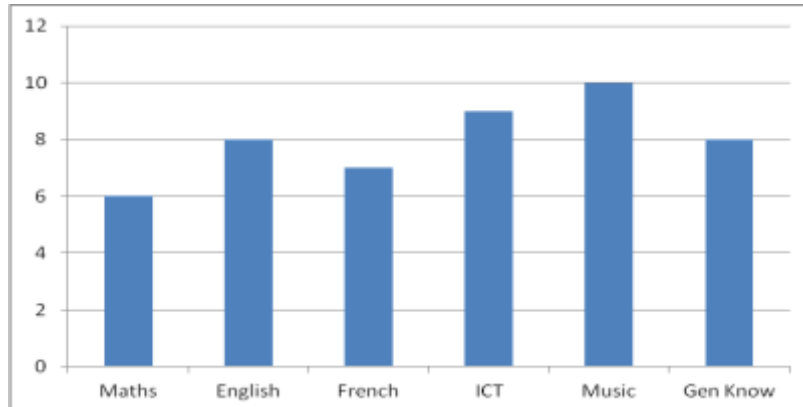
Using information from the above graph answer the following questions

    a) What was her average score in all the subjects? (2marks)

    b) In which two subjects had she the same score? (2marks)

    c) What was her average score in French, English and Maths? (2marks)

    d) What fraction of the total marks did she loss? (2marks)

    e) What is the ratio of the highest and lowest marks? (2marks)

1) A women went to the market for shopping with 85,000frs and bought the following items:

    -   6 tins of beans at 2,500frs each

    -   2 tins of milk at 1,200frs each

    -   5 buckets of rice at 3,500frs each

    -   3 kg of meat at 3,200frs each

    a) Calculate the total bill (8marks)

    b) What was her balance after the shopping? (2marks)

APPENDIX 7b: Proficiency Test in English Language (2 hours)

Name of school :……………………………………………………………………………

Location :................................ Urban ( ) …………………………..………………Rural ( )

School type:…………….……Project ( ) …………………………………....Non-Project ( )

Name of pupil: ………………………………………………………………….……………

Class : 6   N° :……………..

SECTION A: DICTATION (Lesson 14, paragraph 1)

_____

_____

SECTION B: GUIDED WRITING

Fill in the blanks with the most suitable words chosen from the list below the passage

Have you ever 1. _____ any visitor in Cameroon 2. _____ may have come as tourist or
3. _____ business men 4. _____ them some of our handicrafts. They 5. _____ not
only enjoy watching them 6. _____ made, and may 7. _____ buy some to take home as
present 8. _____ our culture and tradition. this can 9. _____ help to bring 10. _____
revenue.

1	A	cross	B	meat	C	Met	D	catch
2	A	which	B	how	C	Who	D	whom
3	A	at	B	to	C	On	D	for
4	A	show	B	showed	C	to show	D	shown
5	A	will	B	are	C	Does	D	have
6	A	doing	B	to be	C	Been	D	being
7	A	only	B	more	C	Also	D	most
8	A	about	B	at	C	In	D	to
9	A	also	B	at	C	On	D	instead
10	A	any	B	more	C	Some	D	too

SECTION C: COMPOSITION

In the space below write a composition on the following subject

The subject I like best

Use the following guidelines to help you

    a) – Name of subject……………………………………………………………….

b) – Why you like it…………………………………………………………………..

c) – When you began liking it………………………………………………………..

d) – How it will help you in future…………………………………………………..

SECTION D: GRAMMAR

Write one word which stands for the following statements

1) A group of people watching a football match _____

2) An unmarried woman _____

3) A group of people worshiping in the church _____

4) A man whose wife is dead _____

5) A child whose parents are dead _____

6) The young of a hen _____

7) An unmarried man _____

8) Children in a classroom _____

9) Teachers in the school _____

10) The wine is as sweet as honey _____

Below is a list of 5 words. Following each word is a list of four other words. Read the first words, then read the other words following it and choose the word that means the SAME or about the same and write its letter in the space before the number.

_____ 1. Cold   a) warm   b) cool   c) temperature   d) hot

_____ 2. Lying   a) cheating   b) true   c) dishonest   d) wrong

_____ 3. Reply   a) talk   b) answer   c) question   d) sound

_____ 4. Peaceful   a) happy   b) calm   c) joyful   d) police

_____ 5. Prompt   a) quick   b) ready   c) start   d) begin

Choose the best answer in each question.

1) Did Mojoko have----------------------- rice? No, she didn't, she had -------------- quacoco.

a. Some/any   b. any/some   c. only/one   d. any/only   A B C D

2) Listen _____ your teacher read this poem

a. to   b. for   c. while   d. at   A B C D

3) We _____ go to Yaoundé during the next long holidays

a. not   b. don't   c. won't   d. aren't   A B C D

4) Enjema sits _____ Egbe and Oyono

a. near   b. between   c. behind   d. beside   A B C D

5) You know the way _____ don't you?

a. why   b. how   c. here   d. place   A B C D

6) I have five relatives _____ names begin with the letter P

a. whose   b. who   c. which   d. those   A B C D

7) The messenger denied _____ about the stolen office keys

a. not know   b. know   c. to know   d. knowing   A B C D

8) You will miss the bus _____ you don't hurry up

a. unless   b. when   c. if   d. so   A B C D

9) I am working hard because I _____pass my exams

a. will   b. can   c. have to   d. an to   A B C D

10) Ojong will drink _____ fanta _____coca cola

a. either/nor   b. or/are   c. neither/or   d. either/or   A B C D

11) When there is no water, people crowd _____the taps with buckets and jerry – cans

a. into   b. around   c. before   d. unto   A B C D

12) Look at those shoes in the dust bin. The owners don't need them

a. any more   b. no more   c. at all   d. more   A B C D

13) It is quite bright _____the moon is out

a. so   b. because   c. only   d. by   A B C D

14) When people play football, they kick the ball _____ the opponent's net

a. towards   b. from   c. across   d. to   A B C D

15) This is the boy _____ parents are dead

a. which   b. whom   c. who's   d. whose   A B C D

SECTION E: READING COMPREHENSION

Read the passage below, then answer the questions which follow:

CROSSING THE DESERT 600 YEARS AGO

The Sahara is usually crossed by riding a camel or on foot. Sometimes, merchants would cross the desert on foot preserving their camels until when they have many goods to carry on their camels. Also merchants wanted to spare their valuable camels from unnecessary effort. In each direction, between North to South, the journey across the Sahara took as much as two to three months to complete.

A writer in Arabic, a Moroccan Berber called Idn Battuta, tells how in 1352 he travelled to Sijilmasa with the aim of visiting West Africa. There, he says "I bought camels and a four months forage for them" and set out for the South with several merchants. They journeyed across a desert for twenty-five days until they came to the salt-producing settlement or Taghaza, "where there are no trees, but only sand".

"We spent ten days at Taghaza in discomfort, because the water is bad and the place is plagued with flies. Here the caravans stock up with water for the crossing of the desert which lies to the South of Taghaza, a crossing that takes ten nights to travel without any water to be found on the way".

"Next we came to a place called Tarasahla, where there is water under the surface" then the peril of the desert began again. Ibn Battuta says that it was months before he and his companions reached the first oasis town on the southern side of the desert, a market called Walata.

In Ibn Battuta's day, Walata was the northernmost town of the powerful West African empire of Mali. From Watala the trials ran through mainly grassland countries to market cities along the river Niger, and on to the capital of the empire. Once in Walata the travelers were safe and could rest before resuming their journey. This old desert still exists, though it had long since lost its importance as a trading station. To this day its people decorate their houses with fine painted designs, and remain proud of their long history.

QUESTIONS

Choose the correct answer to each of the following questions

1) People usually cross the Sahara on foot because

   A. They didn't have camels

   B. It was better for camels to carry goods rather than people

   C. Camels were too expensive

   D. Camels were not necessary

                                        A B C D

2) It took

   A. Less than two months

   B. More than three months

   C. Between two and three months

   D. More exactly three months to cross the desert

                                        A B C D

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3) Ibn Battuta bought camels
   A. In Sijilmasa
   B. Outside Taghaza
   C. In West Africa
   D. In Taghaza

A B C D

4) From the words around it you can guess that forage means
   A. Salt
   B. Goods
   C. Food
   D. Sand

A B C D

5) On his journey South Ibn Battuta
   A. Was alone
   B. Had one companion
   C. Had many companions
   D. Had a few companions

A B C D

6) In Taghaza there was
   A. No water
   B. Some water
   C. Lots of water
   D. Only water

A B C D

7) In Taghaza they were
   A. Pleasant
   B. Comfortable
   C. Unhealthy
   D. Violent

A B C D

8) Crossing the desert between Taghaza and Tarasahla
   A. Travelers could drink any water
   B. There was no water
   C. Travelers could buy water

D. Travelers didn't need water

9) The country between Walata and the market cities along the river Niger was

A. Mostly grassland

B. Mostly desert

C. All forest

D. All grassland

10) Walata

A. In now an important trading station

B. Was never an important trading station

C. Was once an important trading station

D. Has always been an important trading station

Appendice 1 : Observation de classe et échelle d'indice

Section A:

Nom d'école : …………………………………………………………………………..
Type d'école : ………………… Lieu : …………………………………………………..
Nom de l'enseignant : ……………………………………………………… (Optionnel)
Sexe : ………………………….Masculin …………………………………. Féminin

Qualification académique de l'enseignant :   C.E.P.E   ☐
                                                        BEPC   ☐
                                                        BACC   ☐
     Licence en Lettres, en Sciences ou en Education   ☐

  Qualification Professionnelle   CAPIEMP   ☐
                                                          Diplômé de l'ENS   ☐

Expérience professionnelle comme enseignant

                                                       0 – 5 ans   ☐
                                                        6 – 10 ans   ☐
                                                        11 – 15 ans   ☐
                                                        16 – 20 ans   ☐
                                                        21 ans et plus   ☐

Discipline(s) Enseignée(s)……………………………………………….Date ……………
Effectif…………………………………………………………………………...………….

Section B

Les déclarations suivantes permettront d'évaluer le travail de l'enseignant en classe et l'inspecteur observant. L'enseignant doit évaluer le travail de celui-ci à chaque étape tout en cachant la colonne la plus proche de ses performances.

S/N	Point	Excellent	Bien	Passable	Null
	Préparation				
1	Fiche de préparation				
2	Plan basé sur l'usage de la langue				
	La Langue Utilisée				
3	Niveau de la langue utilisée par l'enseignant dans la classe				
4	Adapté l'usage du français/ anglais au niveau de l'élève				
	Préparation des Leçon				
5	La conduite de la leçon				
6	Congruence entre les exercices et le contenu de la leçon				

7	Transition entre les étapes				
8	Technique de questionnement				
9	Les réactions de l'enseignant				
10	Activités de remédiation				
11	La correction du travail des l'élèves				
	Gestion de la classe				
12	Répartition des groupes de travail en classe				
13	Les positions assises des élèves facilitent l'enseignement				
14	Utilisation des technologies de l'information et de la communication pendant les leçons				
15	Le partage respectif des attentions par l'enseignant à ses élèves (CD-ROM Téléviseur rétroprojecteur….)				
16	Participation des élèves en classe				
17	Prise de notes en classe				
	Atmosphère de classe				
18	La participation active des élèves en classe				
19	Aération de la salle de classe				
20	Attitude de l'enseignant face aux difficultés des élèves				

Appendice 2 : La Contrôle de L'environnent du Directeur approprie à l'enseignement

Ce questionnaire est administré dans le but de rassembler des données pour une étude sur l'évaluation du programme EFA-FTI au Cameroun.

Soyez véridique lorsque vous donnez des informations car ils seront traités en toute confidentialité. Complète le vide et coche (√) si nécessaire.

Section A:

Nom de l'école : …………………………………………………………………..

Type du directeur : …………………………………………………………………

Qualification professionnelle : ……………………………………………………

Niveau d'étude : …………………………………………………………………...

Sexe :………………………………………………………………………………

Crochez la bonne case

Age du directeur	☐ moins de 20 ans
	☐ 21 – 30 ans
	☐ 31 – 40 ans
	☐ 41 – 50 ans
	☐ 51 – 60 ans
Expérience de travail entant qu'enseignant	☐ 0 – 5 ans
	☐ 6 – 10 ans
	☐ 11 – 15 ans
	☐ 16 – 20 ans
	☐ 20 ans et plus
Expérience de travail entant qu'enseignant	☐ 0 – 5 ans
	☐ 6 – 10 ans
	☐ 11 – 15 ans
	☐ 16 – 20 ans
	☐ 21 ans et plus

Section B

1. Lieu de l'école : ………………………… ( ) urbaine……………………….. ( ) rural
2. Type d'école : ………………...………… ( ) pilote…………………… ( ) non pilote
3. Effectif de l'école : ………………………………………………………………………
4. Nombre d'enseignant pilote : ……………………………………………………………
5. Nombre d'enseignants : ……………………………………………………………….....
6. Nombre d'enseignants à avoir participé aux séminaires………………i). enseignant pilote ( )…………………………..ii). enseignant non pilote ( )
7. Moyen d'instruction …………………….. ( ) anglais …………………… ( ) française

Liste des matériaux scolaires valables

N°	Objets	Nombre Valable	manques	nombres en bon etat	nombres en mauvais etat
1	Salles de classe				
2	Tables de l'enseignant				
3	Chaises de l'enseignant				
4	Table – bancs				
5	Craie				

Appendice 3 : Interviews du Directeur des Ressources Humaines et du Représentant de la Banque Mondiale

Ce questionnaire est administré dans le but de rassembler des données pour une étude sur l'évaluation du programme EFA-FTI au Cameroun.

Soyez véridique lorsque vous donnez des informations car ils seront traités en toute confidentialité.

Section A: Représentant de Ressources Humaines

Le EFT-FTI est un projet initié par la banque mondiale avec pour objectif de :
- Réduire l'effectif pléthorique de la classe en recrutant les enseignants dans le système éducatif et les partager équitablement.
- Payer le salaire de 37,200 enseignants recrutés les 5 dernières années.
- Aider à réduire le rapport élève/ enseignant à travers les régions du Cameroun.

A partir de ces objectifs le chercheur demandera au directeur des ressources humaines de répondre en toute franchise aux questions suivantes.

Questions :

1. Comment s'est passé le recrutement:
   a) Critère b) expérience c) qualification, Pourquoi ?
2. Comment est ce que les agences associés du programme suivant le déploiement des enseignants recrutés ?
3. Est-ce que ce projet est déjà effectif dans les salles de classes? Si non pourquoi? Si oui qu'avez-vous fait du surplus d'élèves restant après avoir réduit les effectifs par classe?
4. Quelles sont les stratégies que vous avez mises en place pour évaluer le travail des enseignants sur le terrain?
5. Quelle est la différence entre la qualité de l'enseignement recrutée par le projet de l'EFA-FTI et l'enseignement non-recrutée par EFA-FTI?
6. Qu'est qu'il n'a pas marché dans l'implémentation de ce programme? Elaborez s'il vous plait.
7. Quelle est l'impact de ce programme sur la qualité de l'éducation au Cameroun en ce niveau à l'heure actuelle?
8. Quelle sont les recommandations que vous pouvez proposées au gouvernement Camerounais et la Banque Mondiale dans les efforts à fournir pour des meilleurs résultats au futur?
9. Quels obstacles rencontrez-vous lors de l'application du programme ?
10. Que pensez-vous faire pour améliorer le programme ?

Section B: Le Représentant de la Banque Mondiale (RBM)

Ce questionnaire est administré dans le but de rassembler des données pour une étude sur l'évaluation du programme EFA-FTI au Cameroun.
Soyez véridique lorsque vous donnez des informations car ils seront traités en toute confidentialité.

L'EFA-FTI est un projet initié pour la Banque Mondiale
Le but de :
- Réduire les effectifs pléthoriques en recrutant les enseignants et les répartir équitablement dans les écoles.
- Payer les salaires des 37, 200 enseignants recrutés depuis 5 ans
- Dioler à réduire les effectifs dans les salles de classes dans toutes les régions du Cameroun.

Compte tenu de tout ceci le MINEDUB demande au représentant de la Banque Mondiale au Cameroun de répondre le plus franchement possible aux questions suivantes:
1. Quelles sont les réalisations de ce projet?
2. Comment faites-vous pour contrôler assez souvent le travail fait au Ministère de l'éducation de base, le travail des enseignants sur le terrain et la qualité d'évolution des élèves ?
3. Pourquoi avez-vous choisi le recrutement des enseignants comme étant le seul indicateur au niveau de l'éducation primaire ?
4. Quel moyen prenez-vous pour assurer l'atteinte des objectifs du programme ?
5. Qu'est-ce qui prôné que le ministère fait des progrès dans ces réalisations?
6. Pourquoi est ce que le programme EFA-FTI non inclus contribue à l'augmentation du nombre des salles de classe et autres infrastructures les tables et les chaises de l'enseignant les table – bancs, les craies etc?
7. Pouvez-vous affirmez que ce projet a aidé à améliorer la qualité de l'enseignement à l'école primaire au Cameroun? Dans quelles proportions? et comment?
8. Croyez-vous que vos efforts et dépenses soient suffisants? Si non, comment comptez-vous améliorer l'application la même programme dans d'autres pays. Si oui, quelle est la prochain étape?
9. Que devient la paie des salaires des enseignants à la fin du programme ?
10. Avez-vous autre chose à suggérer pour la bonne marche de ce programme?

Section C : Un consentement de participation par le représentant de la banque mondiale et le directeur des ressources humaines au Ministère de l'Education de Base.

Date: _____

Nom du chercheur: _____

Ecole: _____

Adresse: _____

Numéro de téléphone:_____

Pour atteindre une Education de qualité pour tous en 2015, il serait important d'évaluer les efforts faits par la Banque Mondiale dans le projet d'accélérer les efforts faits vers l'objectif de développement Millénaire. Le chercheur utilisera quelques écoles pour évaluer la qualité de l'éducation après l'introduction du programme EFA-FTI.

Alors, je vous demande votre accord pour pouvoir faire cette interview avec vous.

Mes études a été vue et autorisée par la communauté des recherches ethniques de l'Université d'Ibadan. Vos informations seront traitées en toute confidentialité. Vous avez le droit d'accepter ou de refuser de faire partie de cette étude ; veuillez signer ce formulaire si vous allez participer.

Veuillez agréer mes salutations les plus distinguées

Université d'Ibadan

Coupez, signez et remettez

J'accepte de faire partie de cette étude et déclare que :
J'ai lu et compris le projet à suivre.

Tous les participants seront protégés par les règles gouvernant l'étude, impliquant les participants du comité des éthiques de l'Université d'Ibadan.

Faire partie du projet est volontaire et l'on peut aussi se retirer à tout moment.

Nom: _____

Position: _____

Nom de l'établissement: _____

Signature: _____ Date de commencement:_____

Appendice 4 : Interviews de l'inspecteur Nationale Pédagogique du MINEDUB

Ce questionnaire est administré dans le but de rassembler des données pour une étude sur l'évaluation du programme EFA-FTI au Cameroun.
Soyez véridique lorsque vous donnez des informations car ils seront traités en toute confidentialité.

Le EFT-FTI est un projet initié par la banque mondiale avec pour objectif de :
-   Réduire l'effectif pléthorique de la classe en recrutant les enseignants dans le système éducatif et les partager équitablement.
-   Aider à réduire le rapport élève/ enseignant à travers les régions du Cameroun.

A partir de ces objectifs le chercheur demandera au directeur des ressources humaines de répondre en toute franchise aux questions suivantes.

Questions :

1. Comment s'est passé le recrutement:
2. Critère b) expérience c) qualification, Pourquoi ?
3. Comment est ce que La Banque Mondiale suivant le déploiement des enseignants recrutés ?
4. Est-ce que ce projet est déjà effectif dans les salles de classes? Si non pourquoi? Si oui qu'avez-vous fait du surplus d'élèves restant après avoir réduit les effectifs par classe?
5. Quelles sont les stratégies que vous avez mises en place pour évaluer le travail des enseignants sur le terrain?
6. Quelle est la différence entre la qualité de l'enseignement recrutée par le projet de l'EFA-FTI et l'enseignement non-recrutée par EFA-FTI?
7. Qu'est qu'il n'a pas marché dans l'implémentation de ce programme? Elaborez s'il vous plait.
8. Quelle est l'impact de ce programme sur la qualité de l'éducation au Cameroun en ce niveau à l'heure actuelle?
9. Quelle sont les recommandations que vous pouvez proposées au gouvernement Camerounais et la Banque Mondiale dans les efforts à fournir pour des meilleurs résultats au futur?
10. Quels obstacles rencontrez-vous lors de l'application du programme ?
11. Que pensez-vous faire pour améliorer le programme ?

Appendice 5: Satisfaction des enseignants dans leur travail

Ce questionnaire est administré dans le but de rassembler des données pour une étude sur l'évaluation du programme EFA-FTI au Cameroun. Soyez véridique lorsque vous donnez des informations car ils seront traités en toute confidentialité. Complète le vide et coche (√) si nécessaire.

Section A

Nom de l'école _____

Type d'école _____ Location _____

Nom de l'enseignant

Sexe :   masculin (   )   féminin (   )

Qualification de l'enseignant le plus levée_____ académique _____ professionnelle

Expérience d'enseignement entant qu'enseignant.

( ) 0 – 5 ans   ( ) 6 – 10 ans

( ) 11 – 15 ans   ( ) 16 – 20 ans

( ) 21 ans et plus

Section B

Les déclarations suivantes mesurent le niveau de satisfaction d'un enseignant dans son travail. L'enseignant doit cocher son niveau de satisfaction par rapport à son travail.

1 = désaccord fortement; 2 = désaccord; 3 = accord; 4 = accord fortement.

N°	Points	DF	D	A	AF
1	Les promotions des enseignants sont limitées				
2	A la fin de chaque bon travail, je reçois une récompense				
3	Appliquer le règlement administratif rend le travail non-intéressant				
4	J'aime des personnes avec qui je travaille				
5	Je regrette avoir choisir d'être enseignant				
6	Ceux qui travaillent bien sont promues				
7	Le travail que j'effectue n'est pas apprécié				
8	Les efforts faits sont toujours bloqués par l'administration scolaire				
9	Je travaille plus car mes collègues sont paresseux				
10	Mon salaire est insignifiant par rapport au travail que j'effectue				
11	Mon supérieur ne s'intéresse pas au rendement que fournissent ses collaborateurs				
12	Les primes de rendement perçus sont proportionnelles au travail réalisé				
13	Je trouve la collaboration avec mes collègues conviviale				
14	Mon travail est une grande source de satisfaction pour moi				
15	Cela me fera plaisir qu'il y ait une augmentation des salaires				
16	Il y a plus de travail que d'avantages dans la fonction enseignante				
17	Les salles spécialisées manquent pour passer à la pratique de certains enseignements				
18	Le travail d'enseignant est ennuyeux				
19	Le travail d'enseignant procure une satisfaction morale				
20	Les devoirs ne sont pas bien expliqués à l'avance				

Appendice 6 : L'échelle d'indice de l'enseignant (les élèves évaluent l'attitude et l'efficacité de l'enseignant)

Ce questionnaire est administré dans le but de rassembler des données pour une étude sur l'évaluation du programme EFA-FTI au Cameroun.

Soyez véridique lorsque vous donnez des informations car ils seront traités en toute confidentialité. Complète le vide et coche (√) si nécessaire.

Section A :

Nom de l'école_____ code de l'école_____

Nom de l'élève _____ classe _____

Sexe _____ fille ( )   garçon ( )

Section B :

      L'échelle d'indice de l'enseignant.

      Les déclarations suivantes mesurent le niveau de satisfaction d'un enseignant dans son travail. L'enseignant doit cocher son niveau de satisfaction de son travail d'enseignement

      4 = accord fortement; 3 = accord; 2 = désaccord; 1 = désaccord fortement.

N°	Declarations	AF	A	D	DF
	Efficacité de l'enseignant (langue)				
1	Mon enseignant d'anglais explique bien tous les domaines de l'anglais				
2	Il ne répond pas à toutes les questions en classe				
3	Je suis incapable de faire les devoirs donnés				
4	Seuls les exercices difficiles sont donnés comme les devoirs				
5	Mon enseignant d'anglais refuse les réponses données par les élèves faibles				
6	Mon enseignant d'anglais reprend le cours qui n'a pas été bien compris par ses élèves				
7	Mon enseignant d'anglais emploie les mots difficiles lors de l'enseignement				
8	Mon enseignant d'anglais utilise l'ordinateur pendant le cours de français				
9	Il n'explique pas les étapes d'une nouvelle leçon				
10	Il ne corrige jamais les devoirs donnés				
11	Le professeur d'anglais dispense rapidement dans ses leçons				
12	Il arrive en classe avec beaucoup de manuels pour nous permettre de comprendre la leçon				
13	Il corrige les mauvaises réponses en fuitant				
14	Je n'aime pas que mon enseignant d'anglais reste en classe après la sonnerie				
15	Il utiliser les textes difficiles pour enseigner une leçon de compréhension				
16	Mon enseignant d'anglais écrit très mal au tableau				
17	Il ne supporte pas de bruits lorsqu'il enseigne				
18	Il corrige toujours mes devoirs				

19	Il m'apporte le soutien face aux difficultés en langue				
20	Il rend la discipline intéressante et stimulante				
Efficacité de l'enseignant (Mathématiques)					
1	La leçon de mathématiques est intéressante et stimulante				
2	L'enseignant répond aux questions des élèves sans se plaindre				
3	Il rejette les idées des élèves en classe				
4	Il prend le contrôle de sa classe				
5	Il enseigne logiquement et méthodiquement				
6	Il donne les devoirs qui stimulent l'intérêt de l'élève				
7	Ses évaluations sont toujours difficiles				
8	Il utilise beaucoup des exemples pour faciliter la compréhension				
9	Il fait un lien entre le concept de mathématiques et la vie courant.				
10	Il décourage les élèves qui donnent les mauvaises réponses				
11	Ses explications sont toujours compliquées				
12	Une seule méthode est utilisée pour répondre au problème				
13	Mon enseignant ne s'exprime pas bien en classe.				
14	Il ne corrige jamais nos devoirs				
15	Il enseigne sans matériel didactique				
16	Je trouve les Mathématiques trop difficiles et ennuyeuses				
17	Mon enseignant ne reste pas longtemps avec nous en classe				
18	Il contrôle régulièrement nos cahiers et devoirs				
19	Il ne tire jamais les exemples du livre; il résout tous les problèmes en classe				
20	Il donne des devoirs à la fin de chaque leçon.				

Appendice 7a: MATHEMATIQUE (*70pts*)

Nom de L'école :……………………………………………………………………………………
Location :................................ Urbaine ( ) ……………………………….……………Rurale ( )
Type d'école :…………..………Projet ( ) …………………………………………Non-Projet ( )
Noms et Prénoms d'élève: ……………………………………………….…………………….
Classe : CM2   N° :……….…..

1- Ecrire soit en chiffre soit en lettre

- 2h 3min : _____

- Dix milles : _____

- 9080 : _____

- Neuf mille soixante deux : _____

2- Ecrire directement la réponse sans poser l'opération :

- 40 x 100 =_____

- 6 x 5 = _____

- 125 x 10 = _____

3- Pose et effectue

- 4089 x 4 = _____   1500 − 725 =_____

- 4h25min + 1h 45min = _____   148√4= _____

4- Complète par signe qui convient : (< ; = ;>)

- 50 +60 _____ 110

- 9806 _____ 9860

- (14 x 2) ____ (15 x 2)

5- Complète les vides

- 12hm   = _____m

- 200mm   =_____dm

- 2h10min   =_____min

- Deca   =_____m

- Kilo   =_____m

6-

7- Répondre par *vrai* ou *faux*

- Une ligne droite peut être verticale : _____
- Deux droites parallèles se coupent : _____
- L'angle droit mesure 90° : _____
- L'angle le plus grand est l'angle plat :_____
- Le carré et le rectangle sont des figures géométriques :_____

8- Trace deux droites perpendiculaires et deux droites sécantes.

9- Problème 1

Voici trois figures géométriques. Calculer l'aire de chacune. Pose les opérations et effectue-les.

10cm [rectangle]
10cm [carré]   20cm   6dm [triangle]
10cm   8dm
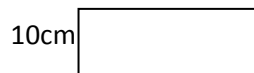
Aire : _____   Aire : _____   Aire : _____

10- Problème 2

Ma mère va au marché avec un billet de 5000 FCFA. Elle achète le plantain à 1200 FCFA, la viande de 2000 FCFA et 2kg de poison à 600 FCFA chacun. Pose deux questions et résous ce problème.

Questions Posées

_____

_____

Solutions	Opérations

11- Problème3

Partage 900 FCFA entre trois enfants et 1500 FCFA entre trois autres enfants. Dessine le nombre de pièces qu'auront les trois premiers enfants et dessine le nombre de billets qu'auront les trois derniers. Après résous ce problème.

Solutions	Opérations

Appendice 7b: Epreuves en Français

Nom de L'école :……………………………………………………………………….
Location :................................ Urbaine ( ) …………………………..……………Rurale ( )
Type d'école :………….………Projet ( ) …………………………………Non-Projet ( )
Noms et Prénoms d'élève: …………………………………………………………………….
Classe : CM2   N° :……….…..

FRANÇAIS

PRODUCTION D'ECRITS

Sujet 1: tu veux aller passer les grands vacances chez ton oncle ou ta tante qui vit dans une autre ville ou au village. Ecris- lui une lettre et donne les raisons de ton choix. *15mks*

Sujet 2 : tu fais la cuisine avec un ami ; choisis un plat que tu connais bien et écris la recette de ce plat.   *15mks*

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Dictée (*10pts*)

1- _____

_____

2- _____

_____

Texte : **La Promenade des animaux.**

La poule a pris une poignée de blé. Elle a semé les grains derrière elle tout au long du trajet pour retrouver le chemin du retour. Mais l'âne qui marchait derrière la poule a mangé les grains de blé.

A- CONPREHENSION DE TEXTE

1- Quels animaux participent à la promenade?: _____

2- Répondre par vrai ou par faux.

- Les grains de blé servent à retrouver le chemin retour : _____

- Les grains de blé ont poussé : _____

B- GRAMMAIRE ET ORTHOGRAPHE

1- Les oiseaux-gendarmes détruisent notre grand champ : relève dans cette phrase :

- Un adjectif possessif _____

- Un nom composé _____

- Un adjectif qualificatif _____

2- Ecris au singulier :

- Les oiseaux-gendarmes : _____

- Des cheveux : _____

3- Ecris au pluriel : le drapeau : _____

C- VOCABULAIRE

1- Classe ces mots par ordre alphabétique : maison ; avocat ; donner, cuisine

_____

D- CONJUGAISON

1- Ecrire les verbes à l'imparfait de l'indicatif.

- Notre père _____ en ville (être). Vous _____ de l'argent (avoir).

2- Souligne le verbe convient

- Les élèves (sont arrivés ; sont arrivé) à l'heure. Elle (a donnée ; a donné) des beignets aux enfants.