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ASSESSMENT MODELS AND EFFECTIVE IMPLEMENTATION OF COMPETENCY-BASED ASSESSMENT IN THE PRIMARY SCHOOLS IN THE EAST REGION OF CAMEROON: TOWARDS A HOLISTIC SUMMATIVE EVALUATION MODEL

A Dissertation submitted to the Department of Curriculum and Evaluation in the Faculty of Educations, in partial fulfillment of the requirements for the award of a PhD in Curriculum and Evaluation (Docimology), soutenu le 29 Novembre 2023

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DEDICATION

TO MY PARENTS

Bobe Enock YOH

and

Nawayn Theresia NAI

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LIST OF ABBREVIATIONS

21 CS: 21st century skills

4C/ID: four-component instructional design

ANOVA: Analysis of Variance

BVQF: Bhutan Vocational Qualifications Framework

CAMPE: Campaign for Popular Education

CAR: Central African Republic

CBA- competency based assessment

CBAp- competency based approach

CBC: competency based curriculum

CBE: Competency Based Education

CDCAT: competency of designing competence assessment tools

CERI: Centre for Educational Research and Innovation

CESA: Continental Education Strategy for Africa

CONFEMEN: Conférence des Ministres de l'Éducation des pays ayant le français en partage or Conference of Ministers of Education in French speaking countries

CVI: Content Validity Index

DDBE: Divisional Delegation of Basic Education

DeSeCo: Definition and Selection of Competencies

DLO: Desired Learning Outcomes

ETSSP: Education and Training Sector Strategy Paper

EPAS: Entrustable Professional Activities

FSLC: First School Leaving Certificate

GESP: Growth and Employment Strategy Paper

ILO: Intended Learning Outcome

ILT: Integrated Learning Theme

KSA- knowledge, skills and attitudes

LSME: London School of Management Education

MI: Multiple Intelligences

MINEDUB: Ministry of Basic Education

MCQs: Multiple-Choice Questions

NCLB: No Child Left Behind Act

NGO: Non-Governmental Organisations

NPA: New Pedagogic Approach

NPEC: National Postsecondary Education Cooperative

NQC: National Vocational Qualifications

OBA: Objective-Based Approach

OECD: Organisation for Economic Co-operation and Development

OIF: Organisation Internationale de la Francophonie

PISA Programme for International Student Assessments

PPO; Pédagogie par Objectifs

SDG4: Sustainable Development Goals

SPSS: Special Package for Social Sciences

STEM: Science, Technology, Engineering and Mathematics

UNESCO United Nations Educational, Scientific and Cultural Organization

VET: Vocational Education and Training

ABSTRACT

Competency-based education is an innovative approach to the design of educational programs that would help learners not only to have mastery of knowledge, skills, and attitudes; but to be able to apply them in solving real life problems (Rogiers, 2016). This innovation calls for a change in the curriculum as well as the pedagogical and assessment practices. Cameroon introduced CBC in primary education in September 2018 and like in other African countries, it is facing challenges in assessing the learners. The purpose of this paper was to examine the extent to which assessment models influence the effective implementation of CBA in the primary schools of the East region of Cameroon. The research designs used the mixed method design. Convenient sampling techniques were used to select a sample of 357 respondents, from the English and the French primary schools in the East Region. The study was guided by
7 research questions. The instruments used for data collection were questionnaire, an interview guide and checklist. Data was analysed descriptively and inferentially using Pearson Product Moment Correlation and T-test with the help of SPSS version 20. The findings revealed that the conception of CBA approach in the primary school ; the types of assessment; assessment methods; item types; criteria and grading; together with the alignment of instructional methods with assessment; all have a positive correlation with the effective implementation of CBA (values $0.241< r<0.420$; $p< 0.001$). A further test was used to check the mean differences between the two sub systems and results showed differences with the conception of CBA; assessment types, criteria and alignment. The French teachers proved to have fewer challenges than the English. The overall practice and perception were judged at moderate with a mean value of 3.60. Their major obstacle was the lack of a model to guide CBA implementation in both systems. Recommendations were made to the ministry especially the policy makers and the assessors; to the inspectors and the teachers. Teachers should attend conferences, workshops, seminars and do individual research to continually appropriate, adapt and use dynamic trends of CBA. The researcher ended up by explaining her four step holistic assessment model that could be used to design summative evaluation exercises especially for certificate examinations.

RESUME

L'éducation basée sur les compétences est une approche innovante de la conception de programmes éducatifs qui aiderait les apprenants non seulement à maîtriser les connaissances, les compétences et les attitudes ; mais de pouvoir les appliquer dans la résolution de problèmes réels (Rogiers , 2016). Cette innovation appelle un changement du curriculum ainsi que des pratiques pédagogiques et d'évaluation. Le Cameroun a introduit le CBC dans l'enseignement primaire en septembre 2018, et comme d'autres pays africains, il est confronté à des défis. Le but de cet article était examiner dans quelle mesure les modèles d'évaluation influencent la mise en œuvre effective de l'évaluation a base de compétences (l'EBC) dans les écoles primaires de la région de l'Est du Cameroun. Les plans de recherche utilisés pour l'étude étaient le méthode mixte. Des techniques d'échantillonnage pratiques ont été utilisées pour sélectionner un échantillon de 357 répondants, provenant des écoles primaires anglophones et francophones de la région de l'Est. L'étude a été guidée par 7 questions de recherche. Les instruments utilisés pour la collecte des données étaient un questionnaire, un guide d'entretien et une liste de contrôle. Les données ont été analysées de manière descriptive et inférentielle à l'aide de Pearson Product Moment Correlation et du test-T à l'aide de SPSS version 20. Les résultats ont révélé que la conception de l'approche CBA à l'école primaire; les types d'évaluation; méthodes d'évaluation; types d'articles ; critères et classement; ainsi que l'alignement des méthodes pédagogiques sur l'évaluation ; tous ont une corrélation positive avec la mise en œuvre effective de l'ACB (valeurs $0,241< r<0,420$; $p < 0,001$). Un autre test a été utilisé pour vérifier les différences moyennes entre les deux sous-systèmes et les résultats ont montré des différences avec la conception de (l'EBC) ; types d'évaluation, critères et alignement. Les professeurs de français se sont avérés avoir moins de difficultés que les professeurs d'anglais. La pratique et la perception globales ont été jugées modérées avec une valeur moyenne de 3,60. Leur principal obstacle était l'absence d'un modèle pour guider la mise en œuvre de (l'EBC) dans les deux systèmes. Des recommandations ont été faites au ministère, en particulier aux décideurs politiques et aux évaluateurs ; aux inspecteurs et aux enseignants. Les enseignants doivent assister à des conférences, des ateliers, des séminaires et faire des recherches individuelles pour s'approprier, adapter et utiliser en permanence les tendances dynamiques de (l'EBC). La chercheuse a fini par expliquer son modèle d'évaluation holistique en quatre étapes qui pourrait être utilisé pour concevoir des devoirs sommatifs, en particulier pour les examens de certificat.

GENERAL INTRODUCTION

0.0 INTRODUCTION

The education system is a dynamic one whereby changes in the society tend to affect the teaching/ learning process. The current trend in most educational systems of developing countries, shows a gradual shift from developing head knowledge to development of skills for sustainable development or long life and self-dependent learning. Most of the countries are changing their curricular in favour of new ones that are designed to prepare students for life in a rapidly changing world. Burdett (2017, p.9) explains that "because of rapid economic and social change, schools have to prepare students for jobs that have not yet been created, technologies that have not yet been invented and problems that we don't yet know will arise". In this way, there is need for curricular review.

Studies have described competency-based strategies in education as an innovative approach to the design of educational programs that would help learners not only to have mastery of knowledge, skills, and values; but to be able to apply them in solving real life problems (Rogiers, 2016). The curriculum is viewed by some as *'a panacea'* in solving problems of unskilled school leavers (Chemagosi, 2020) and also regarded by many African educational authorities as 'a pertinent solution' for the inefficiency of educational systems (Momanyi and Rop, 2019). Boukthentache (2016) describes Competency based curriculum (CBC) as a '*magic formula'* for combating the failures of African educational systems.

Competency-based curriculum according to Kabita and Lili (2017) is a curriculum that emphasizes what learners are expected to do rather than mainly focusing on what they are expected to know. It implies that learners can acquire and apply the knowledge, skills, values, and attitudes to solve problem situations they encounter in every day. This new curriculum emphasizes on the paradigm shift of pedagogical practices from teacher-centered approaches to learner-centered approaches, thus bringing about an alteration in the objectives, material designing and above all, the assessment strategies to reflect the new approach (as cited by Muñoz and Araya, 2017). To match this new approach, assessment models need to be developed that do not only assess knowledge but what the learners are capable of doing with the knowledge acquired.

Assessment is one of the core parts of any education system. A remark by Jones (1999, p.4) says **'**several authors have indicated rightly that assessment is the key to the philosophical, political and moral values which underlie and/or are embedded in any curriculum methodology'. The effectiveness of any curriculum is seen therefore in the assessment results. As such this study is focused on assessment models and how they affect the implementation of competency based

education (CBE).

0.1 Background of the study

The history of competencies as narrated by Anderson-Levitt (2017), shows a move from the content-matter approach [l"approche par les contenus-matières] to an approach termed "teaching by objectives" [Pédagogie par Objectifs (PPO)] in the 1970s, in which the operational and hence assessment concern became dominant. Instead of drafting curricula in accordance with what the teacher or trainer should teach, the "teaching by objectives" proposed drafting the curricula in accordance with what the learner should master, on the basis of a division into operational objectives. Today, many education systems all over are placing competencies at the heart of curricula, (Rogiers, 2016).

The movement started in the United State of America, to improve on the teacher training competences, and thereafter, reached the United Kingdom whereby it brought positive impact as well. Whereas Australia adopted the CBC in 1990s to improve on vocational training, and then the trend moved to other countries in the world and particularly in Africa (Sotco et al, 2015; Mulder, Weigel and Collins, 2006). Africa adopted CBC through what Anderson-Levitt (2017) termed as 'travel policies', thanks to the improvement of science and technology, and the demands of the job market.

0.1.1 Competency Based education (CBE) in Africa

The trend of CBE shifted from Europe to Africa in the early 1990s, where competence-based discourse was taken up by CONFEMEN (Conférence des ministres de l'éducation des pays ayant le français en partage or Conference of Ministers of Education in French speaking countries). CONFEMEN's Yaoundé summit of 1994 led to a proposal for reforms, published as CONFEMEN (1995), which featured a call for a curriculum to develop pupils' competences (Anderson-Levitt, 2017). In Africa, competency-based approach was introduced in French speaking Africa countries in 1996 during the Conference of Ministers of Education in Yaoundé. The new curricula for primary schools based on the competency based approach (CBAp), was seen to be the most relevant method to enhance African education. In English Africa, competency-based curriculum was adopted for the first time in South Africa in 1998, following the acute shortage of professionals like engineers, technicians and artisans. This was to equip them with employable skills to cope with challenging issues in the 21st century (Sotco et al 2015, Mkonongwa, 2016). Other African

countries such as Tanzania, Mozambique, Kenya, Rwanda, Ethiopia and Zambia later adopted the CBE. CBC adoption in most African countries is a modification or either similar framework from the developed countries. The implementation in Africa has either been imposed on the countries following directives of the government or due to the support from western non-governmental organizations (Cheptoo, 2019).

Beginning in 1992, a number of nations and international organizations launched competence-based reforms of primary and/or secondary education in quick succession. France's 1992 Charte des Programmes seems to be the first major policy document to incorporate the notion of competences into primary and secondary education. They focus on the Mauritanian primary schools and obtained similar results as in many other African countries but these ministers realized that the greatest problem lay in implementing the curricula. The teachers faced difficulties as context of general poverty, insufficient and inadequate didactic materials and large class size amongst others. All these made it difficult for teachers to create the situations needed for their lessons and individualizing instruction. They concluded that though CBA is a good approach for African schools, the needs and realities of Africans are also to be taken into consideration for effective implementations of this approach (Bafon, 2021). Cheptoo (2019) puts it clear that 'the unique African countries need to see their competence based curriculum (CBC) through the African lenses'.

0.1.2 Competency Based education (CBE) in Cameroon

Cameroon introduced competency-based curriculum in 2006 which led to the development of competency-based learning (CBL) and competency based assessment (CBA) in the higher education. CBE started in Cameroon's higher education to equip the students with employable skills to meet up with the demands of the labour market. Then in 2012, the secondary education introduced it, tried for two years, and a second curriculum was released in 2014, (Nforbi & Siéwoué, 2016; Yufeh, 2018). In 2018, competency-based curriculum was introduced in primary education as well (Alemnge, 2020a).

Alemnge (2020a) recounts Cameroon's search for a suitable pedagogy by, the Ministry of Basic Education (MINEDUB) in its bid to improve on the quality of teaching and learning in primary schools. From independence to early 1990s, education in Cameroon followed the content-based

approach which was focused on content or subject matter. Here, the methods commonly used by the teachers were the lecture method and notes giving method. These were passive approaches to teaching, as the teacher presented information to learners who sat quietly and listened with little or no interaction. This was teacher centered and it made learners to be passive. It bred passive learners who were considered empty vessels to be filled, and who did not contribute to the development of knowledge, attitudes, and skills. Due to shortcomings identified with the content-based (teacher-centered) pedagogy, the educational authorities began experimenting with new pedagogies in an effort to find one that promotes active learning.

The 1995 National forum on education made salient recommendations that led to the enactment of the 1998 law on education. Law no. 98/004 of 14th April 1998 to lay down guidelines in Cameroon spells out new orientations of Cameroon's education system (Fonkeng, nd). The new orientations provoked a major pedagogic reform known as the new pedagogic approach (NPA) which was focused on developing critical thinking in the learners.

In 1996, according to Alemnge (2020b), the Ministry of Secondary Education introduced the learner-centered approach based on objectives. This meant that general and specific objectives had to be defined and outlined for every topic and lesson respectively. Lessons had to be learner-centered, that is, interactive, with the aid of a number of active methods. With this approach, the teacher becomes the guide, facilitator, and creator of opportunities for students' participation so that they can effectively learn. Like the Content-Based Pedagogy, Objective-Based Teaching-Learning showed its limitations as well. It is observed that the most important weakness of this approach to teaching and learning was that, the learner was able to learn many things separately, but diverse knowledge and activities were not knitted or interwoven, and blended together enough into values, attitudes, life skills, or aptitudes that would make learners competent to face life challenges, owing to this weakness, the Competency-Based Approach was introduced to bring a solution to the lapses of the Objective-Based Approach (OBA) to teaching and learning in Cameroon schools. This approach became out dated and in 2003, when the officials of MINEDUB participated a regional education seminar organized in Yaoundé by the Organisation Internationale de la Francophonie (OIF). The result was a decision to implement another new pedagogic approach called the Competence Based Approach (CBA), in all primary schools nationwide. The competence based approach to teaching was introduced in the Cameroon primary schools to solve

the problem of repetition (Fonkeng, nd). This was just as a teaching approach , then in 2018, the Competence Based Curriculum was finally adopted as a strategy to equip the learners with the competencies needed to move Cameroon into an emergent country by 2035 (GESP, 2018), thus calling for a change in methods of teaching and assessment.

The introduction of Competence Based Curriculum (CBC) in Cameroon, as reported by Cheptoo, (2019) was created by the need to produce school leavers with capabilities in phrases of knowledge, skills, and attitudes useful for solving social and economic challenges of the contemporary society. Its introduction in 2018 in the primary and nursery levels to equip the learners with necessary life skills such as autonomy, honesty, adaptability to technological changes, respect for self, respect for others and respect for institutions, as well as the 21st century skills which are collaboration, teamwork, creativity, problem solving and critical thinking for effective lifelong learning. This curriculum is designed to guide the development of knowledge, skills and attitudes in the learners and to set the foundation for learning with emphasis on Science, Technology, Engineering and Mathematics (STEM). This new pedagogic tool replaces the one of 1987 for the nursery and that of 2000 for the primary 7 (*Cameroon Primary School Curriculum*, 2018, p.10). While the old one made use of traditional assessment methods, the new curriculum emphasizes a performance-based approach to assessment.

0.2 Context of study

UNESCO's vision known as 'The Education 2030-SDG4 Agenda' calls on member states to strengthen the quality of education by equipping all learners in an equitable way with relevant skills that help them thrive in today's and tomorrow's world (Kim & Care, 2020). Moving from education to employment is challenging for many countries. Cameroon is one of the sub-Saharan African country that has embraced the new curriculum that has brought about an alteration in the teaching methodology and assessment of competencies. Below is the procedure that led to the adoption of this new curriculum in the country.

Nursery and Primary Education is the foundation of sustainable learning. It is on this basis that Cameroon ratified several conventions related to compulsory education. These conventions ranged from the Jomtien Education Framework of 1990, the Salamanca Statement of 1994, the Dakar Framework of 2000 to the Incheon Declaration of 2015 precisely the fourth Sustainable Development Goal (SDG4), (*curriculum for the primary schools, 2018, p.3*). Besides these

international conventions, the Constitution of the Republic of Cameroon guarantees the right of the child to education and further highlights it in the 1998 Law to Lay Down Guidelines for Education.

In view of becoming an emergent nation by the year 2035, the government developed the Growth and Employment Strategy Paper (GESP) in 2009 to provide major orientations to all sectors of the society. The document tasked ministries in charge of education to develop the human capital required to attain this vision. Also, Cameroon vision 2035, document signed by the then prime minister Philemon Yang, served as a reference consensual document that sets out Cameroon's long-term development guidelines to ensure greater visibility of development policies and strategies. As concerns the development stakes on Human capital formation, it is stated that:

> If current trends in population growth persist, Cameroon will have a population of 40 million inhabitants in 2035 with a large number of youth. This population could be an important asset if only it is well trained, well-fed and in good health otherwise, it can become a burden (*Cameroon vision 2035, p.11).*

Therefore the stake in terms of human capital formation is to ensure that the population is in good health, is properly educated, skilled and professionally qualified on the one hand, and to facilitate its insertion on the job market and avert brain drain. As concerns education as stated in the *National Strategic Paper for 2030*, the government's vision is to promote an educational system in which every young school leaver is sociologically integrated, bilingual and competent in an area that is crucial to the country's development. The strategic objectives are to:

- ensure access to primary education for all school-aged children
- achieve a 100% completion rate of primary education
- reduce regional disparities in terms of infrastructure and teaching staff
- Increase the supply of vocational and technical education from 10-25% and 18-35% respectively. (p.9)

The 2013-2020 Education and Training Sector Strategy Paper (ETSSP) (*see the curriculum for the primary schools, 2018, p.3*), clearly defines the missions of each sub-sector in the educational system in a bid to solve the problem of imbalance between training and employment. Despite the rich natural resources (including oil, high-value timber, and agricultural products) and a comparably well-educated workforce, the pace of economic growth in Cameroon is slow because

the type of skills acquired in school do not match with labour market demand. Therefore, it does not only suffice to improve access and equity to attain an efficient and sustainable education, but education should also be efficient (Alemnge, 2020a). The education sector vision consists on the one hand to provide the youth with quality education, requisite competences and professional attitudes, and on the other to facilitate their insertion into the professional world.

A study on Cameroonian curriculum structure carried out by Tambi (2016) revealed that the curriculum was not sufficiently responsive to the needs of individuals, society, industry and commerce as secondary school leavers and graduates continued to find themselves lined up in front of government offices requesting jobs from government, instead of being job creators, which are signs of being inadequately prepared for adult life generally. The vision of the Continental Education Strategy for Africa (CESA 2016-2025), reorienting "Africa's education and training systems to meet knowledge, competencies, skills, innovation and creativity required to nurture African core values and promote sustainable development at the national, sub-regional and continental levels" was caught by MINEDUB. In 2018 MINEDUB adopted the competency based curriculum (CBC) which reinforced the competence based approach to meet up with the globalisation , the demand for higher skills and the pressures of an information-literate technologically competent workforce, that is, people with high levels of communication, collaboration, interpersonal and leadership skills (*Cameroon Primary School Curriculum , 2018, p.10*) . Through this curriculum, the pupils will develop broad based competencies and national core skills that would prepare them to cope with daily challenges and be self-reliant even after school or to gain employable skills as they continue to higher levels of education.

Instruction and assessment go together, therefore competencies need to be developed in the learners and properly assessed for further development of higher competencies. However, many seminars and training sessions on the new curriculum have been held since 2018 with the primary school teachers with more focus on the learning outcomes and teaching methods, but with insufficient clarity on the assessment model for formative as well as summative evaluation such as the FSLC examination, leaving the teachers confused. The facilitators during seminars keep coming up with new ideas that contradict the ones previously shared as far as assessing the learners is concerned. For example, the introduction of CBAp made teachers to believe nothing can be tested again using the traditional methods of assessment, evaluation was to be done on the fourth

week known as the integration week, learners' attitudes were to be assessed in each subject etc. later, the recent seminars no longer talk of attitudes, competency statements no longer emphasized and monthly tests have been replaced by termly summative evaluation. Secondly, the approaches to understand the concept of competency drawing from the English (US) and French (France) background, have influenced the process of assessment of competencies. Therefore, there is a need for an assessment model for CBA that reflects the Cameroon context. The teaching and assessment methods need to be guided by principles as well as models to facilitate effective implementation of CBAp in our schools. Notwithstanding the change in the level of content to be mastered, recommend that examinations focus on testing higher-order skills. Cameroon should begin thinking in this direction.

0.3 Justification of the study

Why the choice of this study at this time and at the level of the primary school?. The search for an appropriate assessment model for competencies is reflected in the words of the former president of US, Obama as reported by Darling-Hammond and Adamson (2010, P.1).

> I am calling on our nation's governors and state education chiefs to develop standards and assessments that don't simply measure whether students can fill in a bubble on a test, but whether they possess 21st century skills like problem solving and critical thinking, entrepreneurship and creativity. — President Barack Obama, March 2009

Students need to be able to find, evaluate, synthesize, and use knowledge in new contexts, frame and solve non-routine problems, and produce research findings and solutions. CBC requires students to acquire well-developed thinking, problem solving, design, and communication skills. As a consequence, a successful education can no longer be organized by dividing a set of facts into the years of schooling to be doled out bit by bit each year. Instead, schools must teach disciplinary knowledge in ways that also help students learn how to learn, so that they can use knowledge in new situations and manage the demands of changing information, technologies, jobs, and social conditions (Darling-Hammond & Adamson, 2010).

Cameroon like other African countries recently introduced the competency based curriculum in the primary school in 2018 leading to changes in the instructional approaches, hence a change in the assessment of competencies. Cameroon teachers are facing challenges with assessment of competencies in general (Alemnge 2020b, Wiysahnyuy 2021) and specifically at the level of

designing assessment as revealed by Agbor Tabe (2019), similar to those in other countries such as identifying the domains (cognitive, psychomotor and affective domains) of competencies to be assessed and designing assessment tools to measure these competencies. Since 2018, the primary school teachers, especially the final year class teachers, have not yet been presented a sample of a summative assessment such as the FSLC that could serve as a guide to their design of classroom assessment.

Competency based- approach (CBAp) in education is being developed in different countries, in different ways. Mulder (2006), found out that the way competency is defined, shapes the way it is conceptualized, implemented and assessed. According to Herbard (2013) and Boukhentache, (2016), there is a divide between behaviorist approaches on the one hand and constructivist, integrative approaches on the other. While the US favour the behaviourist approach, which talks of domain-specific skills, the French preferred the constructivist or integration approach and yet Germany came up with the 'learning areas approach' or themes. These different approaches have shaped the understanding of 'competency' and have so far influenced the design of competency-based assessment. There is a debate on how the competences should be assessed in the primary school, as single competences or situational competences; although Rogiers (2016) reports that assessments of complex situations are increasingly making their appearance on international standardized tests, nowadays.

Research on competency evaluation is an under researched topic, as remarked by Drisko, (2015) and Cunningham et al, (2016) although few authors have published articles on assessment models that can be used to assess competencies such as Leigh et al (2014); Idrissi and Benani (2016), Rotthoff, Kadmon and Harendza (2021) etc. Most models are for professional training or online courses, but the primary school level requires an assessment model that will help teachers assess learners' competencies in the academic sphere. Finally Munoz and Arraya (2017) suggest that competence-based assessment is a global construct, which must be designed and structured to strengthen the evaluative process. Moreover, criteria must be established that are necessary to be able to visualize and make evident the achievements reached by the students, teachers, and even by the educational unit itself that is searching for the continuous improvement of its learning goals. Competence evaluation thus requires an evaluative model centered on the processes and procedures, basically on the ability of knowing how to do, but integrating the conjunction of the complex and integral learning.

The researcher therefore thinks that carrying out a study on the assessment models, would go a long way to improve on their understanding of the concept of CBA thus helping to resolve the pressing issues of evaluation in the primary school. Developing competencies in the learners, need teachers who are not only competent in teaching, but competent in assessment of learning, too. Teachers need to cease from assessing lower levels of cognition to embrace items that assess higher thinking skills in the learners. Kim and Care (2020) suggest that changing assessments to align with new learning goals does not mean abandoning what already exists. It can instead be achieved through adaptivity, creativeness and flexibility. Teachers must also develop and demonstrate these skills in order to increase student's skills development to a greater degree. Albert et al (2003, p.8) supports this view by saying that 'this way of integrated thinking adds a lot of complexity to the design task of teachers. Teachers, more or less, have to be able to show the same level of integrative thinking as experts in the field'. Therefore, this study fits well here.

0.4 Statement of the problem

The needs of society keep changing; so too is the education system. Mkonongwa (2016) noted that the intention of any education system, whether openly stated or not, is to develop competent and confident individuals who can use the acquired knowledge and skills to positively transform their own lives in particular and contribute maximally to the development of the society in general. This transformation can only occur through the transformation of the stakeholders too, meaning that for teachers to help learners develop the required competencies, they too need to be competent in all the aspects of the competency-based approach to teaching and learning, as indicated by Tra and Linh (2021) that to help students develop 21st-century skills. Teachers should be equipped with knowledge and skills to select, adapt, and design classroom assessment tools following curriculum-based competencies. In as much as emphasis had to be laid on the different parts of this new curriculum in the primary school, which are: the content specifying the learning outcomes, methods of instruction and assessment, the assessment domain seems to have received insufficient training.

McClarty and Gaertner (2015) mentioned John Harris and Stephen Keller, who in 1976, outlined several key considerations in competency assessment and concluded that;

> The major development effort in competency-based education should not only lie in design of instructional materials but in design of appropriate performance assessments.

> Furthermore, institutions should not commit themselves to competency-based curricula unless they possess means to directly assess students' performance (p.7).

This view is supported by Mulenga and Kabombwe (2019) who opine that 'the success of a competency-based curriculum will very much depend on how teachers go about assessing learners and how they use the assessment results to improve learning'. The above assertions warn that for the CBC implementation to be effective, designing the assessment should be of paramount importance. Caution needs to be taken in selecting the criteria or standards for assessment (Fitzgerald et al, 2015) or meaningful competency thresholds as stated by Cummingham et al (2016) or selecting indicators of outcome attainment that clearly reflect the focus or intent of the abstractly stated out-comes. The need to create guidelines, designs, implementation and instrumental developments to determine the impact of learning by competences as a way of evidencing the appropriation of complex integral knowledge is sustained. In the same vein, Whitehead et al (n.d) cautions that, unless educators have effective and relevant assessment tools for all competencies, assessment may end up skewed towards 'easier areas'. This means teachers may assess especially the cognitive or the knowledge aspect as it is easier and leave out others such as attitudes for lack of instruments.

Roy (2016) carried out a study on competency based assessment in Bangladesh primary schools and reported that the respective authorities are not giving adequate attention in assessing the students of primary level based on the fixed subject-wise, grade-wise and terminal competencies. Therefore, it is unclear whether the students are really achieving the competencies or not. Achieving competencies is one of the indicators of ensuring quality education. This also may be the case in Cameroon. Since the inception of CBC by MINEDUB in 2018, there is no clear evidence of whether or not teachers of the primary school, are appropriately implementing competency-based teaching and assessment approaches as defined by the guidelines.

Challenges that hinder effective implementation of CBA, range from non-respect of principles of CBA, lack of knowledge and the difficulty in material designing and development, the large size of classes, that does not facilitate the implementation of a Western model of CBE and could result in a massive failure due to lack of quality human, material and financial resources (Belibi, 2018). Wiysahnyuy (2021) also noticed that majority of the teachers found it difficult to implement the CBAp because of inadequate knowledge and skills, overcrowded classrooms, limited teaching

hours, the bogus nature of the syllabuses and insufficient pedagogic and learning materials. Also from observation, through interaction with some of the primary school teachers, teachers in the East Region are struggling with the implementation of this new assessment of competencies; in areas such as designing the instruments, testing periods and class size.

A remark was made even before the introduction of CBAp in the World Bank document (2006), addressing key issues facing the education sector in Cameroon. The authors identified a problem in the area of assessment. It was reported that there was no systematic national assessment framework that would allow for tracking student learning on a national scale, providing diagnostics and identifying solutions for improving the education system, and equipping decision-makers with reliable and timely information to guide policy decisions, adjustments, or reforms. Burdett (2017) adds that much of the 21C Skills are quite sophisticated and require a skilled teaching force and complex assessment which are often lacking in the developing world and therefore, pose challenges even in the more developed world. For example "writing appropriate item types that differentiate appropriately is an exceptionally difficult and skilled job, requiring significant training and a great deal of experience".

As a plan of action for the teaching-learning cycle, as prescribed by the new curriculum, (*Cameroon primary school Curriculum, 2018, p:23*), it was decided by the officials of MINEDUB that teachers should organize culmination events, that is, 'presentation of projects and assessment every last Thursday and Friday of the fourth week per month'. Depending on the level, the presentations and assessment should cover three forms: oral, written and practice. A checklist should be prepared depending on the stated learning outcomes in order to record learners' progress in the class broadsheet (this will constitute a gradual building of the information for pupils' report cards which are filled every term). The fourth week for assessment of competencies was known as the integration week, whereby the teachers were to bring up activities that allow the learners to mobilize the knowledge gained in different or from combining several topics to solve a problem. This means that teachers were to design assessments to integrate the knowledge from subjects, carryout projects centered around the learning themes, while taking into consideration the different domains of learning (cognitive, affective and psychomotor) and different forms of assessment (written, orals, practicals and attitudes). The frequency of the assessment also comes into play. In most African classrooms teachers tend to assess more of the cognitive aspects leaving out affective

and the psychomotor domains as observed by Cheptoo, (2019). In the rush to implement competency-based programs, the temptation is to focus evaluation efforts upon recall behaviors, since these are the easiest to test and certify. Test formats that are easy to score are used most frequently (Kim and Care, 2020).

Research tells us that teachers' classroom assessment practice is inevitably influenced by external assessment (James, 2006; Ghaich, 2016; Nyenty and Fotogang, 2014). Some researchers have emphasised the strong role of external assessments in motivating teachers and students for achievement. Externally defined assessments can clearly indicate the standards that are expected nationally and signal to students and teachers what needs to be learned. Despite this, the format for the FSLC examination following the competency based approach , is not yet made known to the teachers since 2018; an indication of lack of assessment models to clearly guide the assessors. This brings about a mismatch between the teaching and assessment in the final year class. Thus the task of designing assessment is left to the teachers which may be problematic as they may lack the technical competence of designing valid instruments. Consequently, the teachers claim to teach following the competency-based approach while their assessment still remains traditional (Remmy 2017, Cummingaham et al, 2016; Agbor Tabe, 2019; Pamies et al ,2015). Arguelles & Gonczi (2002) terms this practice as 'window dressing'. Also, many textbooks with assessment exercises following the CBA are not yet available as observed by Nkwetisama (2012), Makunja (2016) , Musilekwa and Mulenga (2019), Wongnaa (2018).

The struggle with the assessment of competencies therefore poses problems on the researcher's mind as to which assessment model should be followed, what competences or construct should be assessed; how often to assess the learners; whether the methods, item formats, types and forms of assessment really help the teachers in judging the level of learners' competencies in the Cameroon context? Some writers have written on implementation of competency-based education in Cameroon, others on challenges linked to assessment of competencies but little has been written on assessment designs or models and implementation. Fastre´et al. (2010) and Herbard (2013) revealed that assessment in competency-based education is an under researched topic. It is for this reasons that the researcher wishes to carry out a study to identify best assessment models and how they affect the implementation of Competency Based Assessment (CBA) in the primary schools in the East region of Cameroon. This thesis therefore seeks to advocate a thoughtful approach to

assessment that considers the different strengths and weaknesses of the assessment models or CBE approaches and to propose an assessment model for a holistic evaluation of learners' competencies..

0.5 Purpose of the study

0.5.1 General objective:

The general objective of this study is two-fold: firstly, the research is geared towards identifying the best assessment models for effective implementation of CBA in the Primary schools in the East Region, and secondly to propose a model that could be adopted viz a viz the Cameroonian context.

0.5.2 Specific objectives:

Specifically, the study seeks to :

- Find out the extent to which the conception of CBAp affect its implementation
- Find out which type of assessment (formative or summative) gives a deeper understanding of competencies acquired
- To establish the relationship between choice of assessment methods/strategies used for assessing competencies and effective implementation of CBA
- To examine the item format (MCQ, problem situations, essay, performance items) that lead to a better assessment of competencies
- To find out the extent to which the instructional methods in CBA are aligned with the assessment practices for proper implementation of CBA
- To ascertain the level at which the criteria and grading system of competences leads to better implementation of CBA
- To find out if there is a difference of the assessment strategies used in the two sub systems and how they affect the implementation of CBA
- To explore the challenges faced in the course of implementing CBA

0.6 Research questions

This work will be guided by the general and specific research questions as follows:

0.6.1 General research question

The main research question was "which assessment models lead to effective implementation of CBA in the primary schools in the East Region of Cameroon?"

0.6.2 Specific research questions:

For better understanding of the variables, the following questions were asked:

- To what extent does the conception of CBA, affect its implementation?
- Which type of assessment (formative or summative) gives deeper understanding of competencies acquired?
- To what extent does assessment methods/strategies affect the implementation of CBA?
- To what extent does the type of item format lead to a better assessment of competencies?
- To what extent do the instructional methods in CBA align with the assessment practices for proper implementation
- How appropriate is the criteria and grading system for judging the level of competence?
- What is the mean difference of the assessment strategies used in the two sub systems and how they affect the implementation of CBA?
- What are the challenges faced in the course of implementing CBA in schools?

0.7 Hypotheses

This work is guided by the following hypotheses stated in the null form.

- **H01:** There is no significant relationship between the conception of CBA and its implementation
- **H02**:The type of assessment does not significantly affect the depth of understanding of competencies
- **H03:** There is no significant relationship between assessment methods/strategies used and effective implementation of CBA
- **H04:** There is no significant relationship between the item formats used in assessment of competencies and the implementation of CBA
- **H05:** The instructional methods in used for CBA do not align with the assessment practices for proper implementation.
- **H06:** The criteria and grading system for judging level of competence does not give a significant measure of learners' competences
- **H07:** There is no mean difference between of the assessment strategies used in the two sub systems

0.8 Significance of study

This study is significant for several reasons.

- First, this study will be significant in exploring the classroom assessment techniques used by teachers at primary schools. This study may help in elaborating the most frequently used classroom assessment techniques. It may provide an evidence to improve the usage of classroom assessment techniques and exploring these techniques as tools to improve the learning of pupils that teacher's use assessment techniques to provide reinforcement to students in the primary schools of the East region .
- The theories that backed up this study include theories of designing assessment as well as theories of effective implementation of CBA. It also makes use of the backward model to curriculum development by Wiggins and Mc Tighe. The above theories and models will provide an understanding of the relationships that exists between assessment models or designs and effective assessment of competences in the learners.
- This study offers educational, assessment and validity researchers, a practical framework that can be applied to evaluate the efficacy of a curriculum through its program of assessments.
- For the Ministry of Basic Education in Cameroon, the study will guide the ministry to provide sufficient resources to schools to aid in performance-based assessment. It will help the ministry to frequently organize pedagogic seminars with greater focus on assessment, in-service training and workshops for test developers or assessors that will enable them to further equip the inspectors and teachers with knowledge of the assessment models to be used for CBA.
- Assessment and educational measurement specialists have wrestled with issues of assessment of competences for decades. Establishing an understanding of assessment models, the study will positively contribute to the validity argument by shifting the focus from instruments used, to interpreting assessment data in the context of curriculum priorities.
- It would equally help the officials of MINEDUB, especially the test developers to better design holistic high stakes assessment in line with Competency Based Education principles. This outcome is mutually beneficial to the educators who design and implement the curriculum, the framework offers them a practical way to review their curriculum periodically.

- Additionally, this study will help improve stakeholders' understanding of competence – based assessment, the principles, assessment methods and evaluation models to aid in its effective implementation.
- For researchers in the faculties of education in the universities, the researcher beliefs that this study is going to set a pace for others to dig deeper into the assessment area of the CBAp, thereby yielding more fruits to the educational system as a whole.
- The relevance and importance of this study are also timely, given the move to CBE, where learning is anchored upon the attainment of competence; and competence is inferred through assessments. Other countries may be guided on how to better implement their own assessment strategies using CBA assessment models.

0.9 Delimitation of study

0.9.1 Geographical scope:

This study will be carried out with teachers in some primary schools in the four divisions of the East region of Cameroon, namely Lom and Djerem, Kadey, Boumba and Ngoko and Upper Nyong. This region is in the francophone area of the country with the two sub systems of education operating, the English and the French. The researcher chose the East region as it is her region of work, and also because the teachers here have had some training on the competency based approach to teaching and learning.

The East region is the largest region in terms of landscape. The divisions are tens to hundreds of kilometres apart. The population is dominated by the indigenes (called the Gbayas), the northerners, refugees and others from the other regions of Cameroon.

The East region has the least number of primary, secondary and higher institutes of learning as compared with the other regions of the country. It has1759 primary schools made up of 1273 public,176 community schools and 287 private schools, both French and English (*source. DDBE East, 2020).*

The participants will be chosen from the English and French speaking primary schools of the East region and other stakeholders like the inspectors in the regional and divisional delegation of basic education for the east reion and Lom and Derem division respectively..

0.9.2 Content scope:

Content wise, this study covers the assessment models for assessing learners' competencies. It

focused on the place of assessment or evaluation models on the implementation of competency based assessment.

This study is limited only to descriptions of assessment models without touching the technical issues or the psychometrical issues involved in developing these models.

Though the variables may be many, the following sub variables are **:**

- The different approaches of CBE and how they influence CBA
- The design of assessment of competencies-analytic and holistic
- Types of assessment- formative and summative
- Item format- structural, essay, problem solving, higher order
- Assessment methods/strategies for assessing competencies-tests, observations, performance etc
- Alignment of instructional and assessment methods
- Criteria and grading system for judging level of competence

Also the study will be addressing the following concepts:

- Competency and CBA
- Principles and steps in designing CBA following the competency standards
- Assessment methods/strategies for assessing competencies
- Aligning learning outcomes, teaching methods and assessment
- Grading criteria and reporting feedback of CBA
- Some developed assessment models used for CBA
- And above all, the challenges faced in effectively implementing CBA in Cameroon

0.9.3. Methodological scope:

This study will make use of the descriptive survey design, correlational design and documentary analysis design as well as other research designs are available like the comparative research design. The study shall make use of a mixed method research design which combines the quantitative and qualitative methods.

0.10 Operational definition of concepts

Assessment: Assessment is defined as a technique of obtaining information for monitoring progress and making educational decisions on learning outcomes. It is the sum total of all the

strategies used to collect information about learners progress. This definition covers testing, observation, interview etc. Desirée Joosten et al (n.d) define assessment as all the systematic methods that can be used to gather information and evidence about student properties, based on a process, a product or the progress of a student, for the purposes of certification, placement or diagnoses in formative and summative contexts. This definition includes classical tests, examinations and questionnaires, as well as newer types of assessment, such as performance assessment, portfolio assessment and peer assessment.

Competence is an abstract concept and as such difficult to define in a simple way. It is best seen as part of a network of concepts which might sometimes be used as synonyms, sometimes overlap, sometimes stand in contrast to each other. In the EFL domain some of these are: 'proficiency', 'ability', 'skills', 'achievement', 'knowledge', and 'performance'(Holistic competence, n.d). Competency is a cognitive construct assessing potential to perform efficiently in a given situation. **Competency**: Competency is defined the ability or capability to use the knowledge, skills, attitudes and values to realize a task in a given context (Makunja (2016); Muñoz and Araya (2017), Koskei (2020). Another definition of competency is the integral mobilization of a diversity of internal resources (knowledge, technical skills, and social/interpersonal skills) and external (material and human) to solve a given complex situation (Weinert 2001; Zineb et al, 2017; Anderson-Levitt, 2017) This definition emphasizes the need for the learner to mobilie the resources to solve problems both in a given context and out of class contexts. Summarily, competency can be defined as the ability to utilise both cognitive dispositions and experiences to cope with real-life challenges in any contexts one finds his/herself.

Competency-based assessment: Competency based assessment is defined as the measurement of student's competency against a standard of performance (Idrissi et al 2016) or the process of judging competence against pre-established performance standards (Agbor Tabe, 2018; Wolf ,2001; Muñoz & Araya, 2017, Gervais , 2016). In simple form, competency based assessment is the process of finding out what learners can do based on the competencies acquired using set criteria.

Model: A model is defined as a pattern of something to be made (Merriam webster.com.dictionary). It is a format, structure or an example or something set before one for

guidance or imitation. A model is a simplified representation used to explain an event or real world system. It is a conceptual representation of a real event. It represents a concise scheme of what specialists within their field holds as explanation for a given phenomenon (Olofu, 2003). This implies that a model of assessment serves as a guide and provides explanation for the assessment process. It serves as a framework in handling and solving the problems of assessment. In short, it is an example or a sample to be followed.

Assessment model: An assessment model prescribes what assessors should do in the course of evaluation. It is a framework or pattern or the form or structure in which the assessment of learning is carried out. It refers to the design or sample, used in constructing the assessment instrument. Assessment models support the design of quality performance assessments. Assessment tools are being developed to enable easy and effective application of the models and to provide guidance to assessment designers, as well as check the completeness and accuracy of designs (Chung, Delacruz,&. Bewley, 2006).

21st century skills: 21st century skills are the tools that can be universally applied to enhance ways of thinking, learning , working and living in the world today. These skills include critical thinking, creativity, problem solving, metacognition, collaboration and global citizenship skills (Vivekanadan, 2019). These skills refer to the competences that are needed by everyone which are learning to know, to do, and to live in this 2st century.

Holistic assessment: Drisko (2015) defines holistic assessment as one that requires the integrated assessment of several competencies simultaneously, in real or closely simulated practice activities, and completed using carefully designed assignments and grading rubrics. Holistic assessment is an efficient way to assess learning and program outcomes, taking into consideration the cognitive, psychomotor and affective domains of the learners.

Holistic evaluation model: Holistic assessment refers to the process of using multiple sources to continually gather information on a child's development, to provide feedback to support and guide learning . This definition looks at holistic assessment model as the format for assessing the competencies in all domains of learning, that is cognitive, affective and psychomotor domains. Drisko (2015) examines holistic competence and its assessment as a model which is an efficient

way to assess student competence and overall program outcomes. This study combines the two definitions showing holistic evaluation model as one that assesses the learner's competencies in all domains of learning and in overall program outcomes.

PRESENTATION OF THE STUDY

This chapter introduced the reader to the problem of the study under the sub-headings: the background to the study, context and justification of study, statement of the problem, purpose or objectives, research questions, hypotheses, significance of study, delimitation and operational definition of terms. The rest of the work is divided into two main parts. Part one titled conceptual and theoretical framework is made up of two chapters. Part two titled methodology and empirical framework has three chapters viz: chapter three on methodology, chapter four on presentation and analysis of findings and chapter five on discussion and recommendation. This work ends with a general conclusion, references and appendices.

Table 1: Summary of general research objective, research questions and investigative techniques

Specific research objectives	Specific research questions	Design/instrument
. To find out how the extent to which conception of CBA affects its implementation	. To what extent does the conception of CBA affect its implementation ?	Survey Questionnaire
. To Find out which type of assessment gives a deeper understanding of competencies acquired	. What is the appropriate type of assessment that give deeper understanding of competencies acquired?	Survey, Questionnaire
. To establish the relationship between choice of assessment methods/strategies used for assessing competencies and effective implementation	. How does the choice of assessment methods/strategies affect the implementation of CBA?	Survey, Observation checklist
. To verify if the choice of item format lead to a better assessment of competencies	. To what extent does the type of item format lead to a better assessment of competencies?	Survey Questionnaire
. To find out if the instructional methods in CBA are aligned with the assessment practices for proper implementation	.To what extent do the instructional methods in CBA align with the assessment practices for proper implementation	Survey Questionnaire
.To ascertain if the criteria for judging level of competence is appropriate or not	. Is the criteria for judging the level of competence, really appropriate?	Survey Semi-structured ques

PART ONE: CONCEPTUAL AND THEORETICAL FRAMEWORK

CHAPTER 1: COMPETENCY BASED ASSESSMENT AND ASSESSMENT MODELS

1.0 INTRODUCTION

This chapter reviews the works and opinions expressed by some authors and researchers related to the study. Conceptual framework will be reviewed beginning with the key concepts of competency and competency based assessments. Thereafter the following concepts will then be examined in detail in line with the research questions.

- Evaluation or assessment models/ designs or approaches
- Types of assessment used in CBA
- Assessment methods/strategies for assessing competencies
- Item formats
- Grading criteria and reporting feedback of CBA
- Aligning learning outcomes, teaching methods and assessment

Challenges faced in implementing CBA will also be discussed.

I.I DEFINITION OF COMPETENCY AND HOW THE DEFINITIONS GUIDE ASSESSMENT OF COMPETENCIES

Many definitions of the term 'competency' have risen over the past decade and have created confusions and a host of conceptual misunderstandings at global, national and state levels. The implementation of competency based approach depends highly on the way competency is conceived (Azemikhah n.d). The concept of competency lacks a coherent definition as observed by Mulder, et al (2006), while Chouhan and Srivastava (2014) remarked that ''trying to draw a fine line between the (buzz) words such as proficiency, capability, capacity, competence, competency/ competencies is even more difficult and creates confusion''. This is supported by DeSeCo (2015), Delbury (2019), Wesselink (2010) and Idrissi, et al (2016); who found out that the way competency is defined, shapes the way it is conceptualized, implemented and assessed. Paqmies et al (n.d), Mulder, et al (2006) and others, identified one of the challenges underpinning assessment as defining the term 'competency' and the difficulty to split it into learning outcomes units of assessment. Martinez and Carlos (2018) observed that the difficulty in the assessment of competencies may differ based on the competencies themselves, since some of them are more saturated with knowledge, skills and attitudes than others. Wesselink (2010) on his part presents three main conceptualisations that can be distinguished: behaviouristic, generic and holistic. In a nutshell, a clear understanding of competency in the Cameroon context, would lead to proper

implementation of CBA. The different competency based education approaches that influence the implementation of CBA will be discussed later in this chapter.

1.1.1. The history of the concept of competency

The history of the concept of competency can be traced way back in 1953, when David McClelland, an American management guru, for the first time recognized a human trait that he called ‘’competence’’ (NPEC 2002; Soare 2014; Chouhan and Srivastava 2014, Dolot 2016). He linked competencies with activity, completing particular tasks and their outcome. The opinion of McClelland was that tests of human performance should be based on showing and assessing that performance in practice. Other authors like Straka (2004) mention Chomsky, who through his linguistic theory , realized that people could know how to read and write a language, but when it comes to communication using that same language in a given context, they become wanting. It therefore means that there is something much more than knowing and knowing how to do, this he called ‘competence’.

“Competency” has its origins in the Latin word '*competentia*' which means ―is authorized to judge as well as ―has the right to speak (Caupin and others, cited in Chouhan and Srivastava 2014). Today, numerous definitions of competency include different elements in its characteristics, among which the most frequently chosen elements, are knowledge, capabilities and attitude. The term, competency is therefore not a homogenous concept but it consists of various elements (Dolot 2016), hence it needs proper definition and understanding for proper assessment.

1.1.2 Different views about competency

The term ‘’competence’’ and ‘’competent’’ refer to a state or quality of being able and fit. Usually the term “competency/competencies’’, has been used to refer to the meaning expressed as behaviors that an individual needs to demonstrate, while the term ‘’competence’’ has been used to refer to the meaning expressed as standards of performance. The term competency is seen to have been used in two ways in the educational and psychological literature as reported in the *Assessment to support competency-based pathways* document. The first use of competency is ‘’a state of being, of having ability’. The second is the definition of ‘things in which a person could have demonstrated a set of knowledge and skills. e.g. competency in writing’’ or competency in solving mathematical problems’’. Both definitions have an important implication for the assessment of competencies. Nickse (1988, p.13), in her introduction of Chapter 1, which poses the question

"What is competence?" says the concept itself is a moving target because what may pass as an adequate answer at any one time in any one arena may be simultaneously premature or obsolete in another. Yet the question must be asked, for how we answer it shapes the programs we design and implement, and they in turn influence our students' performance.

1.1.2.1 Competency as the ability to use the knowledge, skills, and attitudes perform a task

Competency, in everyday language, is the ability of an individual to perform a task (Oxford Dictionaries, n.d., Drisko 2015). Some definitions add that the task must be performed fully, properly, and efficiently carried out. Thomas Ewens, cited in Nickse (1988, p.20) suggests that competence is what the Greeks called *arete,* "a power which has been trained and developed so that it has become a characteristic of the person who has it. One must possess the ability to function in ways that are most appropriate for a particular situation". According to this definition, competency is to know how to do something, and this is largely a matter of what he terms 'practical wisdom'.

Russo (2016) defines competency as: A specific, identifiable, definable, and measurable knowledge, skill, ability and/or other deployment related characteristic (e.g. attitude, behavior, physical ability) which a human resource may possess and which is necessary for, or material to, the performance of an activity within a specific business context". He further groups competencies into three categories:

- *Knowledge*. It concerns everything that can be learned from educational/formative system
- *Know-how.* It is related to personal experiences and working conditions.
- *Behavior*. It is referred to individual characters, talents, human traits, or qualities that drive someone to act or react in a certain way under certain circumstances

Esenina, et al (2019) summarize the above with two definitions of competency as the ability to use knowledge, skills and personal, social and/or methodological abilities in work or study situations and in professional and personal development" ; as well as the ability to apply learning outcomes adequately in a defined context (education, work, personal or professional development). This means that the term competency cuts across many areas of life.

According to Sanchez and Ruiz (2008) , 'by competence, we understand good performance in diverse, authentic contexts based on the integration and activation of knowledge, rules and standards, techniques, procedures, abilities and skills, attitudes and values.

From these definitions, we see competences as requiring the integration of cognitive dispositions (knowledge skills), values and attitudes, tasks and context specificity (Koeppen et al (2014). The concept of competence can be seen to center on ability or capability. Competence is essentially a relation between abilities or capabilities of people and the satisfactory completion of appropriate task and inferred from performance. A competency is more than just knowledge and skills. It involves the ability to meet complex demands, by drawing on and mobilizing psychosocial resources (including skills and attitudes) in a particular context (Weinert , 2001; PISA, 2005; Muñoz & Araya , 2017). Competencies conceptualized in such a way are ―something that people actually do and can be observed.

Holders of this view, see assessment of competencies to involve application of knowledge skills and attitudes (KSAs) in a performing a task. Hence the performance based design..

1.1.2.2 Competency as the integral mobilization of resources to solve problems

Others define competency as the integral mobilization of a diversity of internal resources ('knowledge', 'technical skills', and 'social/interpersonal skills') and external resources (material and human) to solve a given complex situation (Weinert, 2001) , Muñoz & Araya (2017, p.5), Zineb et al (2017) ; Anderson-Levitt (2017). Soare (2014) points out that the resources that needs to be mobilized in the situation can be *internal* (cognitive, affective-motivationally, actional), specific to *situation* (the concrete circumstances that facilitates the processing of the situation, present constraints, the obstacles, the problems) and *external* (the resources that are mobilized outside the situation, the syllabus). The Future of Education and Skills -2030 project as presented in the Organisation for Economic Co-operation and Development (OECD) paper of 2018, reads:

> The concept of competency implies more than just the acquisition of knowledge and skills; it involves the mobilisation of knowledge, skills, attitudes and values to meet complex demands. Future-ready students will need both broad and specialised knowledge. Disciplinary knowledge will continue to be important, as the raw material from which new knowledge is developed, together with the capacity to think across the boundaries of disciplines and "connect the dots".

Holders of this view, see assessment of competences to involving integration of knowledge and problem solving situations.

1.1.2.3 Competency goes beyond application of KSA and performing a task to social constructs

The DeSeCo Project's conceptual framework for key competencies classifies competencies in three broad categories.

First, the ability to use a wide range of tools for interacting effectively with the environment: both physical ones such as information technology and socio-cultural ones such as the use of language. E,g What competencies A. Use language, symbols and texts interactively B. Use knowledge and information interactively C. Use technology interactively.

Second, the ability to engage with others, and since they will encounter people from a range of backgrounds, it is important that they are able to interact in heterogeneous groups. e.g competencies here include how to:

- Relate well to others
- Co-operate, work in teams
- Manage and resolve conflict.

Third, the ability to acting autonomously or to take responsibility for managing their own lives, situate their lives in the broader social context and act autonomously. Muñoz and Araya (2017, p.4), define competence as the combined learning that constitutes *being*, *knowing to do,* and *knowing to be.* Baughman, Brumm, and Mickelson (2014) opine that successful transition from academia to the twenty-first century workplace requires that college graduates acquire technical skills in their field as well as skills for interacting effectively with people.

Holders of this view, feel that the assessment of competencies should involve declarative, procedural as well as relational knowledge (that is how to relate with one another for success).

1.1.2.4 Competency as being holistic

Others see competency as having a holistic character, that is, covering both the cognitive, psychomotor and affective aspects of humans. According to (Drisko, 2015, p.17) holistic competence addresses entire professional activities rather than specific elements of these activities. It is combined mind-body-spiritual practice approaches. Bhutan BVQF (2013) report sees holistic

competence as addressing entire professional activities rather than specific elements of these activities. Rogiers (2016) holds that competency denotes something the learner must master, a quality acquired by the learner, a potential for reflection and action that he or she keeps and maintains. Soare (2014) outlines a group of researchers who interpret the concept of competence in a holistic way as integrated abilities, and define competence as the capability of a person, or an organization, to reach specific achievements. Personal competencies comprise integrated performance-oriented capabilities, which consist of clusters of knowledge structures and also cognitive, interactive, affective and where necessary psychomotor capabilities, and attitudes and values, which are required for carrying out tasks, solving problems and more generally, effectively functioning in a certain profession, organization, position or role. A clearer view of competence as being holistic , is that put forward by Paul Pottinger, quoted by Chickering and Claxton in Nickse (1988, p.39) as follows:

> Competencies cannot be meaningfully defined by seemingly endless reductions of specific skills, tasks and actions which, in the end, fall short of real world requirements for effective performance. Competences are holistic, generic qualities, not a trivial series of discrete bits and pieces. …. competence is not a simple summation of discretely defined skills and abilities

This holistic view of competency, combines the three previous definitions which are : Competency as the application of KSA in performing a task, Competency as the integral mobilization of resources to solve problems; and competency that goes beyond problem solving to include social constructs.. Drisko (2015, p.17) summarises that

> Holistic assessment requires the integrated assessment of several competencies simultaneously, in real or closely simulated practice activities. Completed using carefully designed assignments and grading rubrics, holistic assessment is an efficient way to assess learning and program outcomes.

Therefore those who perceive competency as having a holistic character, propose a summative evaluation of competencies and the use of authentic types of assessment of competencies that reflect the three domains of learning-cognitive, psychomotor and the affective domains. Albert et al (2003, p.8) adds that ‘the holistic and integrative way of thinking that is required to design CBE forces teachers to look over the borders of the subject that they are used to teach in the knowledge-

oriented curriculum'. In this way, the design of competency based assessments, should not be limited to the subject area .

1.1.2.5 Competency as having a vocational character

The concept of competence is also seen by others, as having its origin in Vocational Education and Training (VET) which is very concerned with preparing students to acquire the competencies needed in their professions, and in the contemporary society (Soare, 2014, Esenina, et al 2019). Bhutan (2013) defines competence as the possession by workers of what they are expected to know and be able to do, together with the capacity to apply skill and knowledge in new situations and environment. To Leigh et al (2007), competence refers to the professional's overall suitability for the profession in the guise of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in psychological practice. This they term as *Professional competence* which starts with training and becomes a life-long process. Such **c**ompetencies are demonstrable components of competence that reflect effective performance and can be evaluated against well-accepted standards. Some authors have criticized the competency-based education as being too vocational.

1.1.2.6. Competency as learning outcomes

Competencies are viewed by others narrowly as a set of goals or learning outcomes outlined in the curriculum, to be achieved after a period of time. Rogiers (2016) brings forth a category of competence known as a general profile, in cultural and cognitive terms, or a set of "generic competencies" in which knowledge is prominent. This knowledge and know-how, is embedded in the curricular content. Esenina et al (2019) define learning outcomes as a ''set of knowledge, skills and/or competences an individual has acquired and/or is able to demonstrate after completion of a learning process, either formal, non-formal or informal'. Here competency is used as a synonym to learning outcomes. Straka (2004) talks of 'subject area competencies'. This definition spells out that competencies are seen as learning outcomes that are expected to be achieved by the learners at the end of the teaching/learning process, which may be monthly, sequential , terminal or end-of-course. The learning outcome view is reflected in the curriculum of the primary school (2018) Holders of this view, see the assessment of competencies as finding out the level of attainment of learning outcomes per subject. In the *curriculum for primary school (2018, p.18),* it is written , "It

is worth stating that formative and summative assessment should take into consideration knowledge, skills and attitudes as indicated on the 'Expected Learning Outcomes' column of each subject".

The importance of the concept of competence is related to issues like : occupational and professional attitudes, reflection on one's own behaviour, capability, employability, career development, the alignment of education and work, recognition of informally acquired competencies, learning path independent assessment, independent functioning in society, and the capability to cope with constant and profound change (Wiegel at al, 2007). Therefore knowing how the concept of competences is conceptualised for a particular program, will go a long way to determine how they will be assessed.

1.1.3 Classification of competencies

According to Muñoz and Araya (2017, p.3) the domains of these knowledge are *conceptual, procedural, and attitudinal* and are in relation to *being capable* of acting. Anderson-Levitt (2017) mentions knowledge of academic disciplines, broader cognitive and social abilities. Competencies are discerned by their types, the most common are regarded as: basic, *generic and specific.* The proposed definition does emphasis that the concept of competence is built on three dimensions which are: a person's competencies, context and the proficiency level of a person.

Another classification by Straka (2004, p.13) is that *of action competences and subject area competences.*

Competencies are also classified as *key and generic competencies* (PISA,2005). Key competences are considered those which all individuals need for personal fulfillment and development, active citizenship, social inclusion and employment. Rogiers (2016, p.24) describes "generic competencies", as those that constitute a general stock of knowledge for the learner, notably including socio-affective competencies.

Generic competencies also known as "'*key competencies'* is composed of knowledge, types of know-how and life skills. Three dominant dimensions of generic competencies can be identified: the cognitive dimension, the methodological dimension and the socio-emotional dimension.

The *"situational" competencies'* involve performing a task like "managing an industrial project" or again "performing an open-heart operation.

Rogiers (2016, p.24) put forward three categories of competencies such as know-how, generic and situational competencies as follows:

- *competency = potential to act + educational/technical content*: this involves cognitive, gestural and technical know-how (in technical or professional training), such as recognizing a triangle, comparing two modes of germination, fitting a door frame, etc
- *competency = potential to act + context*: what are involved here are generic competencies- the competency of being open, assertive and creative, of seeking information, of paying attention to detail, of having scientific rigour, developed in the Anglo-Saxon literature.
- *competency = potential to act + educational/technical content + situation*: these are situational competencies as described by the French-speaking authors

Other classifications

Other classifications are *action-situational* as well as *transversal competencies* that cut across different subject areas (Rogiers, 2016).

Another classification by Sanchez and Ruiz (2008) is seen where he splits generic competences under three headings as follows: instrumental competences, interpersonal competences and systematic competences.

- *instrumental competences :* These are competences that function as a means to an end. They require a combination of manual skills and cognitive capacities that are needed for professional competence. These include skills in handling ideas and the environment in which persons, craft skills, physical skill, cognitive comprehension, language ability and academic achievement all come into play.
- *interpersonal competences* requiring personal and relational abilities, i.e. these competences refer to capacity, ability or skill in expressing one's feelings and emotions in the most appropriate way and accepting the feelings of others, making it possible to work together toward common objectives.
- *systematic competences*; involve skills and abilities related to an entire system. They require a combination of imagination, sensibility and ability, enabling one to see how the parts of a whole are conjoined and related. These competences build on previously acquired instrumental and personal competences.

The concept of competences is complex. Weinert (2001) distinguishes nine theoretical approaches

or views towards competence such as: general cognitive ability, specialized cognitive skills, competence-performance model, modified competence-performance model, motivated action tendencies, objective and subjective self-concepts, action competence, key competencies and meta-competencies.

Competences can be classified therefore in many forms such as generic, key, tansversal, situational, interpersonal, instrumental, and systematic competences. Each type is used in a given context as explained above.

1.1.4 A shift to competency based assessment

The goals of education in modern societies can no longer be described by a fixed set of specialized knowledge and skills that is transferred from one generation to the next. Nowadays, knowledge must be applicable to different, new, and complex situations and contexts (Hartig, Klieme and Leutner, 2008). They quote Bandura, a social psychologist, who summarized in 1990 that "there is a marked difference between possessing knowledge and skills, and being able to use them well under diverse circumstances, many of which contain ambiguous, unpredictable, stressful elements". Van der Vleuten , et al (2017) describe a major shift across the educational systems of the world in that many of the outcomes or competencies move beyond the knowledge domain, into more authentic professional skills or general competencies relevant for success in the labour market. These are:

- Being able to work in a team, being able to communicate,
- being able to write academically and
- being able to behave professionally are examples of these general competencies.

They are less domain specific hence their general or generic nature.

Knowledge of the components of competency will be important for the development of assessment models. A clearer version of how competencies are developed at work, is that proposed by Tucker and Cofsky, quoted by Chouhan and Srivastava (2014), titled 'five major components of competency'. These are:

- *Knowledge*-This refers to information and learning resting in a person
- *Skill*-This refers to a person's ability to perform a certain task
- *Self Concepts and Values*-This refers to a person's attitudes, values and self-image.

- *Traits*-Traits refer to physical characteristics and consistent responses to situations or information.
- *Motives*-Motives are emotions, desires, physiological needs or similar impulses that prompt action.

From the above , one can say that competences are the result of integrative learning experiences in which skills, abilities, and knowledge, and the individual's ability and motivation to carry out a task. It is at this demonstration level that performance can be assessed. The KSAs when combined with some traits in the individual, will cause him or her to be motivated to act in a particular way or demonstrate a particular skill. For example learning about how to cook jollof rice, will only make the learner able to demonstrate it in real life if she is physically able to so and is motivated. This view is supported by Albert Bandura's third and fourth stages of modeling which are reproduction and motivation (Nabavi, 2012). Hence, Mc Clarty and Gaertner (2015, p.3) suggest that to move forward, CBE programs should clearly define their competencies and clearly link those competencies to material covered in their assessments . specifically, program designers should work to clarify the links between the tasks students complete on an assessment and the competencies those tasks are designed to measure.

Authors like Chickering and Claxton in Nickse (1988, p.18) presents their own model of competence, using the *Bermuda onion* with layers corresponding to different skills beginning with basic skills, to psychomotor skills. To them, "competence is a whole that consists of interrelated parts; some of which may ….be too difficult to measure, or too complex to be practical".

Summarily, competency is seen by some authors as the learning outcomes, meaning the set of knowledge that students must acquire in the course of the study program. Others see competency as going above just knowledge to the ability to apply knowledge in solving problems in real life or simulated situations. The central concepts in all of these definitions are the notion of being able to act by mobilizing or using knowledge and know-how, very broadly defined, to manage situations.

1.1.5 Which competences are needed by the primary school pupils in Cameroon?

Every young Cameroonian school child needs to be equipped with some competencies. While some children are talented, competences can be taught. OECD (2018, P.5) presents these competences in the following sentences:

To prepare for 2030, people should be able to think creatively, develop new products and services, new jobs, new processes and methods, new ways of thinking and living, new enterprises, new sectors, new business models and new social models.

These competences can be achieved at different levels of schooling from the nursery schools to professional schools. Our primary schools are not professional schools, but have their own type of competences to be acquired. The competencies needed to be acquired at this level, are generic, not professional, that is the learner should be able to show the ability to learn how to live, to do and to know. These competences are known as the *National Core Skills* which are:

- communication in the two official languages, (English and French), and the use of at least one national language;
- use of basic notions in Mathematics, Science and Technology;
- practice of social and citizenship values;
- demonstration of the spirit of autonomy, a sense of initiative, creativity and entrepreneurship;
- use of basic Information and Communication Technology concepts and tools;
- practice of lifelong learning; and
- the practice of Physical, Sports and Artistic activities.

These National Core Skills are hinged on the *Broad-Based Competences* namely: intellectual, methodological, personal and interpersonal, and communication competences (*Curriculum of the primary school*, 2018). The constructs that underpin the competency include adaptability, creativity, curiosity and open-mindedness. Learners are expected to acquire necessary life skills such as autonomy, honesty, adaptability to technological changes, respect for self, respect for others and respect for institutions, as well as the 21st century skills: collaboration, teamwork, creativity, problem solving and critical thinking for effective lifelong learning. The achievement of these broad-based competences, necessitates a review of some innovation approaches in the assessment practices at this level of education.

1.1.6 What is competency based assessment, CBA?

Esenina, et al (2019) defines assessment of learning outcomes or competencies as a process of appraising knowledge, know-how, skills and/or of learning outcomes competences of an individual against predefined criteria (learning expectations, measurement of learning outcomes).

It is the process of testing the level of achievement of learners' competencies in an authentic manner with the help of set standards, and can be done in a formative or summative way. CBA uses the concept of assessment in a multidimensional sense, thus, leading to the use of a diversity of instruments and the incorporation of different educational agents.

Van der Vleuten et al (2017), note that assessment has moved beyond the knowledge domain, towards more complex assessment of skills in authentic contexts, thereby giving room for direct observations to be done. According to Sanchez and Ruiz (2008), competence assessment calls for different techniques and procedures depending on what is evaluated. One question is *knowledge assessment* where the techniques to be used can include long answer tests, short answer tests or multiple choice; another is *attitudes and values assessment* done through observation techniques, self-evaluation, attitude scales etc).

In addition, there is *competential behavioral assessment* (applying knowledge to specific situations, writing certain types of essays, developing different types of thinking using portfolios, reports, problem-solving, essays etc.). What is truly important in evaluating students , is consistency between the progress to be assessed and the procedure chosen for this purpose.

Occasionally, it happens that a lecturer uses a procedure that is not useful for evaluating what he/she really wants to assess. This can happen simply out of lack of familiarity with more appropriate techniques, or it can happen because certain types of progress or competences are more difficult to assess than others or require time and effort. Competence assessment requires technical capacitation of teaching staff and awareness of its true value, so that adequate time and dedication will be devoted to it to ensure success (Sanchez & Ruiz, 2008).

Assessment of learner's competencies is particularly important and necessary in education, it thus requires a tool with quality, reliability, and standards to be used for the assessment that enables the accuracy of measurement and assessment process, with precise outcomes of the authenticity of individual learners. McClelland (cited in Koeppen et al 2014), defined competency-based assessment as 'testing for competence rather than for 'intelligence'. This means that CBA goes above testing level of knowledge to the application of the knowledge in solving real-life challenges. This view is supported in the Bhutan document (2013), in which competency-based assessment is defined as 'the process of collecting evidence and making judgment as to whether a person can perform according to the competencies specified in the National Competency Standards

[or the curriculum]'. Esenina, et al (2019) defines assessment of learning outcomes or competencies as a process of appraising knowledge, know-how, skills and/or of learning outcomes competences of an individual against predefined criteria (learning expectations, measurement of learning outcomes). According to Carthy Anderson (nd) competency-based assessments provide insight into: what the students knows, still needs to learn, has learned, and where the institution can improve, thus assessment of competencies consist of pre-assessment, on-going assessment and summative assessment.

Knowledge of the principles guiding CBA designs is of great importance for its effective implementation. Losioki (2018) in her paper, summarises the notion of CBA as follows:
Firstly, in the competence based learning and assessment, the learner had the responsibility for learning the materials and demonstration of mastery of competences. Hence, provision of learning materials and assistance to students who require additional assistance is emphasized. Schools and educational authorities should therefore, support teaching and learning in order to ensure that the expected outcomes are attained as targeted in the curriculum.

Secondly, assessment of competences is performance-based. It rarely has right and wrong answers hence it requires subjective evaluation. Teacher competence in teaching and assessment is therefore, emphasized and recommended for effective measurement of students performance of the competencies.

Thirdly, understanding of the principles, assessment methods and appropriate assessment procedures is emphasized for adherence of quality teaching and learning. Therefore, various assessment methods are recommended for validity and effective assessment of competences.

1.1.6.1 Principles of CBA

Assessment of competencies, like any other assessment, needs to abide by the following principles (Witty and Barbara, 2008; Gravells , 2015) and must be:

- *Current:* Assessment should take place within a short time of learning.
- *Relevance*: Assessment should relate directly to the programme aims and learning outcomes. It is also expected to cover all required competencies and enables learners to develop various competences. Hence, it involves selection of the most relevant methods appropriate to the kind of performance being assessed.

- *Valid:* All components that are to be assessment must be assessed. There must be sufficient evidence to ensure that the candidate meets the competency specified by the current standard. The candidate must not be asked to provide evidence for or be assessed against activities that are outside the scope of the unit standard.
- *Reliable*: The assessment must be able to stand up to scrutiny. That is, other assessors should reach the same conclusion. A number of evidence-gathering methods can be used to ensure consistency. The frequency of assessment determines the accuracy in assessing competencies. Assessment of competence must be done more than one time in order to ensure validity and reliability of teaching and learning. Assessment instruments must be prepared according to the specific purpose in order to ensure that they measure what they are intended to measure
- *Flexible:* There is no single approach to competency based assessment. Evidence can be collected using different methods, at different times, under a variety of conditions. It must be responsive to the needs of the situation and the candidate. CBA is multifaceted.
- *Fair:* Assessment must not discriminate against individuals or groups. Different people and different situations need different assessment methods and, where necessary, reasonable adjustments to meet individual requirements must be made.
- *Safe:* All work and all assessment must comply with occupational health and safety requirements. A variety of learning outcomes requires different assessment approaches.
- *Sufficiency and authenticity*: Assessment should cover all the required competences at a given time and levels. It also involves application of knowledge and skills in a real environment. Hence, it should be clear, with accurate, consistent and timely information on assessment tasks and procedures.

According to Wesslink (2010) in learning trajectories and assessments, integration of knowledge, skills and attitudes has to be realised to ensure that students are well enough equipped to carry out a practical assignment successfully. CBA must be current, valid, reliable, flexible, fair and safe (Agbor Tabe, 2018). Therefore the instruments and the methods used for CBA must provide sound judgment of the competencies acquired. Yet, the introduction of CBE faces a lot of challenges including assessment.

1.1.6.2 Characteristics of competency-based assessment

For an assessment tool to be seen as designed in the CBAp context, it must possess certain characteristics. Meng (2018) and Jaynes (2016) outline the main features of a competency-based assessment system such as :

- competency-based assessment is criterion based, evidence based and participatory.
- CBA is flexible, integrative, multi-judged, on-going and should reflect real life situations or simulations.
- CBA is not fashioned around the notion of subject knowledge but rather around the notion of competency. (Same view as Agbor Tabe 2019),
- It is not about passing or failing a candidate (Oyugi ,2015).
- Assessment of competence should be real world-based, thorough and holistic, with varied outcomes (Drisko ,2015).

Munoz and Arraya (2017) add that competence-based assessment forces the use of a diversity of instruments and the incorporation of different educational agents. It uses the concept of assessment in a multidimensional sense. Competence evaluation acts as the certification process of the training established in the graduation profile.

Roy (2016, p.10) adds that

> according to the nature of the competency testing system, the competencies fixed for the students should be both observable and measurable and can be assessed through a specific process. In competency-based assessment system, students can also be assessed using such contents which may or may not be found in their textbooks.

On the other hand, the content-based system allows such items that are found only in the textbooks.

To Agbor Tabe (2019), the purpose of the competency-based assessment is to test learners' competencies and to test usage in realistic situation. For example, CBA focuses on how students can use language as oppose to the learners' knowledge about the language. CBA adopts a "criterion-base assessment" contrary to the "norm-referenced assessment". He further listed some principles which must be considered when judging learners. They are: communicative principle, task-based principle, functional principle, behaviourist principle, integrative principle and team principle. CBA encourages group evaluation because it favours peer learning and interaction. In

the CBL Handbook, p.16, students advance upon demonstrating mastery: their ability to demonstrate that they have learned a skill is more important than the time it took them to learn. They involve the concept of transfer of knowledge. Transfer is the ability to extend what has been learned in one context into other contexts.

Biggs (2009, p.20) outline the following precautions to note when designing assessment tasks. Assessment tasks (for CBA) :

- should provide students the opportunity to demonstrate whether or not they have achieved the ILOs and what level their performance is in those ILOs.
- should be appropriately designed or selected to address the ILOs that we want to assess.
- different assessment methods (tasks) address different ILOs. There should therefore be several kinds of tasks.
- provide the evidence allowing teachers to make a judgment about the level of a student's performance against the ILOs and to award a final grade.

From the above characteristics, it can be deduced that the types of assessment methods good for CBA, should be integrative meaning that learners need to integrate knowledge from different sources to handle a task; on-going or formative assessment and should involve real life situations. These views are supported by Cummingaham et al (2016); Muñoz & Araya (2017), Gervais (2016) **,** Witty and Barbara, (2008); and McClarty ad Gaetner (2015), summarise as follows: CBA has an integrative character, authentic character, dynamic character and is multidimensional. Vleuten et al (2017), noted that 'competence is specific and not generic, because whatever is being measured and whatever method it is assessed with, competence and resulting performance are contextually bound'.

1.2-COMPETENCY BASED EDUCATION APPROACHES AND THEIR INFLUENCE ON CBA IMPLEMENTATION,

What to be assessed and how it should be assessed, is influenced by how the concept of competency has been conceived in a particular country. Competency based education has brought a change not only in the teaching methods but also in the assessment methods, therefore calling for different assessment models. The European Commission, quoted by Straka, (2004, p.8) brings to light interwoven trends in competency-based assessment which may be characterized as follows:

- a change from input to output orientation in education;
- a shift from the discipline or subject approach to competence and competence-based authentic measurement in education;
- an increasing attention to the measurement and evaluation of competences acquired outside of educational settings;
- methods of measurement and evaluation (assessment) are regarded as interrelated with concepts of learning, development, education and training.

This means that, to assess learners' competences, focus should not only be on the learning outcomes; the subject approach needs to change to involve application of knowledge to out-of-classroom setting.

In order to incorporate the concept of competency-based assessment, different assessment models are being used in different countries and these are driven by their conceptualisation of competencies and the theories guiding it. Mulder et al (2016); Rogiers (2016); Boukhentache, 2016) Anderson-Levitt (2017), Straka (2004) and Herbard (2013) have explored the different ways competences are conceived and evaluated in different areas of the western world. While some authors prefer isolated or single subject assessment models, others prefer the integrated or global models and/or holistic models. Munoz and Arraya (2017) quote García and other authors who hold that competence-based assessment requires its own evaluation model, in the sense that it takes up schematizing evaluative patterns.

The practice of competences in Cameroon has its roots from the behaviourist approach (the English or US view) or the constructivist approach (European especially France) and the learning areas (Germany's view) as quoted by Rogiers, (2016) and Mulder et al (2016). Anderson-Levitt and Herbard, in their separate studies, observed that there is a divide between behaviorist approaches on the one hand and constructivist, integrative approaches on the other, giving rise to different assessment models. Below are some different models or approaches to competency based assessment in Cameroon.

1.2.1 The isolated model or subject area approach or analytic approach: This is influenced by the behaviorist approach or focuses on the *skills* students must master to successfully execute a task. The notion of competence is the focus on know-how rather than on knowledge, or the ability of an individual to complete a task, to prove his know-how in a real work situation. The primary

skills are first of all taught to equip the learner with the necessary tools to tackle survival tasks in the classroom. Mulder et al (2016) see the behavioural approach as purely outcome-based approach, with the evaluation tools based on performance criteria. Here competences are separated into domain- specific tasks according to the subjects. The tasks involve problem situations in real life or simulated context. Competencies can be evaluated at the end of a given topic or at the end of the month. The competencies are judged and recorded against each subject. Rotthoff, Kadmon and Harendza (2021) describe this approach as the analytic approach. The curriculum for the primary school (2018) portrays this notion of learning outcomes, thus assessment is to be done after a series of topics have been covered in a given subject area.

Criticism: Boukhentache, (2016), argues that since a common view is that performance is constituted by a series of tasks, competency standards are often thought of as simply a series of discrete task descriptions. Thus, the task view of competence omits higher level competencies required for the globalised world. It also has been widely criticized on the grounds that assessing attributes in isolation from actual work practice bears little relation to future occupational performance. Ashworth and Saxton as cited by Boukhentache, argue that a competency cannot be regarded as an isolated cognitive capacity detached from the context in which it is acquired.

1.2.2 The integrated assessment approach/model :

The origin of integration approach is traced by Boukhentache to the works of De Ketele in the late 1980s who suggested the concept of "Objectif Terminal Global", that has later come to be termed as "Objectif Terminal d'Integration". The idea is to relate and integrate learning objectives at the end of a learning process than to teach and assess them in isolation. He also mentions Gagné (1965) who underscores importance of articulating what he terms *terminal objective*, that is, the final performance-based task in which students are assessed at the end of a course of study.

Peyser et al, as cited by Boukhentache, identified two main integration schools of thought, the Anglo-Saxon and the Francophone. The two main integrative problem-solving models of teaching/learning are :

situations-as-end points or integration pedagogy: Here it is required that, resources relative to terminal tasks are, first identified; then taught and practiced separately in complex intermediary tasks; and, finally reinvested in a group of complex meaningful certification tasks.

Situations-as-starting points: Learning within this pedagogical framework starts with the presentation of complex end tasks right at the beginning of a course of instruction.

Boukhentache, further adds that the major differences between these schools of thought relate to the way they conceptualize skill integration and transfer. While the Anglo-Saxon pedagogical community argues that students cannot integrate skills and knowledge until they are fully mastered, the Francophone school holds that students can learn to integrate and transfer skills by solving similar tasks in different situations.

According to Hager and Gonczi (1996), with the integrated conception, competence is conceptualized in terms of knowledge, abilities, skills and attitudes displayed in the context of a carefully chosen set of realistic professional tasks which are of an appropriate level of generality. In other words, to integrate the knowledge and the know-how, is to apply them in a practical way in daily-life situations. Therefore integration can be seen as using KSAs from different subject area to solve a problem, or by integrating KSAs to perform a task. The student must be capable of transferring his/her knowledge from the classroom context to a daily-life context. It is indispensable to move from theory to practice. In order to teach the students to integrate their knowledge and know-how, several complex situations, called "integration situations" are introduced, where students are invited to try to solve them.

Criticism: Boukhentache (2016) highlights that **s**ince CBE is based on mastery learning and individualization of instruction, it is impossible to pre-specify and accommodate for scheduled weeks of integration because not all students will reach the prerequisite level of adequacy by this time**.** His experience in competency-based schools of secondary education indicates that teachers tend to distort integration situations and approach them as traditional production activities

Another criticism is that, some subject areas are difficult to integrate with others such as Mathematics or History, practically.

1.2.3 The learning area model of CBE:

This is another form of integration model which was developed in Germany (Wiegel at al, 2007). This approach was implemented in Germany in 1997. Learning areas are thematic units or the interated learning themes that are defined by targets, content, a teaching time specification, and the performance of professional tasks and actions. The Learning area approach was intended to

link both the curricula and learning process to the work activity and to promote action learning at the curricular level. Competences are assessed according to learning themes. Developmental theory forms the theoretical backdrop for the learning area approach. A key assumption for the learning areas is that competence can be developed. If somebody is not able to do something because of a lack of developed competencies, he or she will learn it in confrontation with the task itself (Rauner, quoted by Wiegel at al). This therefore calls for the assessment of competences to involve the integration of learning areas or integrated learning themes.

Criticism: Wiegel at al (2007), outline the following**:**

- The first criticism is that the concept favours learning areas over the classically taught subjects and that thus the order of knowledge that "subjects" provided will be lost.
- There is no explanation of how it is possible to recognize when the goal of competence is achieved.
- Another general problem is that the development of competence takes a long time, and that some competencies are only applied after graduation, which makes it difficult to assess them during the training program

From the above mentioned approaches or models, García and other authors (2008) (quoted by Muñoz and Araya, 2017), concluded that competence-based assessment requires its own evaluation model. They suggest that the best way to evaluate competences is to put the subject facing a complex task, to see how he succeeds in understanding and solving it by mobilizing knowledge. The evaluation instruments used cannot be limited to tests to see the degree of mastery of contents or objectives, but to propose some complex situations belonging to the family of situations defined by the competence, that would also require from the student a complex production to solve the situation, because it needs knowledge, attitudes, and metacognitive and strategic thought. Hence the need for a holistic evaluation model which does not mean the complete replacement or construction of the existing evaluative models but one that will give an overall picture of the level of competence.

The CBE approach in Cameroon has elements of the three different approaches mentioned above. Thus there is need to master the approaches before seeing how to

1.2.4 Assessment models

The above approaches to CBE in Cameroon have brought in different models of assessment of competencies such as the analytic model that tackles single subjects, the integration models that requires mobilization of resources from different subject areas and the learning area models that requires assessing competences centered around the integrated learning themes. Based on the criticisms made above for each type, it is of importance to explore other assessment models.

1.2.4.1 Holistic assessment model.

Assessments ought to be designed not only to improve students' acquisition of domain-specific knowledge but also of higher-order cognitive and metacognitive skills and abilities, such as strategic knowledge, dynamic problem-solving, and critical thinking , thus requiring a holistic model of assessment.. Donna-Louise (2007) writes that the 'holistic approach' is a kind of an integrated model seen as a vehicle for the achievement of competences. Quoting from UNESCO (2005), some key features of education for sustainable development are that it should be "interdisciplinary and holistic", values-driven, locally relevant...and offering personal and professional life . Implementing a holistic approach, requires the purposeful development of the curriculum based on three key principles of design: curriculum should be designed in response to a needs and goals analysis of the whole person/community; literacy, numeracy and any local language should be contextualized and embedded within the training program and curriculum should be customized and holistically mapped.

Holistic assessment refers to the process of using multiple sources to continually gather information on a child's development, to provide feedback to support and guide learning. The holistic evaluation model assesses holistic competencies, (good for summative evaluations). Drisko (2015) examines holistic competence and its assessment as a model which is an efficient way to assess student competence and overall program outcomes. Instead of aggregating a large set of practice behaviors, a holistic assessment is needed to generate an overall measure of each competency. Holistic assessment requires assessment of competencies in real or closely simulated practice activities, completed using carefully designed assignments and grading rubrics. Proponents of the holistic model criticize the traditional models of competence for focusing too much on discrete and lengthy lists of specific tasks that ultimately fail to capture the interactive nature of practice. Drisko argues that there is therefore the need to reduce the list of mandated

practice behaviors and to consolidate required competencies. Holistic competence acknowledges the interactive complexity of practice involving meta-competencies, that is, one's ability to make optimal use of knowledge, values, skills, and personal competence through communication, creativity, problem solving, mental agility, and analytic ability. Instead of isolated elements of knowledge and practice, an integrated approach is needed in which whole tasks are used throughout the practice phase (Albert et al , 2003).

The holistic competency assessment approach is designed to counter partial, reductionist appraisal of student competence. It requires direct attention to practice performance in real-world settings or their close simulations. It also requires an expanded view of professional competence that includes knowledge, values, and skills, as well as personal behavior, meta-competencies (communication, creativity, problem-solving skills, etc.), and reflective ability. The goal is to assess students' ability to make framing judgments in complex systems and then to deliver applicable procedural competencies effectively.

According to Swinburne University, (2008), cited in Rochmawati (2015), holistic assessment is used when learning objectives are inter-related and complex. It is relevant because it assess several units that represent a _whole of job' role rather than assessing a single unit and element as specific tasks or parts of a work activity. Multiple units of competency can be integrated in a simple format of assessment.

Rochmawati lists some benefits of the holistic approach of assessment for the candidate and the assessor. For the candidate, se says it helps to manage their perceived assessment burden, recognize how skills and knowledge support more than one aspect of their working life, provides them with a more holistic view of a unit-based qualification, and motivates them in their evidence collection. For the assessor, it provides an effective structure to planning and organizing the candidate's assessment and achievement targets, reduces potential assessment burden, and puts the emphasis on the quality of evidence to be assessed rather than the quantity (p.4).

Bolívar's words quoted by Muñoz and Araya (2017, p.8), summarises how CBA should be done.

> The best way to evaluate competences is to put the subject facing a complex task, to see how he succeeds in understanding and solving it by mobilizing knowledge. The evaluation instruments used cannot be limited to tests to see the degree of mastery of contents or

objectives, but to propose some complex situations belonging to the family of situations defined by the competence, that would also require from the student a complex production to solve the situation, because it needs knowledge, attitudes, and metacognitive and strategic thought.

Bolivar quoted by Muñoz and Araya (2017, p.8), , proposed a six point model as follows:

- The first one is related to the selection of competences as expected results of learning, based on the student's graduation profile.
- The second is the establishment of objectives in agreement with what is stipulated in the degree project, and facilitate the process of acquisition/development of competences.
- The third is the establishment of levels or indicators of achievements as evaluation criteria.
- The fourth is the definition of activities or tasks that allow the development of the competences.
- The fifth is the planning and making of tools that allow collecting data at different evaluation times.
- And finally, the sixth is issuing a reflection on the development of the evaluation system, allowing to analyze and assess the information to systematize decision-making.

1.2.4.2 Competence Assessment Continuum Approach

Approach by Rotthoff, Kadmon and Harendza (2021). These authors mention two contrasting approaches in competence assessment: an analytic approach that aims to precisely measure observable constituents and facets of competence and a holistic approach that focuses on a comprehensive assessment of competences in complex real situations reflecting actual performance. The analytic approach evolved from the field of educational research and aims to support the development of individual competencies; while the holistic approach to competence assessment has its origin in business and organizational psychology and aims to use performance tests to predict candidates' competence for future performance. The analytic assessment approach is suitable for assessing constituents of competence, i.e., knowledge, skills and attitudes, but cannot be regarded as an assessment of competence in the proper sense Its purpose is not so much to assess the personal prerequisites for certain competencies, but to focus on a comprehensive assessment of competence in complex real-life situations by measuring performance (Blömeke et al., 2015; quoted by Rotthoff, et al, 2021). Holistic refers to the assessment of performance with

respect to complex outcomes of interlinked competencies using learning objectives from different domains (e.g., knowledge, skills and attitudes).

According to the above authors, competence development results from the gradual acquisition of constituents of competence and facets of competence to competence. The assessment of competence should, therefore, be seen as a continuum from an analytic to a holistic assessment approach. Constituents of competence can easily be operationalized which provides an analytic assessment approach indirectly measuring latent competence variables by tests (e.g., Multiple-Choice Questions MCQs). Facets of competence can be tested by situational representation in simulated settings of varying complexity. Competence can be tested by observational assessment of performance in the real world. They advocate a thoughtful approach to assessment that considers the different strengths and weaknesses of analytic and holistic approaches. We propose the perspective of a continuum extending from an analytic approach to assessment to a holistic one and recommend using a combination of both. The choice of specific assessments along the scale between analytic and holistic will vary depending on the assessment needs and learner levels of training.

In the same vein, Boukhentache (2016) says in integration pedagogy, learners can practice skills transfer horizontally through preliminary tasks before undertaking target problem-solving tasks. The frequency of complex situations during the learning process serves as milestones for gradual and secured transfer of integration skills. These intermediate tasks initiate students to problem-solving work. They also consolidate skill retention and make learning gains more permanent. However, it should be noted that this procedure is temporary because, according to Rogiers (2010), students should progress during the learning process and get accustomed to skills integration. Later, they will be called upon to start solving problems right at the onset of instruction and learn resources while or after implementing the target task. Actually, Rogiers, in 2007, suggests a curriculum structured into two major phases: During the first stage, learners work on enabling skills before facing them up with complex situations; whereas, in the second stage, they start tackling complex tasks, and consequently acquire and master the skills and knowledge intrinsic to the target task simultaneously. In this way, this innovative curriculum framework combines in the long run both top-down and bottom-up learning/teaching processes.

In conclusion, some key features of education for sustainable development are that it should be 'interdisciplinary and holistic, values-driven, locally relevant… and offer learning experiences that are integrated in day-to-day personal and professional life (UNESCO, 2005). Such holistic strategies can be seen as synonymous with the thematic integrated curriculum and whole approaches to learning implemented in schools, where several subjects are tied together through a theme to enhance meaning and explore interrelationships between subjects. In the Cameroon context the holistic evaluation model is therefore one that combines the other three models mentioned above which are the isolated, the integrated models and the learning themes (Alemnge 2020a). Some aspects of domain-specific knowledge can be validly and reliably assessed with the analytic approach, whereas the complex ones require the holistic approach in which assessment includes realistic and action performance formats.

Other types of assessment models are the cognitive assessment model and the performance –based models

1.2.4.3 Performance –based models:

These models are mostly used in professional schools to see if the learners can match the theoretical knowledge with a practical task. Performance assessment models support the design of quality performance assessments. These models are designed to help designers develop assessments involving performance of a task in real life. Such formats are appropriate, authentic representations of real life situations; and are used for complex multifaceted construct which can only be validly assessed if the assessment includes realistic and situationally demanding action performance formats. Assessment models such as that proposed by Drisko (2015), and 4C/ID-model, proposed by Merriënboer fit well here.

1.2.4.4 Cognitive assessment model by Junker (2001):

Cognitive characteristics are the focus of this assessment design. Cognitive assessment models produce a list of skills or other cognitive attributes that the examinee might or might not possess, based on the evidence of tasks that he/she performs. The more task-relevant skills an examinee possesses, the easier the task should be. Some cognitive assessment models focus on a single strategy for performing tasks, while others use multiple strategies that are often accommodated with a hierarchical latent-class structure that divides examinees into latent classes according to

strategy. Within a single strategy, models involving more complicated combinations of attributes driving task performance are possible

It is worthy of note to remind that this study focuses on a blend of the different models of assessing competencies, be it at the level of the classroom or terminal competencies like FSLC exams, in order to propose an assessment model for summative evaluation. To achieve this, a good knowledge of the principles guiding the CBA, the ways of designing and assessing learners and a good understanding of which evaluation models to use, would guarantee effective implementation of CBA but when there is confusion somewhere, it would affect its implementation negatively.

1.2.5 Link between choice of assessment model and CBA

The different approaches to CBE, comes along with different assessment models, as Cheptoo (2019) rightly puts it, that "CBC adoption in most African countries is a modification or either similar framework from the developed countries". Assessments are frequently context-specific and consequently are shaped by the inclusion of particular elements and influenced by the manner in which the assessment is undertaken. Agreement is required between 'what to do', 'how' it can be done and 'why' it needs to be done. Above all the purpose of assessment must be clear . Assessment frameworks or models do not ensure effective practice in their own right as they only provide us with a framework to assist what is a complex activity

Depending on the kind of information we need to gather, Smale et al. (1993) cited in Doel and Shardlow, (2005. P.4) offer us three models – the Procedural, the Questioning and the Exchange – to guide us in carrying out assessments….

The Procedural model, often associated with guidance related to legislation, involves using systems that are devised to ensure consistency and thoroughness in data collection..

The Questioning model of assessment focuses on the nature of the questions and how the information is used,

The Exchange model- The focus is on a holistic assessment of the context in relation to the individual over time .

Summarily, it means that the assessment model describes how the competencies will be assessed, the type of questions that will be asked and the criteria for judging mastery of competencies over time. We shall discuss these in the next section below.

1.3 METHODS OF ASSESSING LEARNER COMPETENCIES AND THE JUDGMENT OF COMPETENCY LEVEL

One of the decisions confronting those designing a competency-based educational program is: What type of measuring device should be used to assess a student's level of competence? Should paper-and-pencil tests be used before and after instruction as the sole means of measuring competence? Or should actual performance in real-life situations be the basis for assessment?
Leigh et al (2007) feel that since competencies are demonstrable components of competence that reflect effective performance and can be evaluated against well-accepted standards, and also because competency is not a homogenous concept as noted by Dolot (2016), their multidimensionality requires a multifaceted approach to the assessment, therefore CBA has to be multi-judged, using different methods and instruments as well as done by many assessors.

McClarty and Gaertner (2015) in their paper on Best Assessment Practices , introduce a set of best practices for high-stakes assessment in CBE, drawing from both the educational-measurement literature and current practices in prior-learning and CBE assessment. Broadly speaking, they talk of two areas in assessment design and implementation that require significant and sustained attention from test developers and program administrators, such as:

- validating the assessment instrument itself and
- setting meaningful competency thresholds based on multiple sources of evidence.

Furthermore, they add that competency-based assessment can take a variety of formats such as objectively scored assessments (for example, those with multiple-choice or true-false questions), performance-based assessments (for example, those including essays, group projects, or simulated environments), and real-world observations (for example, pre-service teachers in the classroom). Regardless of format, however, the credibility of inferences drawn from assessment results depends on evidence of their validity.

Rogiers (2016) remarked that since competency based education require that learners be taught to transfer their knowledge and know-how, the school and its stakeholders must therefore be tooled to be able to handle this novelty of conducting learning processes in terms of competencies, but also assessing learners in terms of competencies. He further identifies two categories, the content and exit profiles and adds that how a profile is operationalized in a curriculum, directly prompts the type of tests underlying certificate-based assessments. According to his classification,

assessment of general profiles dominated by know-how are assessed at school through developing a culture assessment tests requiring the reproduction of knowledge such as MCQs , through questionnaires, exercises, or practice. Assessing generic competencies are often done through a subjective appreciation given by the teacher; while assessing situational competencies is done through simulations of real-life problems or case study.

Rogiers cautions here that assessing situational competencies is not common practice in the world of primary or secondary general education, though such complex situations are increasingly making their appearance on international standardized tests, nowadays. However, in recent years, particularly in a number of French speaking countries, they are beginning to be assessed by means of complex situations presented to the learner — situations of producing a complex written submission, solving a problem, etc. Alemnge (2020a, p.5) adds that 'the CBC for Basic Education in Cameroon appears to be underpinned by the French-speaking pedagogical view, which places the development of competences on teaching the student to learn through a complexity of ongoing "active" method'.

Rogiers summarizes his views in the following schema

Priority contents	**Priority exit profiles**
Knowledge and know-how	General profile
Life skills	Profile in terms of standards
Cross-cutting capacities	Profile in terms of families of situations

Source: Rogiers (2016, p.13)

In the PISA document of 2005, a further step in assessment is to move beyond identifying cognitive abilities and to measure attitudes and dispositions. While cognitive abilities are easy to be assessed, as teachers do not know then and with what instruments they can use. McClelland argued that "tests should assess clusters of competencies involved in life outcomes rather than single aspects of competencies….and as such, must allow the individual to "frame" action in complex real-world situations or their close equivalents'.

Assessment of competence should be real world-based, thorough and holistic, with varied outcomes (Drisko ,2015). According to this view, instead of aggregating a large set of practice

behaviors, EPAS 2015 requires instead the holistic assessment of competencies. Due to the changes in the way EPAS conceptualizes these competencies, programs' efforts to assess the competencies meaningfully must also be substantially revised. Holistic assessment requires assessment of competencies in real or closely simulated practice activities. 'Completed using carefully designed assignments and grading rubrics, holistic assessment is an efficient way to assess student learning and program outcomes'.

Some holistic models have been developed such as the 4C/ID-model, proposed by Merriënboer in 1990 which focuses on the integration and coordinated performance of task-specific constituent skills rather than on knowledge types, context or presentation-delivery media. Their belief is drawn from the work of the Gestaltists who feel that "the whole is greater than the sum of its parts''. Drisko (2015) summarizes that holistic assessment of competencies can be done *directly* through carrying out real-life tasks or simulations; and *indirectly;* involving the appraisal of knowledge, values, critical thinking, affective reactions, and exercise of judgment through exams, papers, and other assignments—not through real or simulated practice. Bogo and Lu et al. quoted by Drisko (2015), argue for standardized examinations using close practice simulations to assess real-world practice and to allow for cross-student comparisons. For this reason, the researcher believes summative examinations like the FSLC can be assessed this way.

1.4 TYPES OF ASSESSMENTS USED FOR CBA AND THEIR IMPLEMENTATION

There is a vast amount of research, on how, when and even if at all to best approach the assessment of competencies. It requires different assessment systems 'that are standardized as well as authentic, that allow for control as well as trust, and that foster cultures that enable and value learning as well as high-quality performance.' (Govaerts, van der Vleuten, & Holmboe, 2019)

According to Cathy Anderson (nd), 'competency-based assessments provide insight in: what the students knows, still needs to learn, has learned, and where the institution can improve'. She identifies three categories of assessments*: prior learning assessments* that test what students have learned before and outside of the classroom; *summative assessments* which provide a summary of what a student has learned over a given time period, and *formative assessments* that are used by teachers to help determine the ideal learning path for their students, helping them to personalize and adjust curriculum, assignments and content, to what a given student needs. Agbor Tabe (2019) has a similar view as she says CBA course take into consideration several types of assessments

(Initial, formative and summative assessment). At the start of a CBA lesson, an initial assessment of learners is expected to test previously acquired competence through discovery and research which helps teachers to know the level of their students, to identify their weaknesses and strengths as the new input is concerned.

1.4.1 Prior learning assessment:

This is the type of assessment done to determine the learner's competency level before introducing new skills and competencies to be learnt. Learners are believed not to be empty vessels, they are endowed with potentials that need to be unveiled and developed through prior assessment. Nworgu (2010) terms this type as *pre-assessment* which is used to find out if the student can demonstrate mastery of the pre-requisite competencies so that he might be placed at the necessary entry level or whether the student already has mastery of some or all the specified objectives.

1.4.2 Formative assessment :

Nworgu (2010) defines formative assessment or assessment for learning as that assessment undertaken while a lesson or programme is still in progress or is on-going in order to collect relevant data and using the feedback to improve learning, course or programme. Formative assessment, he says, 'a process not any particular test', p.7. According to Mc Carthy (2011), formative assessment is integrated into the teaching and learning process and can be used as part of continuous assessment, but some argue that it should not be part of grading process. She further cites Black and others who state that 'establishing good formative assessment practices, requires that most teachers make significant changes. This involves extra work and risk taking, thus the reason why many teachers seem not comfortable with the frequency of assessments of competencies.

Formative assessment is a critical component of a comprehensive assessment strategy as it supports student learning by providing timely, specific feedback to learners and instructors at meaningful points during the learning experience … the benefits of formative assessment and the feedback it provides depends on its design and implementation (Bennett, 2011; Shute, 2007, cited in LDP_Cards_V4b 2016). Munoz and Arraya (2017) highlights the integral and formative criteria that these practices must have in evaluation. The objective of his article was to make a contribution to the discussion and reflection of the formative role of the competence-based assessments in the educational field.

Kim and Care (2020) Assessment, particularly formative assessment, is an extremely powerful tool that can give the opportunity to teachers to support and correct students' learning paths and to provide individual guidance so that learning actually happens.

Students' assessment (2013) OECD Review have now developed policy frameworks to support and promote formative assessment in the classroom. Such policy frameworks shift attention from teacher-centred programmes towards the learners themselves, requiring teachers to adapt teaching techniques to meet learning needs and helping students develop their own assessment capacities. Such assessments, although externally set and often externally marked, are also designed with teachers' assessment practice in mind – they can give teachers an insight into national expectations and standards and provide feedback to students on their progress.

Students' assessment (2013, p.17) outlines the intentions for designing and implementing formative assessment strategies include

: • To provide timely feedback to students, which they can integrate into their learning process. Several studies indicate that feedback is most effective when it is timely, is tied to criteria regarding expectations, and includes specific suggestions for how to improve future performance and meet learning

• To help students to feel safe to take risks and make mistakes in the classroom. Students are thus more likely to reveal what they do and do not understand and are able to learn more effectively

• To diagnose student learning needs and differentiate teaching accordingly. In order to develop an appropriate teaching intervention, teachers need to assess students' learning needs and explore a range of potential causes of learning difficulties .

. To actively engage students in their own learning processes so as to develop higher-order thinking skills and skills for "learning to learn", and to allow students and teachers to engage in conscious reflection on the learning process

1.4.3 Summative assessment ,

Also known as assessment of learning, is that assessment carried out to determine what students have been able to learn at the end of a given lesson, unit, programme or period of schooling, (Nworgu, 2010). Mc Carthy (2011) and Rogiers (2016) argue that summative assessment usually involves assessment using the traditional examination, or traditional testing methods such as

multiple-choice tests, or using essay or short answers.

As mentioned in *Students assessment (2013*), summative assessment, or "assessment of learning" involves judging student performance for a decision or record. It usually occurs at the end of a learning unit, term, school year or educational level. The results of summative assessment can be reported in different forms including marks, transcripts, certificates and qualifications. The intentions for designing and implementing summative assessment strategies include:

- To motivate students to increase effort and achievement. The marks, transcripts or diplomas connected to summative assessment are often conceived as rewards for having performed successfully on an assessment.
- To provide information about student performance to a range of different stakeholders, such as the students themselves, their parents, others within the school, or school-external players such as employers.
- To select or group students according to their achievement levels. In many countries, assessment results are used to stream students according to their ability levels within schools, or to select them into certain types of schools.
- To certify learning and award qualifications that grant students access to higher education institutions or certain professions.

Summative assessment typically serves for school-internal purposes such as keeping records and giving reports of progress to students, parents and other teachers as well as for school-external purposes such as selection and certification of students' progress

Boyle and Fisher, (2007) distinguish between different types of test in terms of their uses.
Formative test (assessment) use is *prospective* in character, and may be regarded as assessment for learning and designed to provide: a source of effective feedback to the test taker about a gap between present performance and a desired longer-term goal; a means of actively involving the test taker in his/her own learning by gaining an understanding of his/her strengths and weaknesses; and information from the results of the test to help those teaching or supporting the test taker to identify ways of making teaching and learning more effective.
In contrast, summative test use is *retrospective* in character, and may be regarded as assessment of learning. It is designed to provide: a summary overview of what the individual knows, understands or can do at the time of testing; and a means of guiding formative test use.

Formative and summative test use, according to Boyle and fisher (2007, p24), " are not different kinds of assessment but, rather, are different ways to which information arising from the assessment can be put.". The outcome of the same assessment might serve more than one function and thus a given test can serve either a formative or a summative use depending upon the purpose of the assessment or the assessment question.

Though many authors belief that competencies are better assessed using formative assessment ; others also share the view that they can be assessed using summative assessment that are holistic (Anderson-Levitt 2007, n.d; McClarty and Gaertner, 2015) although their focus was mostly in vocational or professional settings. Rogiers (2016, p.33) found that 'competency-based assessment requiring complex situations are increasingly making their appearance on international standardized tests nowadays', meaning that end-of course examinations can also be designed to measure competencies.

1.4.4 Continuous Assessment

The fourth type of assessment is Continuous Assessment, which according to Mc Carthy (2011), is a combination of summative and formative assessment. It usually involves repeated summative assessments, marks recorded with little or no feedback given. According to Ipaye cited by Nworgu (2010, p.38), continuous assessment

> deliberately allows for periodic assessment throughout the course and takes into account progress towards the goal as well as success in reaching it, the building up of a cumulative judgment about the performance of each individual and a continual updating of teacher/s judgments about the pupils.

Continuous assessment gives more comprehensive information on the cognitive, affective and psychomotor measures (attitudes, interest and industry) of an individual if well implemented; therefore, a better way of assessing competencies in a holistic manner.

According to Fleisch et al, (2019) research shows that there is a tendency, in school-based continuous assessment, to inflate students' achievement levels − a trend that undermines the credibility of the assessment system.

Fleisch et al further cite Barrett & Bainton, (2016) on p.28, who observed that,

> while most curriculum reforms emphasize relevant learning outcomes (competencies), like critical thinking, public examinations in Africa tend to be limited in terms of the knowledge

and the skills they assess; tend not to measure skills associated with application, analysis and synthesis; and seldom assess the knowledge and skills that students need in their everyday lives after school. Although the exit exams are important in determining student competence, they are not sufficient in themselves. As such formative assessments could meaningfully contribute as reforming high-stakes examination systems. They suggest that there is serious need to consider formative assessment for continuous building and shaping of learners into what we want them to be. A growing body of research suggests that a critical aspect of effective classroom-based (formative) assessment is needed for continuous assessment of learners.

Similar findings from the work of Browne's (2016) cited by Fleisch et al (2019) reveal that

> review of research on continuous assessment, including case studies of practices in South Africa, Ghana, Malawi, Nigeria, Zambia and Uganda, provides the most comprehensive picture of these specific aspects of reform in assessment systems. The main overall finding is that teachers are not using continuous assessment in their classrooms, in large part because of the absence of institutional support, few exemplars and the lack of training. Browne's research also points to the lack of understanding of the purpose of continuous assessment and the top-down manner in which it was introduced to schools. Despite sporadic efforts to reform assessment systems, summative high stakes examinations continue to dominate assessment systems, with the net effect that secondary teaching is heavily skewed towards "teaching to the test, p.36.

1.4.5 Self-assessment

Is that type of test where the learner answers a serious of questions based on his personality and personal experiences. Straka (2004, p.3) argues against self-assessment by saying that the weakest approach for assessment, whereas Drisko on the other hand feels that students should be allowed to talk about their own experience especially after the authentic assessment.

1.4.6 Alternative assessments

In a document on *'Using Alternative Assessments in Vocational Education'*, alternative assessments range from written essays to hands-on performance tasks to cumulative portfolios of

diverse work product. Alternatively, an assessment requires a student to develop his or her own answer in response to a stimulus, or prompt. An assessment of this form is called a constructed-response assessment, also called performance assessments. Alternative assessments are also done using written assessments which are activities in which the student selects or composes a response to a prompt. In most cases, the prompt consists of printed materials (a brief question or a problem situation, a collection of historical documents, graphic or tabular material, or a combination of these).

The alternative forms of assessment are most commonly referred to as performance-based assessment. They may include open-ended tasks such as oral presentations, essays, experiments, projects, presentations, collaborative tasks, real-life cases, problem-solving assignments and portfolios. Problem solving according to (Mani, 2016), is a mental process that involves discovering, analyzing and solving problems. The ultimate goal of problem solving is to overcome obstacles and find a solution that best resolves the issue. Portfolios are pictorial descriptions of students' past work and the teacher's evaluation of it. Usually portfolios include the student's best work and some work in progress which showcases the student's strength.

1.4.7 Performance assessment:

Performance tasks are hands-on activities that require students to demonstrate their ability to perform certain actions. This category of assessment covers an extremely wide range of behaviors, including designing products or experiments, gathering information, tabulating and analyzing data, interpreting results, and preparing reports or presentations. The skills that must be demonstrated in performance tasks can vary considerably. Some tasks may demand that a student demonstrate his or her abilities in a straightforward way, much as was practiced in class. Other tasks may present situations demanding that a student determine how to apply his or her learning in an unfamiliar context.

Performance , thus, is viewed on two dimensions :one requiring the cognitive skills and the other requiring the psychomotor skills for the performance to be observed. According to Killen, cited by Burger (2008, p.47), all assessments can be seen as performance tasks in which learners demonstrate their ability to remember, understand, apply, analyse, evaluate and create when working with different forms of knowledge. In some cases, students are assessed directly on their performance, since some performance tasks require learners to use their procedural knowledge to

execute the task; in other cases, assessment is based on a final product or oral presentation. When assessing competency, it could be argued that if we want to know how well somebody can perform a certain task, the most natural thing would be to ask her to do it, and then assess her performance (Kane, Crooks, & Cohen, 1999). Such assessments, where students are assessed during actual performance, are called "performance assessments". Hartig et al (2008) reveals that a key feature concerning the competence concept is its stronger relation to "real life".

As stated by Jones (1999)**,** the work of Geach and Polanyi clearly shows that knowledge and understanding must underlie and be embedded in performance and that there is no categorical difference between oral or written linguistic performance and physical performance. It is important to note that 'competence-based assessments can predict the prerequisites for later performance but not performance itself' (Rotthoff et al. 2021).

1.4.8 Authentic assessment

According to Reddy, cited in Burger (2008), OBE (as well as CBE) is a trigger and a trend towards 'authentic' assessments. Authentic assessment supports classroom instruction and it promotes learning and teaching among the participants. Learners engage in real world tasks and scenario-based or simulated problem solving activities that reflect local values, standards and controls. Rogiers (2016) opines that 'when one cannot resort to an "authentic" professional situation, the person to be assessed needs to be confronted with a complex situation, close to a professional situation that he or she will be called on to handle, also known as a case study. Examples of these cases are: the competency of "analysing a balance sheet" by presenting the person with a statement of accounts to be analysed.

Alemnge (2020a, p.8) outlines the types of assessment as recommended by the new CBC in Cameroon primary schools as follows:

> The curriculum recommends the use of authentic assessments; Performance, comprehensive and self-assessments to gather data on pupil's learning ... Diagnostic assessment is recommended for use by teachers before the start of each lesson to help determine the level of knowledge, skill and attitudes which pupil have about the new material to be learned…Formative assessment prescribed to be used as an integral part of the teaching and learning process… and Summative assessment used to measure the extent to which pupils have attained the set learning outcomes of the curriculum and is

recommended to be used periodically by teachers to achieve this goal.

Miguel et al (2018, p.422) remarks that 'depending on their main learning style, students prefer different types of assessment and, likewise, the assessment method they are presented should consider their learning style. That is why teachers must be aware of the type of student learning strategies triggered by certain types of training and assessment'

1.4.8 Traditional assessments:

This type make use of the traditional formats such as MCQs, matching tests, true or false and essay. Most of the questions tests lower levels of thinking. It tests mostly knowledge with very little application to solving real life problems.

Authentic assessment has several advantages over traditional assessment, summarized in the table below , taken from Authentic Assessment "*Assessing by Doing"* document (n.d).

Authentic Assessment	Traditional Assessment
Requires students to contextualize and apply what they have learned.	Asks students about what they learned out of context and tends to encourage rote memorization ('what do we need to know for the test?')
Forces students to work within the ambiguities and grey areas present in the real world.	Encourages students to think about issues in 'right' versus 'wrong.'
Challenges students with a full array of tasks, challenges, and priority-setting that is required in solving problems in the real world.	Tends to focus on single answers to problems.
Look at students' abilities to plan, craft, and revise thorough and justifiable arguments, performances, and products.	Rarely provide students opportunities to plan, evaluate, adjust, and revise responses.
Often include ambiguous problems and roles that allow students to practice dealing with the ambiguities of the real world.	Frequently focus on discrete, static (and often arbitrary) elements of the skills necessary to work on ambiguous challenges.

1.5. ITEM FORMATS IN CBA AND HOW THEY AFFECT THE JUDGING OF COMPETENCIES

Mc Clarty and Gaertner (2015, p.4) says CBE assessment can take a variety of formats: objectively scored assessments (for example, those with multiple-choice or true-false questions), performance-based assessments (for example, those including essays, group projects, or simulated environments), and real-world observations (for example, preservice teachers in the classroom). Regardless of format, however, the credibility of inferences drawn from assessment results depends on evidence of their validity. Therefore all the assessment formats can be used for CBA.

1.5.1 Traditional assessments formats

Traditional assessments formats such as MCQs, matching tests, true or false are used for CBA. Kim and Care (2020) observed that what characterized available assessment tools collected from African countries was the use of assessment formats (e.g., true-false, correct-incorrect, rating scale) . They opine that open ended questions (such as short answer options, essays, tasks, or projects), provide the opportunity for deeper exploration of student understanding and progress, given our current state of knowledge on how to assess 21century skills, while the use of closed-ended paper-and-pencil tests is often motivated by the need for objectivity, fairness and impartiality in assessment, especially where high stakes are attached.

1.5.2 Test formats in performance assessments

According to Darling-Hammond and Adamson (2010) performance assessment is not multiple-choice testing. In a performance assessment, rather than choosing among pre-determined options, students must construct an answer, produce a product, or perform an activity. From this perspective, performance assessment encompasses a very wide range of activities, from completing a sentence with a few words (short-answer), to writing a thorough analysis (essay), to conducting and analyzing a laboratory investigation (hands-on). Performance tasks that occur in the classroom can test even more challenging intellectual skills. Because they allow students to construct or perform an original response rather than just recognizing a potentially right answer out of a list provided, performance assessments can measure students' cognitive thinking and reasoning skills and their ability to apply knowledge to solve realistic, meaningful problems.

The alternative forms of assessment are most commonly referred to as performance-based assessment. They may include open-ended tasks such as oral presentations, essays, experiments, projects, presentations, collaborative tasks, real-life cases, problem-solving assignments and portfolios. Problem solving according to (Mani, 2016), is a mental process that involves discovering, analyzing and solving problems. The ultimate goal of problem solving is to overcome obstacles and find a solution that best resolves the issue. Portfolios are pictorial descriptions of students' past work and the teacher's evaluation of it. Usually portfolios include the student's best work and some work in progress which showcases the student's strength.

Alternative assessments are also done using written assessments which are activities in which the

student selects or composes a response to a prompt. In most cases, the prompt consists of printed materials (a brief question or a problem situation, a collection of historical documents, graphic or tabular material, or a combination of these).

The main characteristic of performance assessments is that they assess a range of integrated knowledge and skills by asking students to perform a task rather than to provide a correct answer. As such, they are more effective at capturing more complex achievements than closed-ended formats

Some observations made on the CBA literature so far

Barrett & Bainton, cited in Fleisch et al, (2019) observed that,

> While most curriculum reforms emphasize relevant learning outcomes (competencies), like critical thinking, public examinations in Africa tend to be limited in terms of the knowledge and the skills they assess; tend not measure skills associated with application, analysis and synthesis; and seldom assess the knowledge and skills that students need in their everyday lives after school.

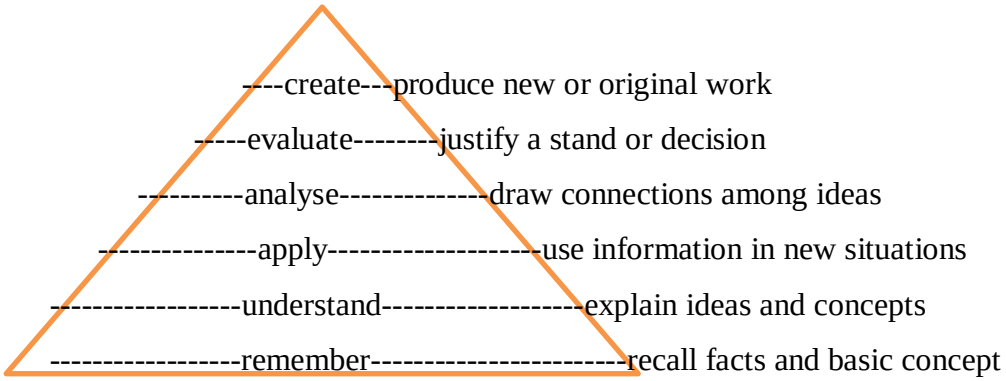
In a document titled '*Using Alternative Assessments in Vocational Education'* it is observed that traditional forms of assessment may not measure certain kinds of knowledge and skills effectively. For example, it is difficult to measure writing ability with a multiple-choice test. Secondly, it is easier to measure a broader range of skills and ability using constructed-response approaches than selected response approaches.

Kim and Care (2020) observed that test formats that are easy to score are used most frequently in Africa, a proof that they do not actually measure the competences.

Darling-Hammond and Adamson (2010) observed that under the federal act of No Child Left Behind (NCLB) tests that rely heavily on multiple-choice questions measuring mostly lower-level skills, such as the recall or recognition of information, can be administered and scored rapidly and inexpensively, but by their very nature they are not well suited to judging students' ability to express points of view, marshal evidence, and display other advanced skills. He goes further to explain that students' ability to answer multiple-choice questions does not mean they have the ability to answer the same questions in open-ended form. Thus, a focus on multiple-choice testing gives false assurances about what students know and are able to do.

Darling-Hammond and Adamson (2010) and Burdett (2017) also observed that the type of thinking skills addressed in test formats will affect the judgment of competency level. Educators often refer to lower-level versus higher-order skills. The most well-known approach to describing these is Bloom's taxonomy of cognitive skills. At the bottom of the pyramid, defining lower-level skills, knowledge refers to memory and recollection of facts. Comprehension refers to demonstrating understanding of these ideas, while application refers to using this understanding to complete a task or solve a problem. The depth of understanding increases at each successive level. The top half of the pyramid represents higher-order skills: analysis requires students to examine arguments, make inferences, and find evidence that supports explanations. In the synthesis phase, students compile information in different ways to produce a new pattern or alternative solution. Evaluation occurs when students weigh and balance evidence, evaluate ideas based on rigorous standards, present and defend ideas based on their judgments about information.

Figure 1: Bloom's taxonomy



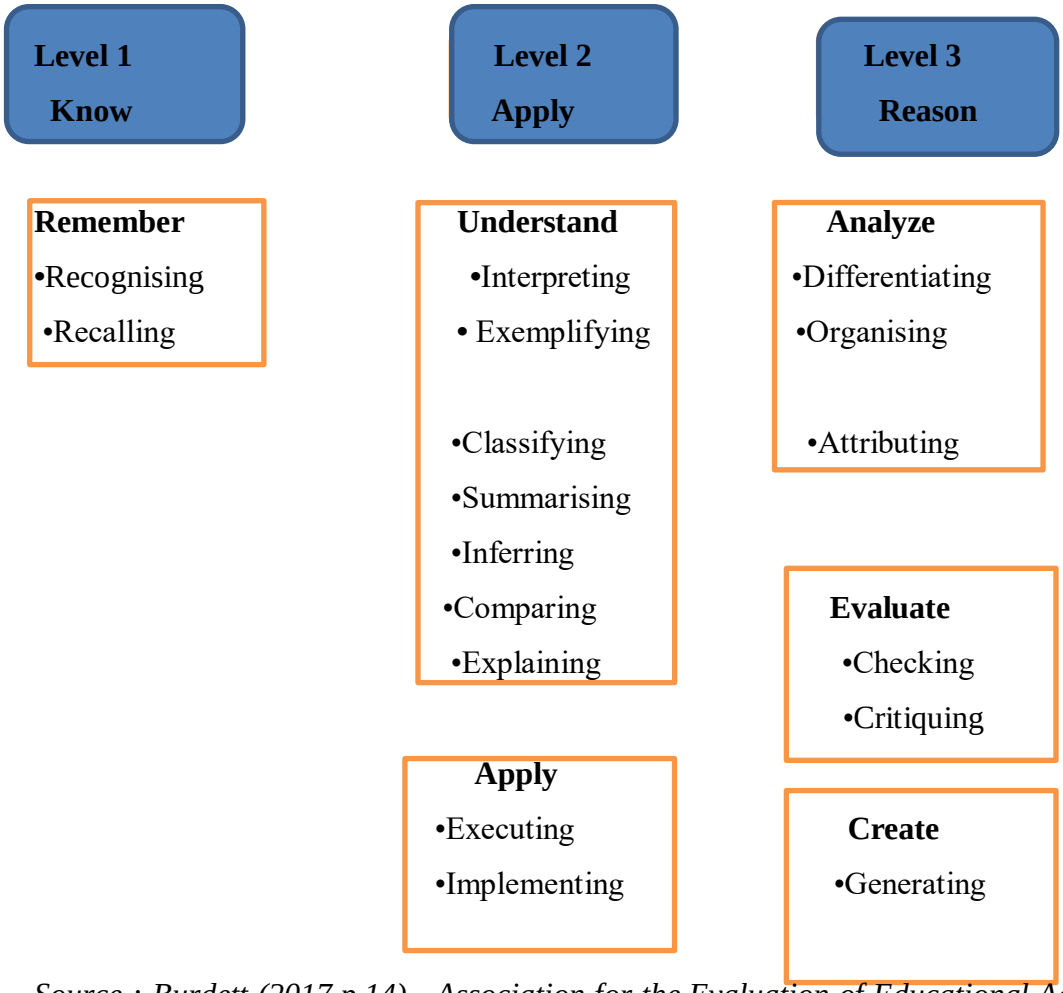
Taxonomy for learning, teaching, and assessing: a revision of Bloom's taxonomy of educational objectives: adapted from Burdett (2017, p.11)

In most cases, the categorisation will be based on the command word (the word or phrase that instructs the candidate what to do). For example, if the question is: 'State the formula for water', this would be a clear Level 1 (recalling). Similarly, 'Read the above paragraph and produce a short (1 paragraph) summary of the main points.' would be Level 2 (summarising). Care needs to be taken in applying the taxonomy in that the correct command words are not always used.

This misuse of command words is a common problem with many examinations. For example,

'explain', is often incorrectly used when the question and marking scheme are actually testing recall of facts, rather than requiring the learner to provide a genuine explanation.

Figure 2: Applying Blooms taxonomyin items



Source : Burdett (2017,p.14)- Association for the Evaluation of Educational Achievement (IEA) classification of items. .

Performance assessments that call for more analysis and manipulation of data and defense of ideas are often advocated because they offer a medium for students to display the higher-order skills of analysis, synthesis, and evaluation. To match international standards, new assessments will need to rely more heavily on what testing experts call performance measures, tasks requiring students to craft their own responses rather than merely selecting multiple-choice answers.

However, the *Students' assessment paper (2013)* gives the negative side of performance assessment. The limited use of performance-based assessments in large-scale assessments may be

explained by concerns about reliability, resources and timescales.

Performance-based assessments often tend to have lower comparability of results than standardised paper-and-pencil assessments. Research in some countries has shown that higher-order thinking skills are context and situation specific and that it is difficult to generalise from hands-on performance-based tasks to make judgments about student competencies. Hence, the use of closed-ended paper-and-pencil tests is often motivated by the need for objectivity, fairness and impartiality in assessment, especially where high stakes are attached.

***Table 2: Revised* Bloom's taxonomy**

Level of Taxonomy	Definition	Process Verbs			Assessments
Creating	Generating new ideas, products, or ways of viewing things	Act Combine Compose Create Design Develop	Generate Improve Invent Imagine Predict Prepare Revise Show, Write	Poem Blueprint Cartoon Collage Film Formula Invention New game	Newspaper Painting Plan Play Song Story Video
Evaluating	Justifying a decision or course of action	Assess Choose Conclude Criticize Debate Defend	Determine Evaluate Justify Prioritize Rate Support,Value	Conclusion Debate Editorial Investigation Judgment	Recommend ation Report
Analyzing	Breaking information into parts to explore understandin gs and relationships	Classify Compare Contrast Discover Distinguish Experiment	Group Interpret Order Organize Question Research Survey	Chart Checklist Database Illustration Investigation	List Plan Report Summary
Applying	Using information in another familiar situation	Adapt Change Demonstrate Draw Illustrate	List Make Produce Solve Teach , Use	Demonstration Diagram Journal Lesson Map; Model	Performance Poster Presentation Report Simulation

Understan-ding	Explaining ideas or concepts	Ask Calculate Convert Describe Discuss	Report Research Review Summarize	Definition Dramatization Example	Quiz Recitation Story Problems Summary
Remembe-ring	Recalling information	Choose Cite, Define Describe Group, Know List	Match Memorize Repeat Select Underline	Definition Fact Label List Quiz	Test Worksheet

Source: Curriculum design guide / Liverpool John Moores University, Esenina et al (2019,p.44-45)

1.6 GRADING SYSTEM AND CRITERIA FOR JUDGING COMPETENCY

After designing the assessments and administering, the next step is to score it and report the performance to the learners, parents , administration and also to the teachers for self-evaluation.

Grading is defined by Nworgu (2010, p.160) as 'the systematic process of assigning some quantity or score to represent an observed behavioral response of an individual and giving interpretation or value'…' it involves marking or scoring of students' scripts or answers and usually culminates in the assignment of numerical values, letters or adjectival labels' e.g (pass/fail judgment; Competent, or Not-yet competent.). Grading goes together with reporting, and Nworgu warns that the two 'should be so clear because no matter the relevance and validity of the information obtained about an individual, if such data are not well and properly disseminated, they will be of little or no use' (p.161).

Grading should be done following the set standards or criteria. These criteria is found in rubrics. CBA literature talks of criterion –referenced grading. There is debate over the type of criteria to be followed for competencies. Newton (2020, p.1-2) reports that:

> At the heart of the Grade Debate lies the issue of what might count as a legitimate grading criterion, and why. While some prefer the **domain-specific grading criteria,** which articulate levels of proficiency in terms of acquired learning outcomes; (eg grading criteria for a carpentry qualification would refer to elements of competence in carpentry); however some have argued for domain-general, ie **generic grading criteria.** Generic criteria are written to apply across multiple domains; eg criteria that refer to communication, or problem solving, skills

Newton posits that 'the first and foremost challenge, in a CBA context, is the question of whether grading is even compatible with the notion of assessing competence' (p.4). This is because from a pragmatic perspective, once a learner has reached the [professional or occupational] standard associated with a qualification, they are essentially ready for certification. To further buttress the issue, Newton brings to lamplight a series of grading criteria or indicators, such as: numbers of assessments before competence, measures of key competencies, time to achieve competence, measure of adaptability and problem-solving ability.

Other authors such as, Williams and Bateman , cited by Newton, have proposed separately the following criteria: Speed of performance, accuracy, transfer of skills to new situations; achievement of additional learning outcomes; originality, creativity, flair; and initiative, outstanding attitudes, approach to learning, motivation, adaptability.

Griffin cited by the same author, proposed that, within a standards-referenced framework, there are eight (somewhat iterative) steps in the process of defining proficiency levels:

- Define the proficiency that is to be assessed (within a unit). What does the high end look like? What does the low end look like? Does it have only one dimension, or more?
- Develop tasks to assess this proficiency. As a set, these tasks should allow us to differentiate between candidates with differing proficiency levels.
- Develop rubrics, ie a marking/scoring scheme for each critical indicator/task. These rubrics define distinguishable levels of performance quality.
- Assign each performance quality level, for each critical indicator/task, to a relative position on the proficiency scale
- Locate cut-points on the scale in such a way that levels of proficiency are interpretable, separable, and distinct. This is the most technically complex of steps, and its nature will depend on the approach adopted in the previous step.
- Interpret the proficiency scale. The partitioning of the proficiency scale can be given meaning by synthesizing qualities located at the same relative position. The continuum itself is a synthesis of the hierarchy of levels.
- Refine the scale. Does the proficiency scale appear to be coherent and complete? Do any of the tasks/rubrics need fine-tuning, or removing? Are additional tasks/rubrics needed?

- Evaluate the model. To what extent does the empirically-derived scale reflect the original conception of the proficiency continuum? Which of the proficiency levels ought to be selected as the competence threshold?

Ordering quality of performance in terms of the domains of learning demonstrated, should be given greater consideration so as not to award more marks to areas (e.g. written, oral, practicals. Attitudes) that do not deserve such. Martinez and Carlos (2018) observed that one of the difficulties in the assessment of competencies may differ based on the competencies themselves, since some of them are more saturated with knowledge, skills and attitudes than others.
Newton (2020, p.36) adds that 'grading only makes sense when there is some likelihood that groups of candidates within a qualification cohort will differ significantly, in one way or another, so as to justify the award of different grades'.

While Newton (2020) talks of domain-specific grading criteria and generic grading criteria, Fastre et al (2014) examined the effects of type of assessment criteria: performance based vs. competency-based. Within competency-based education, assessment criteria are often formulated as competencies; in other words, what the student is able to do leading to *competency based criteria* to be used. The competency based criteria is prescriptive rather than a descriptive approach. An example is 'to be able to communicate properly', an ability that results from the integration of knowledge, skills and attitudes. *Performance based criteria,* on the other hand, are formulated in terms of what the student does.

Competency-based frameworks and assessments refer to the substantial knowledge needed for task performance. Competency is more closely linked to notions that emphasize the multidimensional nature, a stronger relation between practical and theoretical knowledge, and the contribution of personal and social qualities to task performance. The knowledge that is needed to link competency with performance can only be developed from experience with a series of different tasks. Furthermore, competencies go beyond concrete task performance and are best demonstrated through the acceptable performance of a variety of tasks. Competency-based criteria are less meaningful to novice students than to advanced students, because novices have not yet achieved the requisite integration of knowledge, skills and attitudes. They address the student's ability to perform a certain task rather than his or her actual task performance. As a result, students first have to interpret the criteria in order to relate them to performance before they can make an

accurate assessment.

Performance-based criteria, on the other hand, pertain to behaviours that are readily observable. Task performance in accordance with these criteria provides some evidence that students have mastered the underlying competencies. Performance-based criteria are expected to be more beneficial to novice students than competency-based criteria, because they do not require the prior knowledge that is indispensable for the correct interpretation of competency-based criteria. Overall, it is hypothesized that presenting students with relevant performance-based assessment criteria will be most beneficial to their learning. It is also possible that specific combinations of criteria can contribute to significant learning gains.

1.6.1 Scoring rubrics or criteria

Rubrics can be defined as specific sets of criteria that clearly define, for the learners as well as for the teachers, what a range of acceptable and unacceptable performance looks like. Criteria define descriptors of ability at each level of performance and assign values to each level. Levels referred to are proficiency levels which describe a continuum from excellent to unacceptable product (Burger 2008, p.50-51). Rubrics assess a learner's performance based on a set of criteria which represents a range of marks rather than a single numerical mark.

There are three types of rubrics, namely holistic, analytical and annotated rubrics. However, all rubrics are based on an analytical approach. The analytical rubrics are simple and designed to assess certain parts of the process or product; the sum of these parts adds up to a total mark.
A rubric is a tool for assessing learner performance that:

- describes a continuum of performance quality that ranges from poor to excellent;
- consists of a set of criteria that defines a task in its entirety and by which a task will be evaluated, considering both the process and the learning outcomes;
- lists the criteria needed to perform a task and describes exactly what constitutes acceptable performance for each element;
- describes excellent performance that exceeds the level of acceptable work and inadequate performance that does not yet meet the minimum level of performance;
- usually uses a grid or table format; and

- can be adapted to individual styles and needs as there are many different ways to create a rubric (Department of Education, quoted by Burger 2008, p.50-51).

One of the advantages of rubrics is that the learner knows what is expected and how his work will be assessed. Rubrics as an assessment tool allow for objectivity and consistency as the criteria are clearly defined. They are assessment tools but also teaching tools as the teachers and the learners refer to the rubrics to see what is expected of them.

The use of rubrics facilitates effective assessments particularly in the teaching of languages as subjectivity is eliminated. Although teachers do make use of assessment rubrics they tend to use generic assessment rubrics which raise the question whether the rubric is suitable for the particular activity. A report from Burger shows that not one of the teachers made use of customised rubrics that are task specific.

For a holistic evaluation of competencies, a holistic rubric is needed, as highlighted in the NQC guide (2009) which states that a holistic rubric requires the assessor to consider the quality of evidence produced for each competency or learning area. The evidence produced for each competency should be balanced to yield a single determination or classification (i.e. competent or not yet competent) of the overall quality of the evidence produced by the candidate.

Burdett (2017) warns that if the question and marking scheme rubric are misaligned, then this is potentially a problem for the validity of the test items and raises questions about the quality of the assessment. If the test specification requires a certain proportion of Level 2 or 3 items, then a misaligned mark scheme might reduce the level of demand. The answer on the mark scheme might not align at all with what the question is asking, making it very difficult to interpret the learner's score. For example, if a learner is required to write a letter applying for a job, the level of cognitive demand is determined not by the task, but by how the quality of the letter is assessed. If the answer is assessed on the creativity of the content, how well it addresses the issues, using a variety of sources, and requiring some form of organisation of ideas and evaluation of positions, then this would count as a Level 3 answer. However, if a letter is marked according to the scheme below it would be a mix of Level 1 and Level 2 marks

The general forms of assessment employed for CBA (especially in Cameroon), are : oral, written

and practical (*Curriculum for primary schools, 2018*). The overall choice of grading system (mark/ graded) determine what kind of judgment the assessors make. Where more marks are awarded to the softer areas or forms of assessment, this will increase the overall mark, leading to misjudgment of competency level.

1.7 ALIGNMENT BETWEEN LEARNING OUTCOMES, TEACHING METHODS, AND ASSESSMENT

Objectives or learning outcomes, teaching and assessment are inseparable. This is supported by Covacevich (2014, p.1) who holds the view that:

> The implementation of educational policies and practices is closely linked to the assessment of student learning, as it enables the monitoring of progress and achievements, the improvement of teaching in the classroom, the improvement of policies and the assessment of program effectiveness, among many other objectives.

This stresses the importance of the consistency of the selected instrument with the objective of the assessment.

The first step of rigorous assessment instrument design involves establishing alignment between any given objective statement and assessment item(s) or instrument(s) developed to elicit the knowledge, skills, or attributes (KSAs) articulated within it (cited in *LDP_Cards_V4b document 2016*). Sound assessment item or instrument design, including their development, administration, and ongoing validation practices, are essential to yielding accurate information regarding what learners know, think, and can do at various time points over the course of a learning experience. As such, assessment design and strategy are critical to supporting student learning and efficacy. Based on the assessment material, it would seem that many of the curricula need to be altered to focus less on facts and more on being able to usefully engage with the subject matter. This would require a lot of material to be removed from the curriculum to accommodate more teaching time focused on ways of thinking.

Biggs (2005), the proponent of the constructive alignment theory, views the teaching learning process as a system made up of inter connected parts. Teaching and learning take place in a whole system, which embraces classroom, departmental and institutional levels.

The ‘constructive’ aspect refers to the idea that students construct meaning through relevant learning activities , and the ‘alignment’ aspect refers to what the teacher does, which is to set up a

learning environment that supports the learning activities appropriate to achieving the desired learning outcomes. The key is that the components in the teaching system, especially the teaching methods used and the assessment tasks, are aligned to the learning activities assumed in the intended outcomes. Mc Carthy (2011,p.8) adds that 'the teaching methods and the assessment are aligned to the learning activities designed to achieve the learning outcomes. Aligning the assessment with the learning outcomes means that students know how their achievements will be measured'. Muñoz and Araya (2017, p.9), opine that 'the competence evaluation model requires the teachers, when they start the evaluation process, to tell the students which will be the expected goals or objectives'. As such competence evaluation in the educational field, according to them, proposes a transformation not only in the evaluation area itself, but also in everything that concerns the process of teaching and learning.

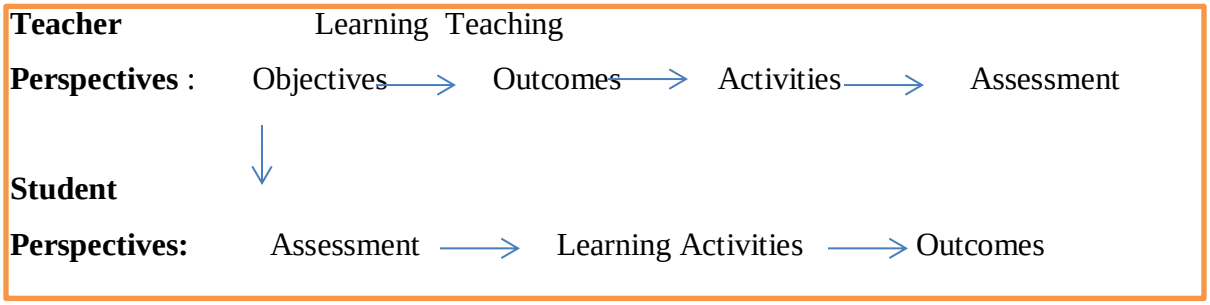
In setting up an aligned system, there is need to specify the desired outcomes of our teaching, in terms not only of topic content, but in the level of understanding we want students to achieve. We then set up an environment that maximizes the likelihood that students will engage in the activities designed to achieve the intended outcomes. Finally, we choose assessment tasks that will tell us how well individual students have attained these outcomes, in terms of graded levels of acceptability. These levels are the grades we award. There are thus four major steps according to Biggs (2005, p.2).

- Defining the desired learning outcomes (DLOs)
- Choosing teaching/learning activities likely to lead to the DLOs
- Assessing students' actual learning outcomes to see how well they match what was intended
- Arriving at a final grade

Assessment serves a double purpose: it checks the quality of learning, and for students, it defines what is to be learned. Faulty assumptions and practices about assessment do more damage by misaligning teaching than any other single factor. As Ramsden , in Mc Carthy (2011) puts it, the assessment is the curriculum, as far as the students are concerned. They will learn what they think they will be assessed on, not what is in the curriculum, or even on what has been 'covered' in class. The trick is, then, to make sure the assessment tasks mirror the ILOs. To the teacher, assessment is at the end of the teaching-learning sequence of events, but to the student it is at the beginning.

Biggs (2003, P.3) represents this alignment graphically as follows

***Figure 3: Alignment* by Biggs**



Source: Biggs constructive alignment, (Mc Carthy , 2011, p.7)

If the curriculum is reflected in the assessment, as indicated by the downward arrow, the teaching activities of the teacher and the learner activities of the learner are both directed towards the same goal. In preparing for the assessment, students will be learning the curriculum (Biggs, cited by Mc Carthy , 2011)

Matching individual performances against the criteria is not a matter of counting marks but of making holistic judgments. For novice students in particular, assessment criteria are important clues to determine the core content of their study programme (Sadler in wolf, 2007). Students should therefore be provided with transparent assessment criteria before they tackle learning tasks.

Quoting from an article titled '*Aligning Teaching with Intended Learning Outcomes',* when selecting any teaching and learning method it is obviously important to ensure that the method will enable the students to achieve what are intended as learning outcomes. There are different kinds of methods available. Some of them are more effective in building up subject knowledge while some make more contribution to developing generic skills.

McCarthy (2011), Learning outcomes are statements of what a student should know, understand and/or be able to demonstrate after completion of a process of learning. Learning outcomes must be capable of being validly assessed.

From the definition of Learning Outcome we see:

• Emphasis on the learner.

• Emphasis on the learner's ability to do something

• Important to ensure that there is alignment between teaching methods, learning outcomes and

assessment criteria.

• Clear expectations on the part of students of what is required of them are a vitally important part of students' effective learning.

• This correlation between teaching, learning outcomes and assessment helps to make the overall learning experience more transparent and meaningful for students.

Fleisch et al (2019) report that

> Researchers who are focusing on specific aspects of curriculum reform rather than wide-angle systemic reviews, tend to find similar reasons for the lack of success of curriculum reform initiatives – under-resourcing, teacher skills (and supports); and a misalignment both between curriculum goals and teacher pedagogy - and between pedagogy and assessment systems

It is important that the assessment tasks mirror the Learning Outcomes since, as far as the students are concerned, the assessment is the curriculum. This means that if teachers do not know the assessment criteria, they won't be able to guide learners correctly towards achieving the learning outcomes as stated in the curriculum. For example, no knowledge of how the format for FSLC exam looks like, is affecting how the learners are taught and assessed in the final year class.

Table 3: **Linking Learning Outcomes, Teaching and Learning Activities and Assessment**

Learning Outcomes	**Teaching and Learning Activities**	**Assessment**
Cognitive (Demonstrate: Knowledge, Comprehension,	Lectures Tutorials	•End of module exam. •Multiple choice tests. •Essays.

Application, Analysis, Synthesis, Evaluation)	Discussions	•Reports on lab work and research project. •Interviews/viva.
	Laboratory work	•Practical assessment. •Poster display.
Affective (Integration of beliefs, ideas and attitudes)	Clinical work	•Fieldwork. •Clinical examination.
	Group work	•Presentation. •Portfolio.
	Seminar	•Performance.
Psychomotor (Acquisition of physical skills	Peer group presentation etc.	•Project work. •Production of artefact etc.

Source: Aligning Learning Outcomes, Learning Activities and Assessment by McCarthy(2011, p.29)

The above table shows that the teaching methods should be reflected in the assessment. The Competence-based Approach (CBA) as presented in the new curriculum for primary schools in Cameroon (2018; p.16), states that 'the development of skills is facilitated through the practice of Project Based Learning, Cooperative Learning and Integrated Theme Learning'. Therefore, the design of assessment has to consider these teaching approaches too.

McCarthy (2011) further highlights steps involved in linking Learning Outcomes, Teaching and Learning Activities and Assessment, viz:

- Clearly define the learning outcomes.
- Select teaching and learning methods that are likely to ensure that the learning outcomes are achieved.
- Choose a technique or techniques to assess the achievement of the learning outcomes.
- Assess the learning outcomes and check to see how well they match with what was intended
- If necessary modify module content and assessment in light of feedback

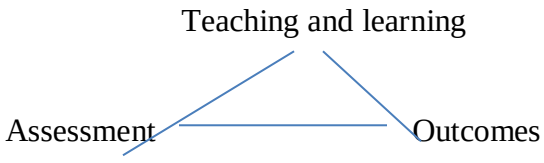
NB: It is important to note that when assessment is limited purely to an examination paper, it may

not be possible to assess all the Learning Outcomes in such a short space of time. McCarthy therefore opines that 'summative assessment should be accompanied by formative assessment to provide a clearer picture of the achievement of competencies in the overall program' (p. 33).

Cowdroy and Williams (quoted by Burger 2008, p.3) very aptly explain the close relationship between learning outcomes, teaching methods and assessment by stating that what we teach and how we teach it are often derived from criteria for assessment (assessment standards)…. "what we teach is that which will be assessed". Burger re-iterates that 'the alignment of the teaching, learning and assessment process is instrumental in the achievement of the outcomes; therefore the instruction must be planned in such a way that there is a clear link between what is taught, learnt and assessed' (p.4).

To Miguel et al (2018), assessment practices in the classroom can both boost and limit student learning. The impact of assessment on learning, known as "backwash effect" points out how student learning depends to a large extent on what they think will be assessed. When students see assessment tasks as low cognitive level requirements — such as memory recall — they tend to reduce their learning to specific facts, like disconnected pieces of information, and to reproduce them when they are being assessed, which leads to surface learning. Conversely, when students perceive that the assessment task requires demonstrating a personal interpretation of the underlying principles, they are more prone to study while actually understanding what they are studying.
Dillon, Reuben, Coats and Hodgkinson, cited in Burger (2008) depict this teaching and learning triad as follows:

Figure 4: The learning and teaching triad



Source Burger (2008, p.31)

As Biggs (cited by Burger 2008) puts it, adopting an integrated approach to teaching, learning and assessment should bring about a match between what is taught, what is assessed and what is intended to be learnt. Spady (1994:87) uses "matchmaking" as a synonym for alignment. He

explains that alignment basically means the "perfect match" of four things, namely:

- what is important for the learners to learn;
- what we teach them;
- how we teach them; and
- what we assess when we ask them to perform.

What is important to learn will be determined by the expected learning outcomes to be achieved. What the learners are taught and how the learners are taught will be contained in the assessment standards and the learning activity. The learning activity must be appropriate for the intended learning outcome and assessment standards. The learners must be assessed on what they have been taught and what they have learnt. Therefore the assessment must match the assessment standards.

When there is alignment between what teachers want to teach, how they teach, and how they assess, teaching is likely to be more effective than when it is not. For the alignment of instruction, learning, and assessment, learning tasks should be directly related to the performance assessment tasks at the end of a study unit and so, to pursue the theory of constructive alignment, it is worthwhile to invest in the design of performance assessments, because performance assessment provides multidimensional feedback for fostering learning (Birenbaum, cited by Sluijsman et al , 2006, p.3).Assessment needs to be aligned with the outcome because assessment is used to determine whether the outcome has been achieved. Formative assessment plays a particularly important role in the alignment of teaching and learning as it provides the opportunity for feedback. The teacher and learner use the feedback to determine where the gaps are and can then plan toward bridging the gaps. The alignment of teaching, learning and assessment relies on a combination of strategies. The learning outcomes must be clearly defined and the assessment should assess the learners' achievement of the assessment standards

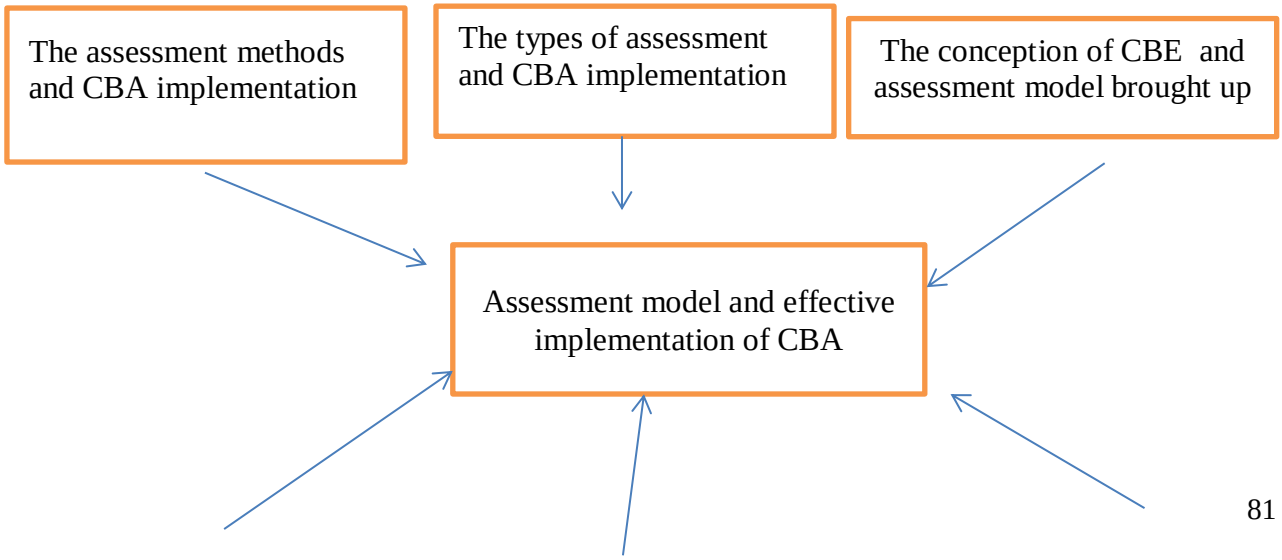
To pursue the theory of constructive alignment, it is worthwhile to invest in the design of performance assessments, because performance assessment provides multidimensional feedback for fostering learning (Birenbaum, 2003).

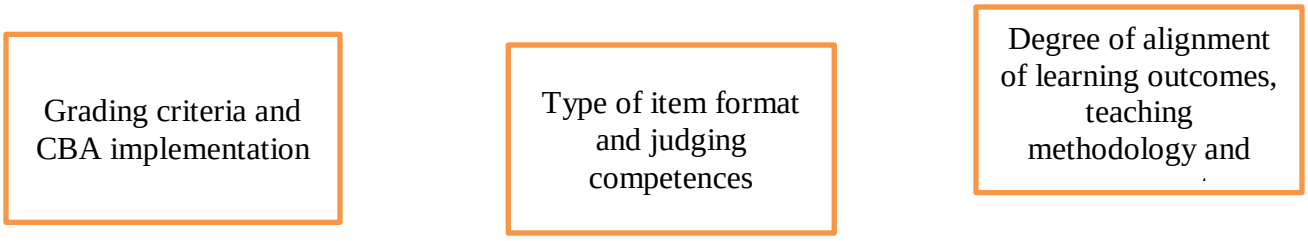
Brurdett (2017, p.6) analysed the assessment tools of some developing countries and concluded that they use poor assessment techniques and one of the reason " could be that the intended curricula are decent, but the examinations are either misaligned and/or badly designed, drawing out only the useless aspects of an otherwise solid curriculum".

1.8 Summary of the conceptual framework

As shown in the conceptual diagram below, the literature on assessment models as correlate to effective CBA implementation was reviewed based on the country's definition of competency, assessment types and methods used for CBA, approaches for different models of evaluation, alignment between the learning outcomes, teaching methods and assessment; grading system and criteria were seen to affect the implementation of the practice of CBA in the classroom.

Figure 5: Conceptual diagram





Source: the researcher's conception of indicators of an assessment model (2022)

CHAPTER 2: CHALLENGES OF CBA IMPLEMENTATION, ASSESSMENT MODELS AND THEORETICAL FRAMEWORK

2.1 CHALLENGES FACED WITH THE CBA IMPLEMENTATION

As noted by Dierendonck and Fagnant (2014), based on complex tasks, competency-based approach is however not without problems in terms of evaluation, meaning that challenges are inevitable with the implementation of CBA as well as any innovations. Below are some challenges:

2.1.1 Challenges faced in implementing the CBC in Africa and Cameroon

Despite the good intention of Competency Based Education, CBE, its implementation is facing many challenges because it is seen as an imported policy with pressures from the links with western Non-Governmental Organisations (NGOs) without reflecting on the African realities (Cheptoo,

2019). Cheptoo puts it clear that 'the unique African countries need to see their competence based curriculum (CBC) through the African lenses'. CBC adoption in most African countries is a modification or either similar framework from the developed countries. However, the adoption has been done amidst challenges like lack of expertise, suitability to the nature of the African classrooms, and insufficient knowledge on the principles guiding the design and implementation of competency-based education in general and assessment in particular.

Assessing learners in a competency-based program has created challenges in most countries around the world, in Africa and in Cameroon. Mukunja (2016) and Wongnaa (2018) pointed out that many academic fields differ in the design and content of their curricula, delivery, assessment, and the specific employable skills they give to students and prospective employees. Chemagosi (2020) added that teachers are not well conversant on how to effectively assess large classes within the limited time and resources available. In the same vein, William Spady in Nickse et al (1988) ; Mulder et al (2016) , Kafyulilo et al (2013) reported that most educational programs claiming to be competency- based are actually testing and remediating programs using the traditional methods of assessment. In a study carried out by Kim and Care (2020) in some nine Sub-Sahara African countries namely Chad, Ivory Coast, Democratic Republic of Congo (DRC), Gambia, Kenya, Lesotho, Mali, Senegal and Zambia, several issues which reflect challenges faced in the assessment of 21st century skills [or CBA],were highlighted as follows:

- Test formats that are easy to score are used most frequently
- There is a lack of rubric development and use
- There is potential for many of the tools that were not originally designed to capture 21st century skills to be expanded.

From the above, it can be seen that competency based assessment is facing challenges also at the level of design and implementation (Cummingaham et al, 2016). According to Delbury (2019); Mulder, et al (2006) another challenge underpinning assessment is defining the term 'competency' and the difficulty to split it into learning outcomes units of assessment.

Related studies carried out in Cameroon also reveal similar challenges. The change from assessment of tests to the use of rubrics is a concept that requires small class size. Belibi (2018) found out that the Cameroonian education system is characterised by the triple constraints of a large student population, lack of teaching-learning facilities and few teachers. Hence, assessing in

such conditions is not favorable for CBA. Agbor Tabe (2019) on her part explains that the principles of CBA are not respected by most language teachers in Cameroon because of lack of knowledge and the difficulty in material designing and development, also, findings revealed that the assessment tactics used by teachers do not reflect that required of the competency based assessment.

Alemnge (2020b) carried out his study on the Perceptions of Competency-Based Teaching and Learning by Teachers and Students of Secondary Schools in Cameroon, in which he examined the History syllabus in order to determine how teaching and assessment methods used in its implementation, contribute to the development of the stipulated student competences. He found out that the effective implementation of any syllabus partly depends on the instructional methods and evaluation strategies used. The use of teaching methods did not significantly influence learners' development of competences, but findings from teachers, students and observation were conclusive that evaluation methods were very effective in enabling leaners develop the required competences.

Wishanyuy (2021) in her studies to find out how teachers in secondary schools in Cameroon specifically in Bamenda municipality acquire knowledge and skills on the use of the CBAp in enhancing the teaching-learning process and the challenges they face in implementing this approach. She noticed that majority of the teachers found it difficult to implement the CBAp because of inadequate knowledge and skills, overcrowded classrooms. She writes that assessment is also a big issue faced by the facilitators during implementation of the CBAp and that is more difficult to assess students' performance in the CBAp class than in the conventional class. This is because the issue of using students' assignments, projects, student-self assessments, portfolio, tests and examinations as the instruments for collection of student evidences on attainment of knowledge, acquisition of skills and attitudes seem to be a challenge to the facilitators in congested classes.

Ngwa and Lawyer in 2020, outlining the challenges in the implementation of the CBAp in UB noted the response of one respondent who observed that:

There are a lot of classroom tests and exams which are mostly concern with evaluating our cognitive abilities… students' assessment in some faculties mostly exclude the psychomotor domain in Bloom's taxonomy which is the most important so far as the CBAp is concern….

Even before the introduction of CBE in Cameroon, the World Bank document (2006) addressing

key issues of the Cameroon education system, noted the absence of an assessment and examination regime able to reinforce the new approaches; as such to a large extent, teachers have continued teaching by using the traditional instructional approaches and assessments. Thus the designing, implementation and use of feedback from CBA, needs to be given paramount consideration.

Though many studies have revealed challenges involving the implementation of competency based assessment (CBA), stemming from the external aspects of assessment like large class size, work load, ages of learners etc very few are reflecting on the assessment models or design put in place. Since the new curriculum for the primary school in Cameroon is developed from the competency based approach, the integrated learning themes and project pedagogy, the teaching methodology, assessment approaches, instructional materials, classroom organization, must also reflect these approaches. Despite the large body of literature regarding assessment in social work, CBA remains a much debated area, due to the variety of approaches, perspectives and frameworks that are available. This therefore raises questions as to how these competencies would be assessed, such as : which assessment type (formative or summative) is appropriate for the implementation of the CBA in the primary school? Have the teachers got the appropriate training on the CBA methods, instruments and formats used? Have they enough knowledge of the principles of CBA? Is there any assessment model put in place to help the teachers to better assess these competences especially for terminal competencies? Are their capable of judging the level of competences acquired from their assessment practices?

Assessment is underpinned by a broad knowledge and skill base, as well as a series of guiding principles that support practitioners in their role. Many schools of thought such as the behaviourist, the constructivist and learning area approaches to the concept of CBA, have tried to explain the various ways of designing assessment following competencies. The design of CBA and the implementation would depend also on the countries' conception of CBA (Fitzgerald et al, 2015). Researchers and psychometricians are looking for ways of improving on this practice by suggesting evaluation models as well as establishing the validity of the instruments used in measuring learners' competencies.

2.1.2 Challenges stemming from the definition of the concept

Munoz and Arraya (2017,p.3) noted that 'the difficulty [with CBA] lies in what we understand by competences and how they can be transformed into an evaluative object that has its own design,

implementation, and formalization in the different evaluation instruments'… This is where the first difficulty arises: what are the competences and how do we integrate them in the evaluation practices and cultures of the educational institutions?

Wesslink (2010) opines that the way in which competence-based learning is operationalised depends on the conceptualisation of competence. Three main conceptualisations can be distinguished: behaviouristic, generic and holistic. This recent history of the concept of competence gives the impression that the concept originated solely within these three traditions. According to the same author, several countries started developing competency-based education without having a clear conceptualisation of what exactly it entails. The concept of competence-based education has been conceptualised and operationalised only to a limited extent. Although definitions are available, they differ widely and most of the definitions have been formulated from a theoretical rather than an empirical position. Therefore, owing to the lack of a consensus definition of competence-based education, the activities that are undertaken in educational practice under the umbrella of competence-based education differ in the extent to which they may rightly be termed 'competence-based'.

Rogiers (2016) explains further that with regard to the Anglo-Saxon competency-based framework, the concept of competency does not include its applications to novel situations. He cites Auerbach (1986) and Collins (1983) who noted that CBE does not guarantee skill transfer because it is more a training program than an educational syllabus, though assumingly CBE expects students to transfer the skills they acquired for solving other tasks than those set up for them in the classroom. Although other advocates of CBE (such as Chappell, 1996) claim that a competency is not demonstrable on a single occasion and that it can be displayed in changeable contexts, this advocacy remains hypothetical because in actual practice there are no activities specifically designed to encourage skill transfer. Ashworth and Saxton (1990), cited by Rogiers, assert that it is likely to apply skills acquired in one context to another context, but this largely depends on the student personal capacities, not a product of the teaching framework. Therefore, they argue against this assumption indicating that a competency cannot be regarded as an isolated cognitive capacity detached from the context in which it acquired.

2.1 3 Challenges based on what competences to be assessed

Roy (2016) reported that Bangladesh introduced competency-based curriculum at primary level

from 1992. There were three types of competencies set for the primary education. The first one is called *subject-wise competencies*. For all subjects from grade 1 to grade 5, a number of specific competencies for each subject have been generated. The second one can be called *grade-wise competencies.* These are the combination of different subject-wise competencies for a specific grade. It is expected that students will achieve both the subject-wise and grade-wise competencies of a grade after completing that specific grade. Finally, the third one is called *terminal competencies***.** These are, actually, the summary of all subject-wise and grade-wise competencies. After completing the primary education, students should achieve all the terminal competencies. Education Watch (EW) under the umbrella of Campaign for Popular Education (CAMPE) took the initiative to assess the students using competency-based test instrument. This group set the following objectives:

- Develop an assessment instrument for evaluating learning achievement in terms of terminal competencies;
- Assess the learning achievements of the students at the end of class V in different school systems based on a nationally representative sample test; They divided the terminal competencies into three categories according to the classification of Bloom's taxonomy. These are cognitive, affective and psychomotor.

Roy again observed that though Bangladesh introduced competency-based curriculum and textbooks in 1992, no formal and noticeable competency-based assessment procedure was seen before 2000. In 2000, a civil society group called Education Watch (EW) under the umbrella of Campaign for Popular Education (CAMPE) took the initiative to assess the students using competency-based test instrument. This group set the following objectives:

- Develop an assessment instrument for evaluating learning achievement in terms of terminal competencies;
- Assess the learning achievements of the students at the end of class V in different school systems based on a nationally representative sample test; and
- Examine the relationship between learning achievement and selected background characteristics of the students such as socio-economic status, school related variables and receipt of extra educational inputs.

Based on these objectives, the EW group made a test instrument and assessed the students of grade

5 nationally. They divided the terminal competencies into three categories according to the classification of Bloom's taxonomy. These are cognitive, affective and psychomotor.

In continuation, in Bangladesh', the authors assessed the basic competencies of the students where they mentioned: The following aspects/principles of the definition were considered in developing instrument for assessment:

- a child's ability to read and write a short, simple statement on everyday life;
- a child's ability to workout everyday arithmetic; and
- a child's knowledge/attitude on selected life skills necessary for him/her to improve the quality of his/her life.

Finally, this study suggests for teachers, syllabus designers, program evaluators, and scholars to approach the pedagogy of integration as a distinct competency-based teaching model.

2.1.4 Challenges in the design of assessment

Though challenges exist, stemming from class size and work load, our focus will be on those related to designing the test.

Cummingham et al (2016), Katie and Gaetner (2015) and Idrissi and Bennani (2016) pointed clearly that the main challenge of competency-based assessment lies in its design and implementation. Delbury (2019) reports that teachers have serious problems with evaluating an attitude in class, and also the difficulty of evaluating several skills and competencies.

Wolf (2001) argued that assessments carried out by many bodies do not adequately test or record the competences, also that assessment methods tend to be biased towards the testing either of knowledge or of skill rather than of competence; while Mulder et al (2006) observed that in Germany, there is also a question as to how to determine whether a competency is achieved or not, and finally opt that 'a holistic competence approach is most suitable'.

2.1.4.1 Challenges from choice of item types

Burdett (2017, p.5) realised that students may well be leaving examination halls having scored high marks, but not having learnt anything of use outside that examination hall. They could potentially be leaving school with no useful skills and poor literacy and mathematical skills beyond the very limited repertoire needed to pass the examination. However, if the examination requires them to not only recall knowledge, but understand, apply, and be able to use that knowledge in novel situations, then it is likely that what they learn in school will be useful beyond the examination.

Overall, the assessment materials showed a very low proportion of higher-order skills. In India and Pakistan, higher-order skills were almost entirely lacking and the focus was very much on recall of very specific rote-learnt knowledge. In the two African countries, this rote-learning approach seemed less extreme, but there was still a very heavy focus on rote learning of facts. Nigerian National Common Entrance Examination (for entry into Federal schools and colleges) focuses on assessing more than just recall of knowledge. Similarly, the Ugandan Primary Leaving Examination assesses a wide range of skills including higher-order skills. Even so, the amount of higher-order skills assessed was less than would be expected in an international benchmark. All four countries showed a variety of issues in the assessment materials and all showed examples of poor assessment technique.

According to the same author on page 16, based on the assessment material, it would seem that many of the curricula need to be altered to focus less on facts and more on being able to usefully engage with the subject matter. Also, "writing appropriate item types that differentiate appropriately (the 21 CS) is an exceptionally difficult and skilled job, requiring significant training and a great deal of experience

Kim and Care (2020) observed that due to lack of attention to more complex approaches to scoring and evaluation, easily scored tests that target knowledge constitute the majority of assessment tools. Another major challenge in implementation is confusion over terminologies and lack of clear understanding of the skills beyond the surface definition. To add, they listed the following:

- Test formats that are easy to score are used most frequently
- There is a lack of rubric development and use, especially for assessments requiring open-scoring
- There is potential for many of the tools that were not originally designed to capture 21st century skills (CS) to be expanded

They further report, that in countries like DRC is implementing a reform to organize standardized evaluations at the primary and secondary levels and also reforming classroom assessment practices to include quarterly exams, homework, and formative assessment exercises. As a general observation, there are not yet assessments designed explicitly to capture 21CS in any of the nine countries, despite plans to develop assessments aligned with the learning goals identified in their education policies. Countries are aware of this lack of alignment and are looking for ways to

address the gap.

Wesselink (2010) in her study, observed that the problems related to assessment stem in part from the difficulty of defining the ideal picture of assessment; an ideal assessment of competence must include the issue of transfer and requires therefore a number of environments and assessors. However, in reality teachers have limited resources and time and therefore cannot provide the quality they would like to. Finally, implementation problems are encountered because the new way of providing competence-based education has to be developed and tested alongside the predominant, traditional system wherein teachers have to provide students with lectures.

2.1.4.2 Challenges in making these reliable and valid forms of assessment

Another challenging area in designing CBA, is that of the psychometric properties of the assessments. Fleisch et al, (2019) brought out two critical issues that tend to compromise the efficacy of new formative assessment in schools: reliability and validity. The teacher made tests are often less reliable. Using mulitiple methods poses a problem on the validty of the results. Citing from the *Assessment to support CBP document (n.d),* the author writes that assessment systems should be designed to help monitor the quality and consistency of student learning…yet, little practical guidance is currently available for those designing assessments realated to CBP (competency based pathways) systems in areas ike unique considerations for validating CBP assessments systems.

McClarty and Gaertner (2015) on their part say a CBE model is workable only insofar as its measures of learning yield trustworthy data about students' prospects for future success. They also remarked that although many current CBE programs have detailed descriptions of the competencies, there is less documentation linking those competencies to the assessments that measure them. Such clarity would not only provide validity evidence but would also improve transparency around the processes and expectations of CBE programs. Therefore, they proposed that CBE programs should focus on providing evidence that supports the validity of their assessments and their interpretation of assessment results. means that:

- the test must fully measure the competency,
- the processes students use to complete the assessment tasks must be an authentic reflection of the competency, and

- students would receive the same test results if they were to take a different form of the test scored by different raters (p.6).

Fitzgerald et al (2015) suggest that multiple assessors and diverse types of evidence increase the reliability and validity of competency judgments.

2.1.4.3 Dominance of external examination systems over curriculum decisions at all levels. Due to the fact that many post-colonial education systems have localised their education , their examination systems, old colonial examination systems continue to exist side by side with the new ones. The dominance of examinations is not a uniquely African challenge.

Burdett (2017) studied assessment of competencies in developing countries and found out that in the African countries, there is still a very heavy focus on rote learning of facts (e.g., many science examinations were just recall of facts with very little attempt to probe understanding of those facts or how they fit into the wider scientific field of knowledge or scientific literacy in the everyday world).

Darling-Hammond and Adamson (2010) talking about the challenges of performance assessments, outline the following:

- First, there is often a lack of clarity on how to translate competency aims into concrete teaching and assessment activities. Competency goals are often stated in a general way with little guidance regarding what exactly teachers are expected to change in their teaching and assessment.
- Second, the transversal nature of competencies – they tend to involve several subjects or go beyond school subjects altogether – makes it challenging for teachers to see who should be responsible for assessing them and how to fit them within particular subjects or disciplines.
- Third, the high visibility of standardised assessments may put pressure on teachers to adapt their own assessment to the format used in national tests. Teachers may be tempted to narrow their teaching and assessment in order to best prepare their students for closed-ended national tests, to the detriment of richer more performance-based approaches.

2.1.4.4 Challenges from selection of assessment tool to use

According to Covacevich (2014), the effectiveness of all these assessments depends in large part

on the adequacy and quality of the student learning assessment instruments that are used. In order to decide how to measure learning, various factors must be considered and the pros and cons of each available instrument must be weighed, to then decide which one is the most suitable for the specific situation. To Jones (1999), there is a need to develop assessment tools that confirm the judging role of the assessor in making assessment decisions. Therefore if the instruments are poorly chosen and designed, they will affect the results at the end of the ssessment.

2.1.4.5 Challenges from lack of resources

Kabita and Lil (2016) talking about textbooks in line with the CBAp, adds that the textbooks must have probing questions promoting problem-solving and critical thinking. and should contain assessment activities (both formative and summative).

La Chimea, Kanji, and Schmitz, (2020) observed that the challenges to implementing these assessment techniques include a lack of familiarity with the assessment tool, time required to develop the assessment and train instructors. Although the use of continuous low-stakes assessments may reduce student stress and anxiety often associated with high-stakes assessment, there is a risk that students may perceive continuous assessment as constant evaluation, potentiating assessment overload and student stress and anxiety.

Fleich et al (2019, p.14) in trying to explore how successful the curriculum reform initiatives have been in Sub-Saharan countries, mentions researchers 'like Esongo, who studied the implementation of competency-based teaching approaches in Cameroon, and suggested that the failure is linked to under-resourcing'. Weak implementation in these countries was caused by the lack of appropriate resources, limited English proficiency and low teacher morale. This made teachers to retreat into the safety of traditional teaching, despite the requirements of the new curriculum.

2.1.4.6 Challenges from the grading procedure

Madaus and Airasian in Nickse et al (1986) opine that 'in the rush to implement competency-based programs, the temptation is to focus evaluation efforts upon recall behaviors, since these are the easiest to test and certify'. This means that more of the tests are based on cognitive skills with little effort on attitudes due to lack of instruments for attitudes.

Munoz and Arraya (2017, p.5) remark that, 'one is never competent, and therefore one learns along life and depends on the needs imposed by the context change, the occupation, or even their

restatement'. For this reason, it is difficult to judge if a child is competent or not.

Burdett (2017, p.10) pointed out that a significant proportion of countries have not achieved even basic literacy and numeracy, prerequisites to other higher-order forms of learning. … so it is unreasonable to expect that good evidence of higher level 21C Skills will be found in the education systems of these poorly performing countries. To identify skills appropriate for the developing world we need to ensure that our criteria are suitable for the context.

Jones (1999), in the same vein, adds that teachers, working with CBE often express a lack of confidence in their own ability to judge whether or not a student is competent. Many teachers expect assessment criteria to be prescriptive and are distressed when that expectation is not met. The assessment of underlying knowledge and understanding in practical modules also created problems with judgement. How could one confidently infer knowledge and understanding from physical performance? Watson (1993) identified lack of experience in incorporating underlying knowledge and understanding as a major barrier to effective teaching in competency-based programmes. Teachers interviewed by Mulcahy (1996) also identified a gap between the 'limited descriptive nature' of the curriculum documents, and the knowledge to be taught and assessment judgements to be made. They too expressed frustration at the limitations of the written curriculum standards.

Jones goes further to explain that several states of affairs appear to underlie teachers' concerns about competency-based assessment. One is a serious state of confusion regarding the meaning of assessment criteria (also known as performance criteria or objectives). Many in the VET sector believe that documented assessment criteria should fully and accurately describe a learning outcome or competency, thereby prescribing exactly what should be taught and absolving assessors from the need to exercise their personal judgment when assessing learners' achievements. There is a perception that assessors have merely to observe performance and to tick the appropriate boxes in a completely unambiguous assessment checklist. Problems arise when assessors encounter assessment criteria that do not fully describe the competences being assessed.

Other assessors believe that assessment criteria cannot be completely explicit and that they are required to exercise judgment when making competency-based assessments. However, they lack confidence in tackling this 'novel' responsibility. Many believe, falsely, that they do not exercise

judgment when assessing-by-numbers, or that assessment decisions expressed numerically are more valid than those expressed in qualitative terms. Some supporters of CBE have concluded that curriculum writers simply need to get better at writing competency-based assessment criteria

Ryle's approach to judging intelligent performance, as cited by Jones (1999), supports the gathering of evidence model recommended for effective competency-based assessment. In this model the learner is judged to be competent when she is able to display the competency in the correct context enough times for the assessor to feel confident in her judgment. Here, the assessor must decide in what context and how often the performance must occur in order to demonstrate intelligent performance.

La Chimea, Kanji, and Schmitz, (2020) Assessment, which requires the evaluator to make a judgment related to a student's competency, entails a degree of subjectivity and bias that may undermine the assessment process. The inconsistency in grading among instructors has often been influenced by "failure to fail," a significant issue in clinical assessment. Recurring themes influencing the complex issue of "failure to fail" are a lack of confidence and uncertainty among instructors in making decisions related to performance assessment, issues with using and understanding the assessment or grading system, inadequate training or knowledge of standards expected of students, lack of institutional support, lack of instructor continuity and retention, and the emotional difficulty and negative consequences of failing a students.

2.2.0 CHALLENGES FROM CBA IMPLEMENTATION PROCESS

2.2.1 Challenges from the policy implementation

This type of top-down curriculum development, according to Albert et al (2003, p.9), is not considered a successful strategy for curriculum development. At times, the implementers' perceptions about new concepts are hardly sought, for improvement to be made. The successful implementation will depend on how this innovation is perceived by the teachers. Ornstein and Hunkins (2009, p.264) gulp that 'to accept an innovation, people need to perceive its quality, worth and practicality'. In the same way, Madaus and Airasian in Nickse et al (1986) say 'in the rush to implement competency-based programs, the temptation is to focus evaluation efforts upon recall behaviors, since these are the easiest to test and certify'.

The implementation in Africa has either been imposed on the countries following directives of the government or due to the support from western non-governmental organizations (Cheptoo , 2019).

Agbo Eta and Vuban (2018) add that Educational policy borrowing is almost the norm in today's policy making

Wesselink (2010, P.39) in her thesis for the doctorate degree, cited that:

> The problems related to assessment stem in part from the difficulty of defining the ideal picture of assessment; an ideal assessment of competence must include the issue of transfer and requires therefore a number of environments and assessors. However, in reality teachers have limited resources and time and therefore cannot provide the quality they would like to. Finally, implementation problems are encountered because the new way of providing competence-based education has to be developed and tested alongside the predominant, traditional system wherein teachers have to provide students with lectures.

2.2.2 Challenges from the professional competence of assessors.

The teachers, being the main actors on the field should be developed professionally through seminars to better implement. At times the trainers too may not be well competent to train the teachers: that is why Jones (1999, p.4) mentioned Rowntree, who stated that 'a teacher's attitudes to assessment will largely depend on his ideas as to what teaching and learning and knowledge and education are all about. That is, on his professional world view ... or pedagogic paradigm". Therefore, one would expect that difficulties with any curriculum methodology would emerge as problems with methods of assessment. The process of competency-based assessment is an episode involving the participation of a skilled, knowledgeable learner, and a more skilled and more knowledgeable assessor. This view provokes new questions about the professional competence of assessors**.**

2.3 SOME EVALUATION MODELS FOR ASSESSING LEARNERS' COMPETENCIES

2.3.1 Roegiers' Conceptual Framework for Competency Assessment (2016).

Roegiers presents the conception of "generic competencies", which constitute a general stock of knowledge for the learner, and on the other, there is the conception of "situational competencies", which represent the learner's potential ability to deal with certain complex situations referring to an exit profile. He proposed the following schema to show the two factors; the content and exit profiles, with their respective practices.

Priority contents	Priority exit profiles
Knowledge and know-how	General profile
Life skills	Profile in terms of standards
Cross-cutting capacities	Profile in terms of families of situations

By this, he meant that competencies that are defined in terms of knowledge and know-how (application of knowledge) are better assessed through a general profile referring to traditional testing methods. Cross-cutting capacities are assessed using the family of situations, such as problem situations or competency statements. Rogiers further suggests non-educational approaches to assessing a situational competency especially in the world of work, based on real-life simulation. In the English-speaking literature, they are to be found under the headings of "complex tasks", "performance assessment" "context-based assessment", and "authentic assessment.

Finally, Rogiers proposed a model made of a sequence of stages in formulating [holistic] assessment of competencies, as follows:

- Stage 1. Formulate a few disciplinary or interdisciplinary terminal competencies.
- Stage 2. For each competency picked, delimit a few integration situations that the learner will need to be able to handle independently at the end of the learning cycle.
- Stage 3. Develop (in the classroom) generic competencies and resources (knowledge, know-how, life skills, etc.) in accordance with varied, active and adequate methods.
- Stage 4. Set aside periods (e.g. two weeks every eight weeks) in which the learner is called upon to resolve, as much as possible individually, one or another integration situation matching the exit profile (and hence the competencies defined).
- Stage 5. Prepare — for certification purposes — a test with one or two new integration situations, of the same family as those involved in Stage 4, namely of the same level of difficulty and complexity.

2.3.2 The four-component instructional design system (4C/ID-model) presented by

Merriënboer, Clark and Croock(nd) and applied by Albert et al (2003) and Drisko (2015)

The four-component instructional design system (4C/ID-model) was developed originally by van Merriënboer and others in the early 1990s for the design of training programs for complex skills. It has the following steps:

Learning Tasks: These are concrete, authentic, whole-task experiences that are provided to learners in order to promote schema construction. The learning tasks are typically performed in a real or simulated task environment and provide whole-task practice: ideally, they confront the learners with all constituent skills that make up the whole complex skills.

Supportive Information: This is information that is supportive to the learning and performance of non-recurrent aspects of learning tasks. It provides the bridge between learners' prior knowledge and the learning tasks "the theory" and which is often presented in study books and lectures. The 4C/ID-model furthermore distinguishes inductive and deductive strategies for presenting supportive information. Preferably, the example is interspersed with questions that require the learners to think critically about the problem-solving process that is modeled

Just In Time (JIT) Information: This is information that is prerequisite to the learning and performance of recurrent aspects of learning tasks. They can be in the form of, for example, directions teachers or tutors typically give to their learners during practice, acting as an "assistant looking over your shoulder." The JIT information is typically provided during the first learning task for which the skill is relevant and it is necessary for forming the rules is directly available in working memory, precisely when learners need it.

Part-task Practice: Practice items that are provided to learners in order to promote rule automation for selected recurrent aspects of the whole complex skill, should then invite learners to repeatedly perform the recurrent constituent skill. It is important that the whole set of practice items be divergent, meaning that it be representative for all situations that can be treated by the rules. Drisko (2015) adds that after a practical task, the student should be given an interview to talk about their work.

The 4C/ID-model is used to develop training programs for complex skills. Such training programs have a typical length of weeks, months or even years. It also is not very useful for designing very short programs that only take an instructional time of hours or days. Although the model is not developed for teaching conceptual knowledge or procedural skills per se, it can be applied for summative evaluation in general education.

2.3.3 Competency Assessment Models proposed by Leigh et al (2007).

Leigh et al (2007) acknowledged that no single assessment model can evaluate all competencies and that different models may measure similar competencies but in a different way and level of precision given their measurement properties. They proposed assessment models used across the

professional development continuum in the health care professions, grouped into four categories based on what they purport to measure and/or are best at measuring: measures of knowledge, measures of professional decision making, measures of practice performance including professional attributes, and integrated assessments of practice-based skills and tasks.
In general education, the following measures can be applied as follows.

- *Measures of Knowledge*- This class of assessments includes multiple-choice, essay, and short-answer questions Many standardized examinations consist of a sizable number of multiple-choice questions, typically with three to five options, one of which is the correct or best choice
- *Measures of Decision Making*- The case-based oral assessment method
- *Integrated Assessments of Practice-Based Skills and Tasks* -This category of assessments involves the use of problem situations that can consist of a short description or a more extensive situation that attempts to portray the actual realities of practice to the fullest extent possible.

2.3.4: Miller's assessment model

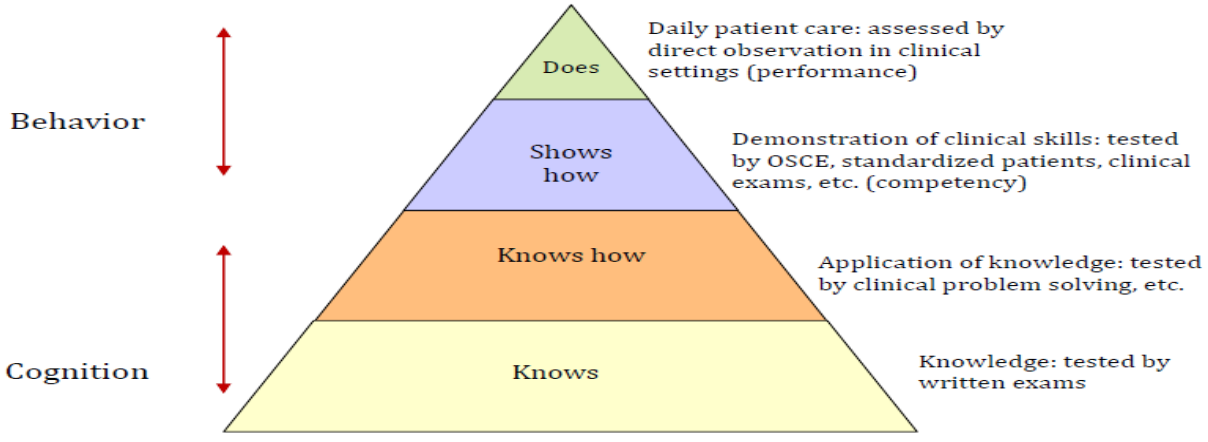
The conception of the four step model emanates from the model of competence proposed by Miller in 1990, as explained by Witheridge, Gordon, and Scott-Smith (2019). In 1990, George Miller outlined a new model for the assessment of clinical competency. He argued that the traditional assessment of medical students relied too much on testing their knowledge, and not enough on assessing how they would behave in a real-life consultation. His model, known as the 'Miller pyramid', was the basis for an important move away from the traditional Flexnerian medical education model that was largely dominated by theoretical knowledge-based assessments, towards examinations based on clinical performance.

Miller's pyramid model divides the development of clinical competence into four, hierarchical processes. On the lowest level of the pyramid is 'knowledge', tested by written exams and traditional multiple-choice questions (MCQs). The next level stands for 'application of knowledge', assessed by essays, clinical problem-solving exercises and extended MCQs. The third tier of the pyramid represents 'clinical skills competency', assessed by standardized patient exercises, simulations and clinical exams. Finally, on top of the pyramid is 'clinical performance',

assessed by direct observation in real clinical settings. The lower level processes account for the cognitive components of competence and involve classroom-based assessments, while the two higher tiers of the pyramid account for the behavioural components of clinical competence, which involve assessment in simulated and real clinical settings. By placing the observable behaviour at the apex of the hierarchy, Miller's pyramid implies a preference towards the behaviourist tradition, as opposed to cognitive perspectives. Miller's model suggested that simulated practice could provide a good approximation to how students would behave in the real-world clinical setting, and therefore firmly argued for the introduction of performance-based assessments. Miller's pyramid clearly indicates that standardized patient exercises, are designed to assess observable behaviour, rather than cognitive skills.

Carley (2015), commenting on Miller's pyramid, describes it as a framework that distinguishes between knowledge at the lower levels and action in the higher levels. It argues that to truly know whether our learners are achieving what we want them to achieve we should assess them in the setting that we expect them to be delivered. This rationale underpins the concept of assessment in the workplace and the various tools and fashions that have developed around that in the last decade. In recent years the pyramid has found a third dimension to incorporate the domains of Bloom's taxonomy. As a 3D structure incorporating attitude, cognition and psychomotor domains we can see how and when we can assess learners for competency, hence making it a holistic model of assessment of competences.

Figure 6: **Millers pyramid**



***Reprinted from: Ramani S, Leinster S, AMEE Guide no 34: Teaching in the clinical environment. Medical Teacher,* 2008:30(4):347-364.**

Below, is a simpler version of Millers pyramid

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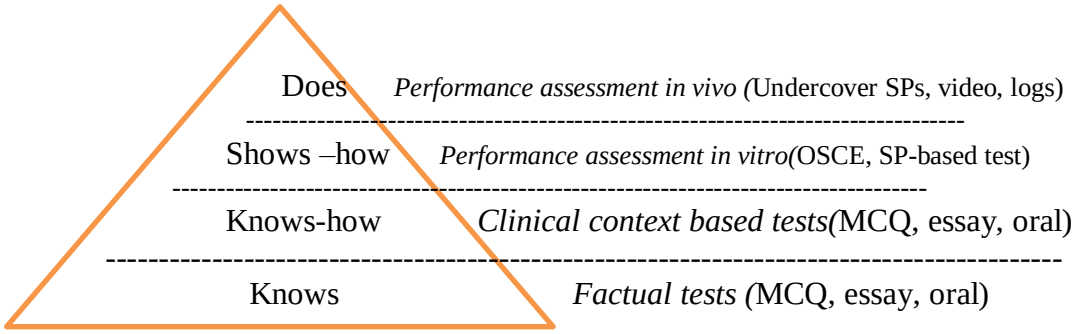


Wass et al.'s adaptation of Miller's Competence Pyramid, taken from La Chimea, et al (2020

At the bottom of the pyramid is "knows" representing the assessment of factual knowledge. Methods may range from multiple-choice tests, short answer tests or oral examination testing for facts. Once a learner is able to use the knowledge and apply it to cases or is able to solve or reason through problems, this is then called 'knowing how'. Methods of assessment may be very similar to the first level in terms of the response format, but now they typically rely on richer stimulus formats such as cases, quizzes, problems or scenarios. At the 'shows how' level, behaviour is assessed through a simulation of professional tasks that is being judged on checklists, rating scales or in narrative forms. Candidates are presented with tasks in a simulated work setting and have to deal with these assignments professionally. The next level of competence, the 'does' level is when actual behavioural performance is being assessed in real-life work settings. Work-based assessment can be assessed indirectly, for example, by judging artefacts or products of the work, or directly by judging observed performance. Van der Vleuten et al. (2017 p. 611) opine that

> In order to make a confident decision on the competence of an individual, we need many situations, often requiring more than 3 or 4 hours of testing time in total. We should therefore be careful with one moment of assessment. We should preferably combine information from different assessments or from assessments over time.

Although the above model is about professional competences, they can be applied too in general education to assess the four broad-based competencies as stated in the curriculum for primary schools in Cameroon (2018). These National Core Skills are hinged on the Broad-Based Competences namely: intellectual, methodological, personal and interpersonal, and communication competences. The Competence-based Approach (CBA) also termed 'the Behavioural Objective-based Approach' (curriculum for primary schools in Cameroon 2018; p.16), facilitates the development of skills through the practice of Project Based Learning, Cooperative Learning and Integrated Theme Learning. Therefore, the design of assessment has to consider these teaching approaches. This is in line with **John Biggs' theory of 'Constructive** alignment'.

2.3.5: Rotthoff et al. (2021) analytic-holistic continuum approach

Another set of researchers, Rotthoff, Kadmon , and Harendza in 2021, developed the analytic-holistic continuum approach. Their work was also provoked by the tremendous challenge of assessing competence in medical education. The model is developed based on the idea that competency includes the knowledge and know-how of certain subjects in different domains, as well as skills or abilities understood as practical or applied knowledge, the personal attitude and values that shape and guide peoples conduct (Sanchez and Ruiz, 2008). According to the same authors, every competence is defined at three or four levels of attainment, indicating the extent of students proficiency (p.50).

The levels are:

- The basic level which refers to the knowledge that the students need to develop the skill in question. Such knowledge has to do with facts, events, features, principles, theories etc.
- The second level is the way in which the knowledge or skill is applied in different situations (analyzing, solving, applying, judging, clarifying etc).
- The third level indicates the way in which a person is able to integrate the skill or abilty into his or her life (academic, interpersonal and social dimensions etc) and is able to demonstrate this abilty. The essential feature of this level is the use that the person makes of competence in question.

In the analytic-holistic continuum model, there are two contrasting approaches in competence assessment: an *analytic* approach that aims to precisely measure observable constituents and facets

of competence and a holistic approach that focuses on a comprehensive assessment of competences in complex real situations reflecting actual performance. Their model was developed from Kane's framework of an "argument- based approach" to validity and is based on insights into task complexity, testing and learning theories as well as the importance of the learning environment. It describes a continuum from analytic to holistic approaches to assess the constituents and facets of competence to performance.

The analytic approach evolved from the field of educational research and aims to support the development of individual competencies. This is based on the implicit assumption that individual elements of competence may be developed and improved by external intervention. It assumes that professional roles can be deconstructed into individual elements such as defined knowledge, skills, or attitudes, which when acquired separately, will eventually lead to comprehensive competence. An analytic approach aims to precisely and objectively measure the construct to be tested by using specific methods that allow accurate and reliable rating, if repeated often enough. The purpose of such assessments is to obtain quantifying and classifying statements and assumptions about the relationship between the test behavior and the characteristic measured. In any case, these tests measure latent variables that cannot be directly observed, but may only be indirectly inferred via the test approach. Therefore, the analytic assessment approach is not regarded as an assessment of competence in the proper sense.

In contrast, the holistic approach to competence assessment. Its purpose is to focus on a comprehensive assessment of competence in complex real-life situations by measuring performance. Holistic refers to the assessment of performance with respect to complex outcomes of interlinked competencies using learning objectives from different domains (e.g., knowledge, skills and attitudes). Research confirms that the holistic approach has a fairly good predictive validity for later work.

Rotthoff and colleagues, put forward their hypothesis, that assessments are not necessarily either analytic or holistic, but may be regarded as a continuum. They proposed the perspective of a continuum extending from an analytic approach to assessment to a holistic one and recommend using a combination of both. While task complexity, authenticity and subjectivity of rating increase from an analytic to a holistic assessment approach, standardization and objectivity

decrease.

Below is a diagramatic representation of this approach :

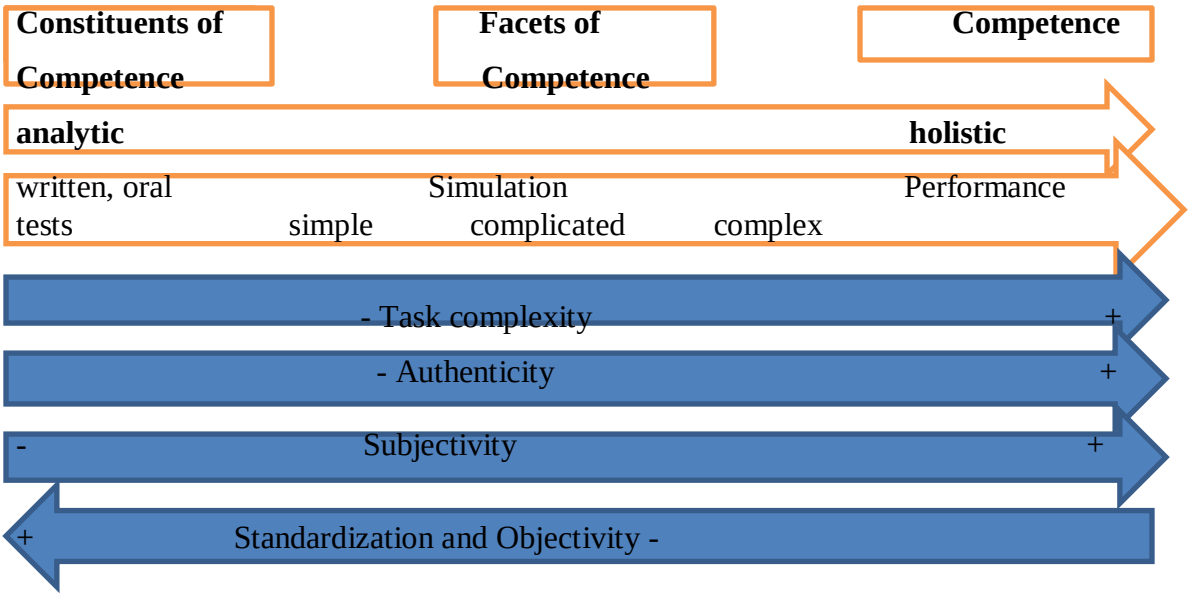


***Figure 7*: Competence Assessment Continuum Approach taken from Rotthoff et al. (2021 , p. 3**).

Contributions of the analytic-holistic assessment continuum approach

The assessment of competences begins with simple tasks from different subject areas in an analytic manner; and moving gradually to include complex tasks mirrowing the real life situations in a real or simulated holistic manner.

Competence development results from the gradual acquisition of constituents of competence and facets of competence to overall competence. The assessment of competence should, therefore, be seen as a continuum from an analytic to a holistic assessment approach. Constituents of competence can easily be operationalized which provides an analytic assessment approach indirectly measuring latent competence variables by tests (e.g., Multiple-Choice Questions).

Facets of competence too, can be tested by situational representation in simulated settings of varying complexity using problem-situations.

Competence can be tested by observational assessment of performance in the real world. With these assessment steps, validity successively increases with respect to the actual competence of a person.

2.3.6 : The evaluation model proposed by Rey et al. (2003)

The evaluation model proposed by Rey et al. (2003) has three phases as follows :

- *Phase 1* : Students are asked to complete a task requiring a selection and combination of a signigficant number of procedures that are expected to possess at the end of the cycle :
- *Phase 2* : The students are again given the same task : but this time, the complex task is divided into elementary tasks whose instructions are explicit and which are presented in the order in which they must be accomplished in order to acheive the achievement of the overall content : but it is up to the student , for each of these elementary tasks, to determine the procedure to be implemented among those he is supposed to have.
- *Phase 3* : Students are offered a seiries of decontextualised tasks, the instructions of which are those that are usually used in learning the elementary procedures that are offered at school : perform a subtraction of words ; agree a verb with a subjet etc. The tasks correspond to the basic procedures that had to be mobilised to accomplish the complex task of phase 1

In the phased arrangement of Rey et al, phase 1 observes student's dealing with the complexity of choosing and combining procedures needed to complete the complex task ; while Phase 3 provides information on mastering the procedures necessary to solve this complex task. Between these two extremes, phase 2 guides the students in solving the complex task by offering him a breakdown of it into many steps as necessary for its resolution.

The data presented by Rey et al (2003) also provide empirical proof that there is a certain hierachy between the three phases of the evaluation model. On average the most sucessful items are those of phase 3 (first level skills), then those of phase 2 (second degree skills) and finally those of phase 1 (third degree skills) as noted by Dierendonck and Fagnant (2014).

2.3.7 The experimental evaluation device of Crachay and Detheu (2005)

Based on the hypothesis that the isolated control of procedures is not sufficient to solve complex problems involving the integration (mobilisation and coordination of these), Crachay and Detheux (2005) developed an experimental device allowing to better understand the students strength and weaknesses when faced with complex tasks. This does not pose itself as an evaluation model but proposes several types of complementary tasks to identify the strengths and weaknesses of pupils and thus better understand their difficulties in the face of complex tasks. Rather than proposing breakdowns of the complex tasks as in the model of Rey et al (2003), they propose to evaluate the procedure in isolation in independent tasks than the complex task itself.

The authors describe the complex problems proposed to 1436 pupls at the end of primary eduation. Each complex problem involves mastering several procedures involved in the primary school curriculum (in Belgium). The mastery of each of the procedures involved in the resolution of the two complex problems, was tested in forms of questioning akin to elementary problems involving the mobilisation of a single procedure (second degree competene acording to Rey et al 2003) or in the form of decontextualized tasks calling directly on the applcation of the targeted procedure (first order skills).

Summary : The researcher, after reading over the different models, gathered ideas to come up with a holistic summative assessment model that will be discussed in chapter five. Ideas borrowed include : step-wise process, merging of the analytic and holistic approaches to competence assessment, how to design the complex tasks and the item formats needed.

2.4. THEORIES RELATED TO THE DESIGN OF COMPETENCY BASED ASSESSMENT

2.4.1 Observational learning theory by Albert Bandura

Albert Bandura was born December 4, 1925 in a small town in northern Alberta, Canada. Bandura's early education consisted of one small school with only two teachers. Albert Bandura soon became fascinated by psychology after enrolling at the University of British Columbia. He had started out at biological sciences major, his interest in psychology formed quite by accident.
In 1949 he graduated from the University of British Columbia with a degree in Psychology. He received his Ph.D. in Clinical Psychology from the University of Iowa in 1952. After he finished his PhD because of his famous studies and searches Bandura was elected as the president of the American Psychological Association in 1974. He was also elected as the outstanding lifetime

contribution to Psychology, American Psychological Association in 2004 (Nabavi, 2012).

Albert Bandura was known for his theories: Social learning theory and Social cognitive theory. Focusing on the Social learning theory, Bandura asserts that most human behaviour is learned through observation and modelling. He talked of a live model, which involves an actual individual demonstrating or acting out a behavior; a verbal instructional model, which involves descriptions and explanations of a behavior, and a symbolic model, which involves real or fictional characters displaying behaviors in books, films, television programs, or online media. With symbolic modeling, models or patterns of doing something are presented for others to copy.

Bandura, as cited by Hartjen (1974, p.10) proposes that providing observers with an array of heterogenous models enables them to display "...novel patterns of behavior representing diverse combinations of elements from the different models...", to make finer discriminations of the component skills.

The modeling process is composed of 4 steps: attention, retention, reproduction and motivation.

Attention: The person must first pay attention to the model. The more striking or different something is the more likely it is to gain our attention.

Retention: The observer must be able to remember the behavior that has been observed.

Reproduction: The third condition is the ability to replicate the behavior that the model has demonstrated.

Motivation: The final necessary ingredient for modeling to occur is motivation, learners must want to demonstrate what they have learned.

Theory application to the study

Linking this theory to this study, it can be seen that if teachers are provided with models or samples of assessments in CBE, then they will be able to design theirs without difficulty. Since its introduction in 2018, if the assessors had produced models of the end of course examinations and given to the teachers, they would be able to teach and assess the learners following the CBA.

2.4.2 Constructivists theory

Constructivism is a learning theory that focuses on the active role of the learner in his/her own learning. Two of the major figures of constructivism were Piaget and Vygotsky. Piaget advocated the individual/ Psychological constructivism, whereas Vygotsky advanced social constructivism. The first focuses on the congnitive structure of knowledge, while the later emphasises the central

effect of the social context on learning. Both scholars believe that learning is a construction of knowledge; however, they focus on different aspects (Ghaour , n.d. p.1). They believed that learning is based on cognitive schemes or mental structures by which people organize their perceptions of their environment. Learners construct schemata by testing new information against their prior knowledge. They then apply the information to a new situation followed by integration of the new knowledge. Assessment using this model, extends learning beyond the classroom by using problem situations or the integration approach to find out how well students can use the tools and understandings of the domain to solve problems, and if involved in an authentic task, then assessing whether the student successfully completed that task. This is supported by Ghaour (n,d, p.2) who identified some constructivism principles according to Ertmer & Newby. Constructivism is based on certain principles as follows:

- An emphasis on the identification of the context in which the skills will be learned and subsequently applied [anchoring learning in meaningful contexts].
- An emphasis on learner control and the capability of the learner to manipulate information [actively using what is learned].
- The need for information to be presented in a variety of different ways [revisiting content at different times, in rearranged contexts, for different purposes, and from different conceptual perspectives].
- Supporting the use of problem solving skills that allow learners to go beyond the information given.
- Assessment focused on transfer of knowledge and skills [presenting new problems and situations that differ from the conditions of the initial instruction].

Jean Piaget (1896-1980) : Piaget had his PhD in Biology, and his specialty was how organisms adapted to their environment. Piaget was a well-known French Swiss developmental psychologist and theorists. Initially, he built his theories observing his own children as they learned and played together. He was not at all an educator, and he only wrote one book on teaching and pedagogy. His basic research problem was epistemological and philosophical: What is the nature of knowledge? How does it grow and develop? Piaget‘s theory was little noticed when it first appeared, but gradually it ascended to a major position in the field of human development (Ghaour, n.d).

Piaget considers cognitive development as essentially a process of maturation and experience. According to Piaget, the child plays an active role in the learning process. He based his ideas that the developing child builds cognitive structures in words, mental maps or schemes and network of concepts for understanding the world. Children actively look for knowledge and work hard to integrate the knowledge into existing body of knowledge to better understand of the world.

According to Piaget, *Schemas* (the building block if knowledge) or the different sensory motor map that the learner constructs about their world, gradually as learner develops the ability to represent the outer world in the internal images and thoughts. A child's schemas are constructed through the process of assimilation and accommodation. *Assimilation* occurs when we modify or change new information to fit our schemas (what we already know). It keeps the new information or experience and adds to what already exist in our mind. *Accommodation* is when we restructure or modify what we already know so that new knowledge can fit better. Both processes are used simultaneously and alternately through out life. Other processes are adaptation and equilibrium.

The *adaptation* process is the inborn tendency to adjust more attuned to conditions imposed by the environment. Piaget sees the learner as the actively engaged in an ongoing process of adaptation or transformation. Learners adapt by continually organizing and re organizing the information and experiences they get in their everyday life. The process creates the better fit between the world as the learner experiences it and the new information and the way he/she understand it .Learners are constantly challenged by the with the new information from their environment around them from infancy onwards, learners construct more complex cognitive structures of their world in their mind to organize, understand and adapt to it.

Equilibrium **:** Equilibrium is when the learner move towards more complex or effective way of organizing and dealing with the world .Equilibrium according to Piaget is regarded as the engine that drives the development of a learner. It is actually the cognitive structures that accommodate the familiar information instead of the new knowledge, we say the learner equilibrates. In the equilibrium the assimilation and accommodation interact continuously and accommodation opens up possibility of assimilation and vice versa in an ever expanding cycle

Theory application to the study

Piagets's theory and CBA

According to Blake and Pope (2008, p. 62), by using Piaget's theory in the classroom, teachers and students benefit in several ways. Teachers develop a better understanding of their students'

thinking. They can also align their teaching strategies with their students' cognitive level.

It focuses on problem solving and integration of knowledge from different sources, which is the backbone of the integration approach to CBA. Students construct knowledge by understanding their environment.

Also, children in the primary school fall on Piaget's concrete operational and pre-operational stages of development, that is between 7 to 13. At this stage, the students are gradually transiting to the formal operational stage where they could understand abstract ideas. Children in this stage can; however, only solve problems that apply to actual (concrete) objects or events, and not abstract concepts or hypothetical tasks (Ann Abor, 2021). As such teachers are to bridge the gap between abstract and concrete by relating whatever they teach with real life experiences. Thus, this has led to the integration of real life problem situations into the instructional and assessment practices.

2.4.3 The Gestalt theory -holistic models

The position of Gestalt psychology was formally stated first by the German philosopher-psychologist Max Wertheimer in 1912. The central idea of 'Wertheimer's point of view is expressed in the German word Gestalt, which means an organized pattern or configuration or more simply - an organized whole in contrast to a collection of parts. This is the notion that a thing cannot be understood by study of its constituent parts, but only by study of it as a totality. This means that the whole is comprised of relational patterns that are not contained in the parts. Therefore, a phenomenon can never be understood in isolation (Mahmoudi, et al , 2011). The principle point of the Gestalt view is that the operations of thinking do not occur piecemeal.

Proponents of holistic education such as Ron Miller and Drisko with his 'four-component instructional design system (4C/ID-model)' developed originally by Van Merriënboer and others in the early 1990s for the design of training programs for complex skills, draw their inspirations from the Gestalt theory and have influenced how the competency based approach and assessment should be carried out. Holistic education involves four pillars of learning in the twenty –first century. UNESCO has also indicated these same four pillars, although with slight differences. These pillars are:

Learning to Learn: . Learning to learn means having the ability to direct and take responsibility for one's own learning, for keeping one self-up-to-date, for knowing where to look for knowledge.

Learning to Do : Learning to do links learning to a profession and to productive work. 'Learning to do' calls for new types of skills, more behavioral than intellectual

Learning to Live Together: This means learning to live responsibly, respecting and cooperating with other people and, in general, with all the living organisms on the planet.

Learning to Be: It is learning to belong to the whole (universe). 'Learning to be' may therefore be interpreted in one way as learning to be human, through acquisition of knowledge, skills and values conducive to personality development in its intellectual, moral, cultural and physical dimensions . These above four pillars are reflected in the curriculum of the primary school as a summary of the National core skills and the broad based skills (*Curriculum of primary school, 2018, p.13*).

Theory application to the study

Linking the theory to this study, assessment models for CBA have to be holistic in order to effectively measure the learners' competencies in the three domains of learning -cognitive, psychomotor and affective domains.

2.4.4 Theory of constructive alignment by John Biggs

This is a theory guiding the design of competency-based assessment. This theory was propounded by John Biggs in 2003 (McCarthy, 2011; Russo, 2016; PISA 2013). John Burrville Biggs is an Australian psychologist. He was born on the 25th October 1934, in Hobart, Tasmania. He had his first degree (BA) in Tasmania and PhD in the university of London (Wikipedia). He obtained his Ph.D. from the University of London in 1963, and has held Chairs in Education in Canada, Australia, and Hong Kong. He retired in 1995 to act as a consultant in Higher Education, and has been employed in this capacity in many institutions in Australia, Hong Kong, and the United Kingdom (Biggs 2003).

The development of this theory

Constructive alignment came about as a result of an experiment with portfolio assessment in a bachelor of education programme in a university in Hong Kong in 1994. Students were asked to place items in a portfolio as evidence that their professional decision making had been improved by the theory they had been taught in class in the course, entitled 'The Nature of Teaching and Learning', in educational psychology for in-service teachers. The students were assessed in terms of how well the theory, and the relevance of the topics to education, were understood and explained in written assignments. They had to reflect on their experience and provide the evidences by

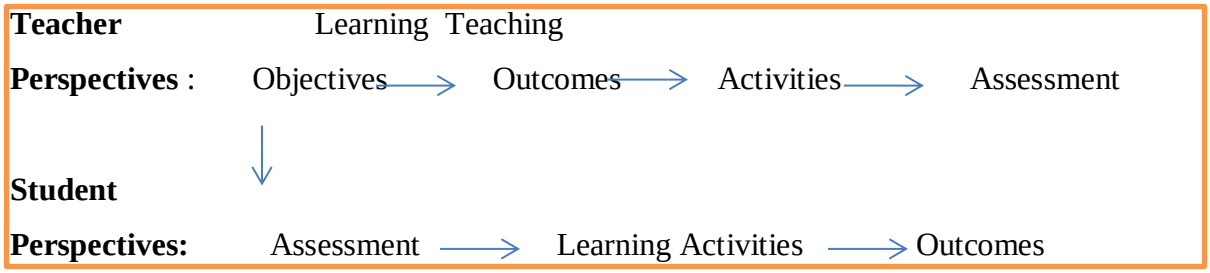
themselves. The teaching method followed from a series of negotiations as to how that evidence might best be obtained, the assessment was on the basis of the quality of the evidence provided. The students were told by their teacher (John Biggs) they would be assessed on how they could demonstrate that psychology had been influencing their teaching, and they were to compile a portfolio of examples of this. The course was a success, results provoking a rethink of the design of teaching. It seemed that two principles were involved: a constructivist theory of learning, and alignment between the intended learning outcomes of the course, the teaching/learning activities and the assessment tasks. This then gave birth to the 'constructivist alignment theory'. 'Constructive' comes from the constructivist theory that learners use their own activity to construct their knowledge as interpreted through their own existing schemata. 'Alignment' is a principle in curriculum theory that assessment tasks should be aligned to what it is intended to be learned, as in criterion-referenced assessment.

The key in the theory of constructivist alignment is that all components in the teaching system - the curriculum and its intended outcomes, the teaching methods used, the assessment tasks – should be aligned to each other. Constructive alignment' has two aspects. The *'constructive'* aspect refers to the idea that students construct meaning through relevant learning activities. That is, meaning is not something imparted or transmitted from teacher to learner, but is something learners have to create for themselves. The *'alignment'* aspect refers to what the teacher does, which is to set up a learning environment that supports the learning activities appropriate to achieving the desired learning outcomes. "If students are to learn desired outcomes in a reasonably effective manner, then the teacher's fundamental task is to get students to engage in learning activities that are likely to result in their achieving those outcomes (Shuell, 1986 quoted by Mc Carthy, 2011, p.4). The learner is in a sense 'trapped', and finds it difficult to escape without learning what he or she is intended to learn.

Alignment refers to what the teacher does in helping to support the learning activities to achieve the learning outcomes. The teaching methods and the assessment are aligned to the learning activities designed to achieve the learning outcomes. Aligning the assessment with the learning outcomes means that students know how their achievements will be measured.

How can we design our examination system so that it tests if learning outcomes have been

achieved? Biggs (2003, P.3) represents this alignment as follows



Source: Mc Carthy, (2011, p.7)

Steps to be followed to ensure alignment

In the writings of Biggs (2003a, P.2); Biggs and Tang (2011 p.125), there are thus four major steps:

- Defining the intended learning outcomes (ILOs);
- Choosing teaching/learning activities likely to lead to the ILOs;
- Assessing students' actual learning outcomes to see how well they match what was intended;
- Arriving at a final grade.

Biggs(2003, p. 4) highlight some important aspects with this theory as follow:

- Assessment is at the end of the teaching-learning sequence of events, but to the student it is at the beginning.
- Matching individual performances against the criteria is not a matter of counting marks but of making holistic judgments
- the students' actual learning outcomes can be judged against the performance qualities

Theory application to the study

Applying the theory to this study, holistic evaluation of learners is that which comes at the end of a study period, that is, summative assessment. Holistic assessment models of competencies should be designed in such a way that the intended learning outcomes and teaching strategies such as flip classeoom, cooperative learning, project pedagogy and learning areas or themes as prescribed in the curriculum for Cameroon primary schools, should be represented in the assessment..

2.4.5 Theory of Multiple Intelligence

The theory was developed by Howard Gardner, an American cognitive psychologist, in 1983 and it challenged the conventional thought process of what intelligence is and has transformed some fundamental beliefs about teaching and learning. Gardner believed that human beings have different kinds of intelligences. Dr. Gardner hypothesized that there isn't just one, single form of intelligence that a person either has or doesn't have, but there are multiple intelligences that we all have in varying degrees and no two person has the same combination. Multiple Intelligences Theory, or commonly referred to as MI, is conceptually grounded in that it is in opposition to the convention of a single intelligence, which can be measured by an Intelligence Questionnaire (IQ) test. These IQ tests, when given, analyze a person and attempts to identify levels of intellectual disability, normal intelligence, or exceptional intellectual capacity. Dr. Howard Gardner, the original theorist behind the multiple intelligences theory believes that, "IQ tests assess linguistic and logical-mathematical intelligence, and sometimes spatial intelligence; but cannot measure satisfactorily other types of intelligences.

The theory of multiple intelligence can be better represented by the words of Albert Einstein in which he quipped,

> *"Everybody is a genius, but if you judge a fish by its ability to climb a tree, it will live its whole life believing that it is stupid." (Anonymous , multiple intelligence 2018,p.4)*

Development of the theory

Kewar (2001, p.3), recounts a brief history of how the theory was developed. Gardner began work with Project Zero at Harvard University in the mid 1970s with the philosopher Nelson Goodman. Project Zero was initially devoted to studying the arts as a cognitive process and to challenging the hegemony of linguistic and logical symbol systems and cognitive processes. In the years that followed, Gardner continued to challenge the superordinate status of linguistic and logical systems over other forms of cognition that were emerging in his studies of cognitive processes. The different areas he examined included: the breakdown of cognitive skills under conditions of brain damage; evolutionary cognitive theory examining changes over the millenium; cross cultural studies of cognition; psychometric studies; research on special populations such as gifted, autistic, and idiot savants; and research on universal skills (Gardner, 1993). The result of synthesizing data and the research was the articulation of eight intelligences

Gardner classified these intelligences into eight groups namely: Linguistic; Intrapersonal; Interpersonal; Spatial; Bodily-Kinesthetic; logical-Mathematical; musical and naturalist intelligence (Mc Carthy 2011, p.37).

"Verbal/linguistic intelligence: the production of language, abstract reasoning, symbolic thinking, conceptual patterning, reading, and writing.
Logical/mathematical intelligence: the capacity to recognize patterns, work with abstract symbols (e.g., numbers, geometric shapes), and discern relationships or see connections between separate and distinct pieces of information.
Visual/spatial intelligence: visual arts, navigation, mapmaking, architecture, and games requiring the ability to visualize objects from different perspectives and angles.
Bodily/kinesthetic intelligence: the ability to use the body to express emotion, to play a game, and to create a new product.
Musical/rhythmic intelligence: capacities such as the recognition and use of rhythmic and tonal patterns and sensitivity to sounds from the environment, the human voice, and musical instruments.
Interpersonal intelligence: the ability to work cooperatively with others in a small group, as well as the ability to communicate verbally and nonverbally with other people.
Intrapersonal intelligence: the internal aspects of the self, such as knowledge of feelings, range of emotional responses, thinking processes, self-reflection, and a sense of intuition about spiritual realities.
Naturalistic intelligence: the ability to recognize patterns in nature and classify objects, the mastery of taxonomy, sensitivity to other features of the natural world, and an understanding of different species.
These intelligences (or competencies) relate to a person's unique aptitude set of capabilities and ways they might prefer to demonstrate intellectual abilities.

The implications of this theory have been significant for elementary and secondary schools. This theory offers a better understanding of students' intelligence and a greater appreciation of their strengths. It provides numerous opportunities for students to use and develop all the eight intelligences not just the few they excel in prior to enrolling a university or college (Nataša Bakić-Mirić, n.d).

His research findings revealed that human cognitive competence actually is pluralistic, rather than unitary in design thus setting the stage for multiple intelligences (MI) theory. Gardner suggests that educators need to view intelligence as the capacity for solving problems and fashioning products in context-rich and naturalistic settings opposed to placing the traditional emphases on the ability to produce a large quotient. The MI theory has made educators not only to come to a recognition of the diversity of the learners in their learning styles and learning potentials but also to appreciate the development of learning strategies on the part of the learners in the form of "individualized instruction" and "independent learning". Teachers saw that a subject can be presented in different ways, giving the learners the ability to view the events with different perspectives. Topics in the lesson could be understood differently by each student. This allowed different levels of learning to be considered and every student had a chance to learn the subject in some way. One of the limitations of the theory can be seen as difficulty of evaluating each student with different types of assessment. The preferred process being portfolios, projects, exhibitions, and presentations also provide opportunities to assess the different types of intelligences.

Evaluation procedure experts, according to (Nataša Bakić-Mirić, n,d) say that there are two ways of evaluating students after the completion of a course: testing and assessing. Whereas, on the one hand, testing represents a singular act that is characteristic of teacher-centered classrooms, assessment, on the other hand, is defined of as a complex process distinctive of student-centered classrooms. Wherefore, testing is intended to determine what students have learned forcing them to memorize facts without really understanding the context and subject matter, assessment, nevertheless, is integrated with learning and instruction and is intended to stimulate further learning.

A common belief shared by many teaching professionals nowadays is that authentic assessment, which emphasizes assessing what students know (knowledge) and what students do (performance) from different perspectives aims to provide a complete [holistic] picture of students' abilities, efforts and progress during the learning process. Moreover, the MI theory is opposed to the traditional view of education and standardized tests; it opts for multiple modes of assessment that will allow students to show their strengths for optimal performance. Therefore, Gardner's multiple intelligences theory can be used for developing related competency-based assessment strategies because pupils can be competent in one area but less competent in another, thus making competency-based assessments to be multidimensional; not to be judged as fail or pass, ie no

grades but on evidence of competencies acquired.

Theory application to the study

To conclude, the new curriculum of the primary school has taken into consideration the fact that learners have unique personalities, talents, attitudes, and interests that they bring into the classroom. They also have a variety of experiences which the teacher must build on, in order to effect and affect the teaching – learning process. The learners' uniqueness and variety of experiences are primordial in the development of any school curriculum (*Cameroon primary school curriculum, 2018, p.4*), as such their assessment models should reflect these multiple intelligences especially in the selection of assessment methods.

2.5 THEORIES RELATED TO THE IMPLEMENTATION OF COMPETENCY BASED ASSESSMENT

2.5.1 The Backward-Design Model by Grant Wiggins and Jay McTighe

Ornstein and Hunkins , (2009) presents the backward –design model developed by Grant and Tighe. Unlike Tyler's model of curriculum development that begins with the definition of purpose or objectives , to selection and organization of learning experiences, then evaluation, Wiggins and McTighe proposed the backward-design model developed from an architectural and engineering background in 1998. This framework requires us to think about what student outcomes should be in a course, to design the course to reflect this, and to ensure that an appropriate assessment is in place to provide evidence of outcomes achievement.

Backward design begins with the statement of desired results. The first stage involves identifying the school programs; goals. This stage looks at selection of content by curriculum developers and teachers, valuable information and skills that might lead to expected results; what generalizations or concepts or facts do students need to master in order to achieve.

Stage two of the model involves determining how the curriculum will be evaluated once it is put in place. How will we know whether students have met the set standards. According to Wiggins and McTighe, the backward design model gets teachers thinking like assessors before they develop the curriculum units and lessons. Wiggins and McTighe suggest various ways to assess the learners such as including informal checks, observation of students, dialogue with students, quizzes and tests, and performance tasks and projects.

When educators have clearly identified the curriculum goals and determined how to assess the extent to which those goals have been reached, they are ready to plan instructional activities.

This model can be reflected using Harris and Stephen Kellers' words, cited in Katie and Gaertner (2015, p.7), who outlined several key considerations in competency assessment and concluded that

> The major development effort in competency-based education should not only lie in design of instructional materials but in design of appropriate performance assessments. Furthermore, institutions should not commit themselves to competency-based curricula unless they possess means to directly assess students' performance.

Theory application to the study

It is not enough to list the different assessment strategies and tools, but to see how these tools are developed or designed to measure what it purports to measure. According to this study, emphasis should be placed on the need to develop sound assessment models before implementing the CBA in the schools.

2.5.2 The top-down and bottom-up theory of policy implementation

Education policy implementation is a purposeful and multidirectional change process aiming to put a specific policy into practice and which may affect a given education system on several levels (Viennet and Pont, 2017). It is important to point out that policy change goes hand in hand with policy implementation (Cerna, 2013). Passing policies does not guarantee success on the ground if policies are not implemented well. It is difficult to say which factors or conditions facilitate successful implementation since so much depends on the political, economic and social context. Even if policy implementation appears to be successful, Fullan (2000) points out that there is no guarantee that success will last. In terms of the change process in schools, there has been strong adoption and implementation, but not strong institutionalisation. Fullan (2000; 2007) further notes that both local school development (which engage teachers and students) and quality of surrounding infrastructure are key for lasting success.

Two main theories try to explain the concept of policy implementation which are the top-down and the bottom-up theories. Top-down theorists see policy designers as the central actors and concentrate their attention on factors that can be manipulated at the central level (Matland 1995, quoted by Cerna , 2013). The top-down theory looks at a policy that is conceived or designed at

the top level (external agencies such as NGOs, Ministries etc) and passed down for implementation by those at the bottom who play a passive role in decision making. According to Ornstein and Hunkins (2009. P.267), 'teachers must be viewed as full participants in curriculum implementation, not passive recipients of the curriculum'. .. 'they posess clinical expertise' (p.266)

Conversely, bottom-up theorists emphasise target groups and service deliverers, arguing that policy is made at the local level. The bottom-up approaches see implementation as a "process of interaction and negotiation, taking place over time, between those seeking to put policy into effect and those upon whom action depends" (Barrett and Fudge, 1981 cited in Viennet and Pont 2017). The bottom-up scholars (e.g. Hjern and Hull, Hanf, Barrett and Fudge, and Elmore, quoted by Cerna, 2013) criticized the top-down theorists for only taking into consideration the central decision-makers and neglecting other actors. The bottom-up approach, developed by Hanf, Hjern and Porter , identifies the networks of actors who are involved in service delivery in one or more local areas and asks them about their goals, strategies, activities and contacts. Among the benefits of the bottom-up approach is its focus on centrally located actors who devise and implement government programmes, thus contextual factors within the implementing environment are important. Actors and their goals, strategies and activities need to be understood in order to comprehend implementation. Bottom-up approaches do not present prescriptive advice, but rather describe what factors have caused difficulty in reaching stated goals.

Viennet and Pont (2017) observed that process of policy making in education is no longer linear. Better policy making involves a complex web of human interactions influenced by the context. Education reform is not only for policy makers from the top down, but a balancing act beyond evidence-based policy making. Actors can interpret, react and influence implementation. Including them throughout the process facilitates long term success and prevent reactions against reforms. Cerna (2013), talks of a combined approach. Many write-ups now are focused on combining (micro-level variables of) bottom-up and (macro-level variables of) top-down approaches in implementation research in order to benefit from the strengths of both approaches and enable different levels to interact regularly. Other authors are for collaborative organizations involving multiple stakeholders who come together to identify common issues, share information and perspectives, generate or analyze information for decision making, develop plans, and implement projects.

Theory application to the study

To conclude, Viennet and Pont observed that the way a policy is debated and framed, would determine the actors' willingness to effectively implement. Therefore for competency-based assessment to be fully implemented, especially as summative evaluation, both the top and bottom level stakeholders in education need to come together and share the knowledge and experiences. Research has proven that policies passed down from top to bottom, are sometimes misinterpreted because they are borrowed policies more often, and those mediating may not be competent enough in guiding the main implementers-the teacher (Cheptoo, 2019; Agbo Eta & Vuban , 2018).

This type of top-down curriculum development, according to Albert et al (2003), is not considered a successful strategy for curriculum development. At times, their perceptions about new concepts are hardly sought, for improvement to be made. The successful implementation will depend on how this innovation is perceived by the teachers. Ornstein and Hunkins (2009, p.264) gulp that 'to accept an innovation, people need to perceive its quality, worth and practicality'.

2.6 EMPIRICAL LITERATURE REVIEW

This section covers articles that the researcher explored on how to design holistic models for [summative] evaluation of competences. The studies are grouped according to some of the research objectives , as follows:

2.6 .1. Empirical Literature on teachers understanding, practice and challenges faced with CBA

2.6.1.1. Competency-Based Education in Africa: Exploring Teachers' Perceptions, Understanding, and Practices , by Akinrinola, Ogegbo, Emmanuel and Adewusi (2020)

This study explored teachers' knowledge and integration of competency-based practices in schools. The sample was made up of one hundred and fifty in-service secondary school teachers across three African countries, Nigeria, Rwanda and South Africa, using a survey research design. A combination of both closed and open-ended questions was used to elicit responses from respondents via an online system. Responses from the open-ended questions were analysed using thematic analysis, and data received from the structured questions were analysed using percentage distribution. The work was guided by two main theories : the Human capital theory and social

constructivism theory.

Their findings revealed that teachers across the three countries have a positive perception of the usage of competency-based approaches but lack professional training and support, which in turn affects the quality of their teaching and assessment practices in classrooms. The following inhibiting factors were discussed based on their applicability to developing African nations:

- ***Absence of educators on the job training about CBE***

The absence of appropriately prepared instructors was one of the significant difficulties affecting the successful execution of CBE. Teachers were seen to be anxious to actualise CBE, yet they lacked training since they needed current information and aptitudes to manage learning issues.

- ***Low teaching and learning resources/facilities***

Text and reference books were found to be insufficient to accommodate the number of learners in schools; but most especially, even the available books do not mirror the current educational plan and need clarity on the best way to instruct according to CBE necessities. Students may not be able to develop necessary independent learning capabilities, problem-solving, critical thinking minds which might deprive them the chances to being equipped skilfully. It is imperative to improve the quality and quantity of learning resources.

- ***Large class size***

The issue of a large class was also seen to be a common phenomenon among many countries in Africa. This condition has created difficulties for both the teachers and students when engaging in teaching and learning in the classroom.

- ***Assessment practices***

With regards to their assessment practices, teachers depended mostly on traditional methods of assessment such as multiple choice tests' and essays/shorts' answers which do not prepare learners

for expertise. Hence, one factor that appears to be critical to the effective implementation of CBE in Africa is teachers' understanding in terms of their roles, ability, and use of competency approaches in classrooms. The implications and recommendations from this study call on teachers in Africa valuable consideration to move beyond the traditional level of assessment and integrate good proxies of academic skills that support learners' acquisition of 21stcentury skills such as problemsolving, creativity and critical thinking in assessing learners' competencies.

This study was carried out in some African countries excluding Cameroon. The researcher wishes to see how the perceptions of the Cameroon teachers are.

2.6 .1.2. Agbor Tabe (2019). Competency-based approach assessment strategies: Theory versus practice in Cameroon

The study was conducted on some English language teachers of the junior secondary school levels in a bit to check if their assessment practices were in line with the competency-based assessment principles. It thus juxtaposes the theory of the competency-based assessment versus the practice in Cameroon. The sampling techniques used in this study was snow ball and quota sampling techniques. The former was used to interview 04 resourceful pedagogic inspectors on CBA practice while the later was used to select some 17 language teachers from some secondary schools in Maroua and Bamenda-Cameroon. It is important to note that 09 teachers came from GTHS Maroua and 08 came from Bamenda and GHS Down Town Bamenda.

The first step undertaken by the researcher was gathering of existing literature on CBA assessment strategies. It was closely followed by designing of a questionnaire to be administered to some language teachers of the junior secondary schools in GTHS Maroua and GHS Down Town Bamenda and interviews to pedagogic inspectors on CBA assessment practices. Observation of the teaching/learning process, logbook and test papers equally follow suit to complement data collected through the questionnaire to come up with valuable and reliable judgments about the CBA assessment practice in the junior secondary schools in Cameroon.

The findings revealed that, the principles of a CBA assessment were not respected by most language teachers in Cameroon because of lack of knowledge and the difficulty in material designing and development. Through the use of a questionnaire administered to teachers of English, observation of past test and examination questions, observation of the logbook and interviews granted to some pedagogic inspectors, data was elicited and analysed. Findings revealed

that the assessment tactics used by teachers do not reflect that required of the competency based assessment. Most language teachers did not match CBA assessment principles to their classroom practices. There is a broad difference between the theory and the practice of CBA in Cameroon lower secondary school levels as the former is not fully represented in the later. Thus, there is a mismatch between theory versus practice.

This researcher worked with assessment practices of teachers in the junior secondary schools in Cameroon, but I wish to tilt the direction to the primary schools and see how CBA is carried out.

2.6.1.3. The Competency Based Approach in Cameroon Public Secondary Schools: Modes of Appropriation and Constrains Lilian F. Wiysahnyuy (2021)

The study as carried out to investigate the practice of competency based approach to teaching and learning by teachers in secondary schools in Cameroon. Specifically, it was designed to examine the various ways by which teachers acquire knowledge and skills on the use of CBAp and the attendant challenges they face in implementing it. The study was guided by the following questions :

- Are the teachers equipped and ready for the new approach?
- What are the challenges to meeting the target objective of the approach?

Based on these puzzling circumstances. The research design used for the study was a cross sectional survey. Convenient and purposive sampling techniques were used to select a sample of 145 respondents from five public schools: Government Bilingual High School (GBHS) Downtown Bamenda, GBHS Atiela, GBHS Bamenda, GBHS Bayelle, and GBHS Bamendankwe in Bamenda Municipality. The instrument used for data collection was a questionnaire. Data was analysed using descriptive statistics.

The findings revealed that an appreciable percentage of teachers graduated from the training colleges before the CBAp was introduced in the Cameroon school system. Majority (96.5%) attested to the fact that they acquired basic knowledge and skills of CBAp through seminars, conferences and workshops which were not really frequent to keep them abreast with the dynamics in the art of the model. It was noticed that majority of the teachers found it difficult to implement the CBAp because of inadequate knowledge and skills, overcrowded classrooms, limited teaching hours, the bogus nature of the syllabuses and insufficient pedagogic and learning materials. The study suggest that teachers need diverse professional development activities like in-service training, seminars, conferences, workshops, and individual research to continually appropriate,

adapt and use dynamic trends of CBAp.

Wiysahnyuy carried out her study on the secondary school teachers practices, but I wish to investigate the practice of CBA in te primary school level and compare if the teachers face the same challenges ith the implementation of CBAp.

2.6.1.4. Capturing 21st century skills Analysis of assessments in selected sub-Saharan African countries by Kim and Care (2020).

The primary purpose of the study, was to find out whether the assessment tools used in some African schools, have clear capacity to capture 21CS . A total of 91 tools from 9 different countries were analysed. The study was guided by the following questions. What are the characteristics of the available assessment tools collected from the countries? Their primary function (teaching and learning, grading, and accountability) Assessment formats (e.g., true-false, correct-incorrect, rating scale). Scoring mechanisms and score reporting formats. The study was designed to collect examples of assessment tools used at national and school levels. "Tools" is the term used to describe tests, items, assessments, assessment tasks, etc. in this publication. The study drew data across Grades 3 to 8, with particular focus on Grades 6 and 8. This grade range was selected through consensus of the participating countries, informed by the perspective that this range covered both primary and secondary sectors, and would therefore provide insights about the degree to which 21CS might be valued across sectors. Participating countries collected examples of tools from national and school levels that were considered to be targeting 21CS. The guidelines for collection stipulated that the country researchers collect examples of assessment tools that directly or indirectly capture 21CS, and therefore, should not include assessment tools that only capture subject areas or domain competencies (e.g., literacy or numeracy skills). Due to the small-scale nature of this study, just four or five schools in each country were selected.

Findings : There are inadequacies in the understanding of definitions and nature of 21st century skills. The current system is designed to target subject-based (or disciplinary) skills. There are few tools and assessments that measure 21st century skills. There is a lack of assessment literacy among teachers that is necessary for the development of both standardized and classroom tools to measure 21CS. There are issues of alignment between the educational goals, assessment, and pedagogy. Among the recommendations made, was capacity building for effective implementation: Capacity building of stakeholders at all levels, including policymakers, education administrators, curriculum developers, assessment experts, teachers, and parents, on issues related to 21CS and

assessment literacy.

The above study was carried out in some African countries, excluding Cameroon. I wish to find out if the challenges faced with CBA are the same in our Cameroon schools.

2.6.1.5. A Holistic Model of English Lesson-Unit Assessment for Junior High School Students by Desi Rochmawati (2015)

Rochmawati (2015) carried out her study on Junior High School students in Indonesia.In her study, she assessed three components in teaching and learning process, those are: knowledge, skill and attitude (spiritual and social) of Junior High School students. This study was to develop a holistic model of assessment which is simpler and integrated, to help teachers feel relax with their workload and issues related to administration affairs and other portfolios. The study, therefore, was aimed at designing a holistic model of assessment, which was designed for the unit lesson.
In the model, some competences were merged. Core Competence 1 (CC1) and Core Competence 2 (CC2) were not indicated explicitly because they were integrated in Core Competence 3 (CC3) and Core Competence 4 (CC4). The data were collected by having group discussion and sharing a questionnaire to the students in English Language Studies. The assessment was done at the end of unit lesson of English subject. The instruments for data collection were questionnaires to teachers and graduate students. The language used in the questionnaire was *bahasa* Indonesia. Interview was also conducted with some teachers and graduate students attending the Evaluation in English Education class at Sanata Dharma University. The participants of the questionnaire and interview were homogenous in terms of linguistic skills, educational system, and experience in teaching.
The result of this study was a holistic model of assessment to assess Junior High School students' achievement in learning English. This model of assessment was designed especially to assess students' achievement in every unit lesson. The model was presented in a table with likert scale scoring of 1 to 4.She concluded that since teachers have been burdened with administration affairs and portfolio, therefore, they need a kind of assessment form which interrelated each other. A holistic assessment for Junior High School as the researcher designed can be the appropriate form to assess student-learning outcome in Junior High School.

2.6.2. Empirical Literature on the components and design of the holistic model of CBA

2.6.2.1 The alignment of teaching, learning and assessment in English home language in

grade 10 in district 9, Johannesburg by Marina Burger (2008)

The aim of this study was to examine the alignment of teaching, learning and assessment in English home language in grade 10 in Johannesburg District 9. A literature study investigated the theoretical background to Outcomes-based education, the definition of outcomes, Outcomes-based assessment and the role of feedback in the alignment of teaching, learning and assessment. In addition this alignment in English home language was explored. For the qualitative investigation teachers from three schools participated in individual interviews and a content analysis. Major findings included: the teachers were intuitively aware of the importance of the alignment of teaching, learning and assessment, the implementation of the alignment was also intuitive and not explicitly planned. The teachers did not understand the assessment standards attached to each learning outcome. Continuous assessments were not used for learning. The study concludes with recommendations to improve the alignment of teaching, learning and assessment in English home language.

2.6.2.2. Group Work Assessment: Assessing Social Skills at Group Level by Johan Forsell, Karin Forslund Frykedal and Eva Hammar Chiriac (2016)

The study made use of the documentary analysis research design. Since group work assessment is often described by teachers as complex and challenging, with individual assessment and fair assessment emerging as dilemmas ; the aim of this literature review was to explore and systematize research about group work assessment in educational settings. This is an integrated research area consisting of research combining group work and classroom assessment.

To do this, te researchers conducted a database search, inspired by the guidelines of the PRISMA. The analysis and categorization evolved into a typology consisting of five themes:

- purpose of group work assessment,
- what is assessed in group work,
- methods for group work assessment,
- effects and consequences of group work assessment, and
- quality in group work assessment.

The findings reveal that research in the field of group work assessment notably focuses on social skills and group processes. Peer assessment plays a prominent role and teachers as assessors are surprisingly absent in the reviewed research. This gave the researcher the idea of incorporating

group work into the CBA model.

2.6.2.3. The Effect of Using Flipped Classroom Strategy on the Academic Achievement of Fourth Grade Students in Jordan by Elian S.A (2016)

This study aimed at investigating the effect of flipped classroom strategy on the academic achievement in the subject of science among fourth grade students in Jordan. The study population consists of all fourth grade students in the Directorate of Private Education in Amman area, totaling 2134 students during the second semester of the academic year 2015-2016. The study sample consists of 44 male and female students who were chosen purposely from the study population. The study sample was distributed into two groups:the experimental group that consisted of 22 students, who has studied according to flipped classroom strategy, and the control group that consisted of 22 students, who has studied in the ordinary method. To achieve the objectives of the study, an achievement test was prepared and its validity and reliability were checked. Data analysis as done using ANCOVA, Means, and Standard Deviations.

The findings were as follows:

- There are statistically significant differences in the Means on the educational achievement test attributed to the teaching strategy, in favor of the members of the experimental group.
- there are no statistically significant differences in the means on the academic achievement test attributed to gender.

The results showed that students who were taught by using the strategy of flipped classroom as a teaching strategy got higher scores in the academic achievement test than students who were taught by using the traditional strategy as a teaching strategy. This result indicates that teaching by using flipped classroom strategy increases the motivation to learn as being internal source of excitement, on contrary to the traditional method in which excitement is depending on teacher's notes, comments, questions, answers and forms of enhancement that student receives, thus the source of excitement is external. By using flipped classroom strategy, enhancement is raised from the practical activity itself, from the excitement that the learner feels during presenting information and the practical application he does. Such activities present the content attractively leading to develop the scientific thinking in students through observation, understanding, classifying, analyzing and assessment. The activities are close to the level of students and take into account the individual differences. Thus, such differences appeared for the experimental group on

academic achievement test.

In light of the findings, the study recommended encouraging science teachers to teach students using teaching strategies emanated from the use of modern technologies, particularly the flipped classroom strategy. In addition, the study suggested that colleges of education should train prospective teachers on the use of teaching strategies stemming from modern educational theories and strategies such as the flipped classroom strategy during the period of preparing them to teach. Furthermore, the study recommended re-applying this experience and identifying its effectiveness at other schools.

Hence the researcher bowed the idea of the flip classroom to include in the holistic evaluation model.

2.6.2.4. The Effects of Formative Assessment on Academic Achievement, Attitudes toward the Lesson, and Self-Regulation Skills by Ozan C and Kincal R.Y (2018)

The purpose of this research is to examine the effects of formative assessment practices on students' academic achievement, attitudes toward lessons, and self-regulation skills in the fifth-grade social studies class. Mixed method research was used to conduct the study. The research group consisted of 45 students in the fifth grade of a secondary school in Erzurum in the academic year 2014–2015, and a teacher who performed the practices. Experimental procedures were carried out for 28 weeks. Social studies performance tests, attitude inventories for social studies classes, self-regulatory learning skills scales, semi-structured interview forms, and observation forms were all used as data collection instruments. As a result of the research, it was determined that the experimental group in which the formative assessment practices were performed had a significantly higher academic achievement levels and better attitudes toward the class than the students did in the control group. One can infer that the elements applied in formative assessment practices, including prioritizing the learning and making up of deficiencies instead of grading, teaching groups requiring sharing and cooperation instead of individual efforts, and assessing students in accordance with individual development levels instead of comparing them to each other all help students develop positive attitudes toward class.

With regard to the students' self-regulation skills, although the formative assessment had a positive effect, no significant difference was found between the experimental and control groups.

According to the researcher's observations and the interviews conducted with the teacher and students, it was determined that the general view on the application of formative assessment was notably positive.

2.6.2.5 Competency-Based Approach: the Problematical of Assessment of Learning in Physical, Chemistry and Technology Science in Benin Republic by Adjibi, Moussiliou, Briaud, Attikleme (n.d)

This study was carried out in Benin. The aim was to evaluate the problem of assessment of learning in physical, chemistry and technology science in the secondary schools in Benin under the guidance of the competency-based-approach. The study as guided by the following questions: Does the inconsistencies in the implementation of the competency-based approach have no negative impact on the evaluation process? What to do? Should the pedagogy of the competency-based approach in secondary education in Benin be discontinued? Does the educational authorities have to choose another pedagogy?

In order to answer their questions, they carried out an opinion poll, on a sample of 200 teachers of physical sciences, chemistry and technology (pedagogical advisers, teachers and teachers) spread over the whole territory, they also analyzed the substance of some summative tests produced by some teachers, and others by the examination department. Documentary analysis was done in the context of the design of assessment situations in physical science chemical and technology in the age of Competency-based approach. The findings revealed that inconsistencies in the implementation of competency-based approach have a negative impact on the evaluation process

Finally, they attempted to formulate approaches to solutions and recommendations in order to contribute to the improvement of the quality of teaching/learning/assessment in the physical sciences, chemistry and technology by proposing two evaluation cases as models.

From this study, the researcer tapped the idea of documentary analysis to also design an assessment model to help teachers with CBA.

2.6.2.6 A Competence Model to Assess and Develop Designing Competence Assessment Tool by Tra and Linh (2021)

This study aimed to construct a teachable model that is reflective of the complexity of designing assessment tools, including behavioural indicators. It was carried out based on the recorded benefits of competency-based assessment on students' achievements on standardized tests than

other forms of educational activities; and also on challenges teachers face when designing competence assessment tools (CAT), especially in building assessment tasks that replicate real-life practice. In hope to develop a competency model that would serve as a supporting role in developing the the competency of designing competence assessment tools (CDCAT) for pre-service teachers and teachers, this study used a multi-step development process to construct a teachable model that reflectived the complexity of designing assessment tools. The model consisted of 12 behavioural indicators spreading across four dimensions informed by the existing literature and empirical findings in particular contexts.

- Identifythe purposes of using the assessment tool
- Determine the characteristics of the situation using the tool
- Determine the objectives of the assessment task system
- Determine the type of evidence and the amount of evidence to be collected to assess learners' competencies
- Select assessment methods supporting the collection of such evidence
- Determine the type of information used to draft assessment tasks
- Draft assessment tasks.
- Design assessment instruments (scale, checklist, rubric, etc.) to assess the evidence obtained.
- Determine the specific steps that evaluators should take to manage and use the tool.
- Trial of the assessment tool
- Analyze feedback from people involved in the experimental process
- Finalize the assessment tool

To guarantee the content value of the proposed model, the research twice used the expert method by two panels. The reliability of the model was tested by analyzing the data collected from the survey with students. Interesting findings were met, and the outlined CDCAT model assisted pre-service teachers in solving issues related to their assessment competence. The model was intended for educational researchers, educators, teachers, and policy makers to support teachers' assessment competence concerning the current accountability model across educational systems.

2.6.3 Bridging the gap in literature

From the above empirical literature, the researcher came up with a four step model for evaluating competencies for summative evaluations such as the FSLC examination in the

primary school. This model tries to incorporate the broad-based competencies such intellectual, methodological, personal and interpersonal, and communication competencies. Also the different teaching strategies such as cooperative learning, project pedagogy and learning themes are included, in a bid to align the learning outcomes, with the teaching and assessment methods. Alemnge (2020a) states clearly that the curriculum has adopted a pedagogy of integration with teaching and learning anchored on Project Based Learning (PBL), Cooperative Learning (CL) and Integrated Theme Learning (ITL). It is expected that this approach will facilitate a holistic development of competences in the learners since it is a learner centred pedagogy in which teachers are expected to give attention to the promotion of gender equity, inclusiveness and multiple intelligences. This developed model will be presented under recommendations in chapter 5 of this study.

2.6.4 Summary

This section of the second part of the study looked at the challenges faced in the course of implementing competency based assessments or difficulties encountered with the evaluation of learners competencies. Some models of evaluation provided by some authors were discussed. Empirical literature reviewed what others found out about competency based assessment , from the findings of their own studies. Lastly, from the literature review, the researcher identified the gap, that is coming out wth a model for CBA that would reflect our Cameroon context; but this will be discussed better in chapter five under recommendations.

The next section of the study shall focus on research methodology, the presentation and analysis of findings; and conclusions.

PART TWO: METHODOLOGY AND EMPIRICAL STUDY

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 INTRODUCTION

This research design and methodology chapter shows how the research outcome at the end will be obtained in line with meeting the objective of the study. The methodology and procedure section includes the description of subjects, tools and instruments, design, procedures. The description of subjects includes a definition and description of population from which sample is selected, description of the method used in selecting sample and size of the sample, the description of population should indicate its size, major characteristics such as age, grade level, ability level and

socio- economic status. The method and sampling techniques used for selection of sample requires to be described in detail along with the size of the sample.

This section is discussed under the following headings:

Research design

Area of study

Population of the study

Sample and sampling techniques

Instruments for data collection

Validation of the instruments

Reliability of the instruments

Administration of the instruments

Rate of return

Methods of data analysis

Ethical considerations

3.2 RESEARCH DESIGN

The research design, is defined by Amin (2005, p. 210), as the 'plan for carrying out a research project'. The research design is intended to provide an appropriate framework for a study. It is the conceptual structure within which the research is conducted , be it qualitative or quantitative. It constitutes the blue print for data collection and analysis since it determines how relevant information for a study will be obtained. Specifically, this study titled 'assessment model and effective implementation of competency-based assessment in the Primary Schools in the East Region of Cameroon: Towards developing a holistic evaluation model', made use of both quantitative and qualitative research approaches.

The quantitative approach refers to the type of research that involves the collection of numerical data in order to explain, predict and control phenomena of interest, data analysis being mainly statistical (Amin, 2005). it involves collecting information to test hypothesis or answer questions concerning the current status of the subject of the study. Quantitative research is applied in order to describe current conditions or to investigate relationships including cause-and-effect relationships. Such quantitative methods include descriptive research, evaluation research and assessment research. Assessment type of studies include surveys, public opinion polls, assessment of educational achievement. Evaluation studies include school surveys, follow up studies.

Descriptive research studies are concerned with analysis of the relationships between non manipulated variables. Apart from these quantitative methods, educational research also includes experimental and quasi experimented research, survey research and causal-comparative research (Cresswell, 2007). Methods of data collection employed here are diverse, simple and straightforward. The most common ones are surveys, documentary methods, observations and experiments.

On the other hand, Worthen and Sanders cited by Cresswell, characterize qualitative inquiry as a research approach that is generally conducted in natural settings, utilizing the researcher as the chief instrument in both data gathering and analysis. The benefits of qualitative inquiry are embedded in its emphasis on thick description, i.e. obtaining real, rich, deep data which illuminates everyday patterns of action and meaning from the perspective of those being studied. This view emphasizes the importance of the voice of the researched and gaining first hand information regarding the lived experiences of the researched on a particular subject. Qualitative approaches focus on promoting greater understanding of not just the way things are, but also why they are the way they are. They explain and gain insight and understanding of phenomena through intensive collection of narrative data (Amin, 2005). for qualitative research, the data is basically descriptive in nature. The findings are based upon observable experiences or empirical evidence, demanding accurate observation and interaction with respondents in the environment. Qualitative research methods include ethnography, phenomenology, ethnomethodology, narrative research, grounded theory, symbolic interaction and case study. Methods for data collection here are interview, focus group discussion.

3.2.1 Mixed method research design

This study made use of a mixed method research design, that is using both quantitative and qualitative approaches. Quantitative designs are plans for carrying out research oriented towards quantification and are applied in order to describe current conditions or to investigate relationships, including cause-and –effect relationships. Methods of data collection employed by quantitative researchers include surveys, observations, documentary methods, sociometry and experiments (Amin 2005). Surveys make use of instruments that can be used to gather a lot of information in a short period of time.

The study equally involved the qualitative design. This type of design consists of gathering

qualitative data through observations, field study, pilot study etc. The researcher had to collect and analyse some tests for content validity. Qualitative methods include direct observation, document analysis and overview, participant observation, and open-ended unstructured interviewing. These methods are designed to help researchers to understand the meanings people assign to social phenomena and to elucidate the mental processes underlying behaviours. According to Amin (2005),this mixed method design is described as triangulation. Triangulation is a technique involved in collecting and analyzing data from both quantitative and qualitative strategies. In triangulation, the results from one method can help develop or inform other methods. For example, where the survey, through questionnaire provide insufficient explanation, observation and interview will give a deeper understanding of the phenomena. The short comings of one method are being strengthened by another method. All that triangulation does, is to make sure that maximum perfection, confidence and valid data are obtained. Only two types of triangulation were used for the purposes of this study, namely data triangulation and methodological triangulation.

Data triangulation involves multiple data sources with similar foci to obtain diverse views through a range of data about a given topic. Data is collected using multiple sources such as questionnaire, interview and observation.

Methodological triangulation uses more than one research method or data collection technique because each taps different dimensions of a problem (Amin, 2005.p.65). Using methods triangulation at the level of data collection, researchers use two different techniques of data collection, but each technique is within the same research tradition. The purpose of combining the data collection methods is to provide a more holistic and better understanding of the phenomenon under study. It is not an easy task to use method triangulation;

Triangulation is an approach to research that uses a combination of more than one research strategy in a single investigation. Triangulation can be a useful tool for qualitative as well as quantitative researchers to describe how the findings occurred under different circumstances and assists them to confirm the validity of the findings (*Research methodology, p.297-9).*

Table 4: Differences between the quantitative and qualitative research design

Quantitative research	Quantitative research
The aim is to classify features, count them, and construct statistical models in an attempt to explain what is observed	The aim is a complete, detailed description

The researcher knows clearly in advance what he/she is looking for	The researcher may only know roughly in advance what he/she is looking for
Recommended during latter phases of research projects	Recommended during earlier phases of research projects
All aspects of the study are carefully designed before data is collected	The design emerges as the study unfolds
The researcher uses tools such as questionnaires or equipment to collect numerical data	The researcher is the data gathering instrument
Data are in the form of numbers and statistics	Data are in the form of words, pictures or objects
Objective – seeks precise measurement and analysis of target concepts, e.g. uses surveys, questionnaires etc.	Subjective – individuals' interpretation of events is important, e.g. uses participant observation, in-depth interviews etc.
Quantitative data are more efficient, able to test hypotheses, but may miss contextual detail	Qualitative data are more rich, time consuming, and less able to be generalized
The researcher tends to remain objectively separated from the subject matter	The researcher tends to become subjectively immersed in the subject matter

Quantitative versus qualitative research: Key points in the classic debate (Adapted from Neill, 2007)

This study shall also make use of the descriptive survey research, correlational research designs, comparative research desgn and documentary analysis:

3.2.2 Descriptive survey research design

The descriptive research design are studies that are concerned with explaining or describing the characteristics of an event, community or region, providing data about a population or item being studied (Amin 2005). Nworgu (2015) defines survey research as "one in which a group of people or items is studied by collecting and analyzing data from only a few people or items considered to be a representative of the entire group". Surveys make use of instruments that can be used to gather a lot of information in a short period of time like the questionnaire.

In this study, the researcher described how the assessment models correlate with the implementation of competencies as indicated by the research questions as follows:

- To what extent does the conception of CBE affect the implementation of CBA?
- Which type of assessment (formative or summative) gives deeper understanding of competencies acquired?
- To what extent does assessment methods/strategies affect the implementation of CBA?
- To what extent does the type of item format lead to a better assessment of competencies?

- To what extent do the instructional methods in CBA align with the assessment practices for proper implementation
- How appropriate is the criteria and grading system for judging the level of competence?
- What is the mean difference of the assessment strategies used in the two sub systems and how they affect the implementation of CBA?
- What are the challenges faced in implementing CBA?

3.2.3 Documentary analysis

Documentary analysis according to *Syllabus M.A. Education, Part-I ,Paper III : Research Methodology in Education*, could be defined as a research technique for the objective, systematic, and quantitative description of manifest content of communications. It is a technique for making inferences by objectively and systematically identifying specified characteristics of messages. Document analysis is the systematic exploration of written documents or other artefacts such as films, videos and photographs. The technique of documentary analysis is not restricted to the domain of textual analysis, but may be applied to other areas such as analyzing past documents. Documentary analysis enables researchers to shift through large amount of data with comparative ease in a systematic fashion. The content of documents can be explored in systematic ways which look at patterns and themes related to the research question(s).

In this study, online articles and books on CBA designing were explored and the different tests given to the learners too, were analysed. The content of the new curriculum for the primary school, both the French and English versions were examined especially the section concerning assessment.

3.2.4 Correlational research design

The correlational research is a type of descriptive research that describes in quantitative terms the degree to which variables are related. Correlation methods involve collecting data in order to determine whether and to what degree a relationship exists between two or more variables. It provides an estimate of how just two variables are related. The more related two variables are, the more accurate the predictions based on their relationship (Amin 2005). This study used a simple correlation study to determine the degree of relationship between two variables, namely, the assessment models and the effective implementation of CBA in their classrooms. Correlational research comprises of collecting data to determine whether, and to what extent, a relationship exists between two or more quantifiable variables. Correlational research uses numerical data to explore

relationships between two or more variables. The degree of relationship is expressed in terms of a coefficient of correlation. If the relationship exists between variables, it implies that scores on one variable are associated with or vary with the scores on another variable. The exploration of the relationship between variables provides insight into the nature of the variables themselves as well as an understanding of their relationships. If the relationships are substantial and consistent, they enable a researcher to make predictions about the variables. Correlation is important in research because several hypotheses are stated in terms of correlation or lack of correlation between two variables, so correlational studies are directly related to such hypotheses (Mahmood, n.d).

Correlational research is aimed at determining the nature, degree and direction of relationships between variables or using these relationships to make predictions. Correlational studies typically investigate a number of variables expected to be related to a major, complex variable. Those variables which are not found to be related to this major, complex variable are omitted from further analysis. On the other hand, those variables which are found to be related to this major, complex variable are further analysed in a causal-comparative or experimental study so as to determine the exact nature of the relationship between them. In a correlational study, hypotheses or research questions are stated at the beginning of the study. The null hypotheses are often used in a correlational study. Correlational study does not specify cause-and-effect relationships between variables under consideration. It merely specifies concomitant variations in the scores on the variables (Cresswell, 2007).

3.2.5 Comparative research design

The researcher also made use of comparative design to a lesser extent focusing on some items of the questionnaire to see if the responses from the two sub systems of education differ in their means. Causal-comparative research design was used to compare the two different sub systems. It is a type of descriptive research in which the researcher attempts to identify reasons or causes of pre-existing differences in groups of individuals. Causal-comparative studies involve comparison.

3.3 AREA OF STUDY

This study was carried out in the East region of Cameroon. The East region, the land of the rising sun, occupies the south-eastern part of the Republic of Cameroon. It lies between latitude 4^0 00' longitude 14^0 00' E. It is bordered to the east by the CAR, to the south by Congo, to the north by Adamawa region and to the west by the Centre and south region. It is the largest region in terms of size with 109002km^2, and at the same time, it is the most sparsely populated, (Wikipedia.org),

with the population of more than 2,925,653 (2021 census).

Historically, the people of the East region have been settled in Cameroon territory for a long time. They are considered the first inhabitants of Cameroon, the Baka pygmies. But today, many people from the neighbouring countries like Central African Republic (CAR) live here as refugees (275000 in 2020, with no formal education *source: Cameroon Humanitarian Dashboard January-June 2020)*. Also, people coming from all over Cameroon, like the internally displaced people (IDPs) from the Boko-Haram in the north and from the crises zone in the two English speaking regions of the country. The Bamilekes of the west region, are settling in their numbers, taking advantage of the vast land for their businesses or fertile soils for agriculture..

Administratively, the East region is divided into four divisions, namely: Boumba-et-Ngoko, Haut-Nyong, Kadey and Lom-et-Djerem Divisions. The capital is Bertoua in the Lom-and-Djerem Division.

The East region has very little industry, its main commerce consisting of logging, timber and mining. Instead the bulk of the inhabitants are subsistence farmers. The region was isolated until the construction of the railroad to nearby Belabo, and an airport in 1976. It was termed the 'dubbed or forgotten region". Today, it is fast growing. Bertoua, the capital, is a 'chantier' zone .

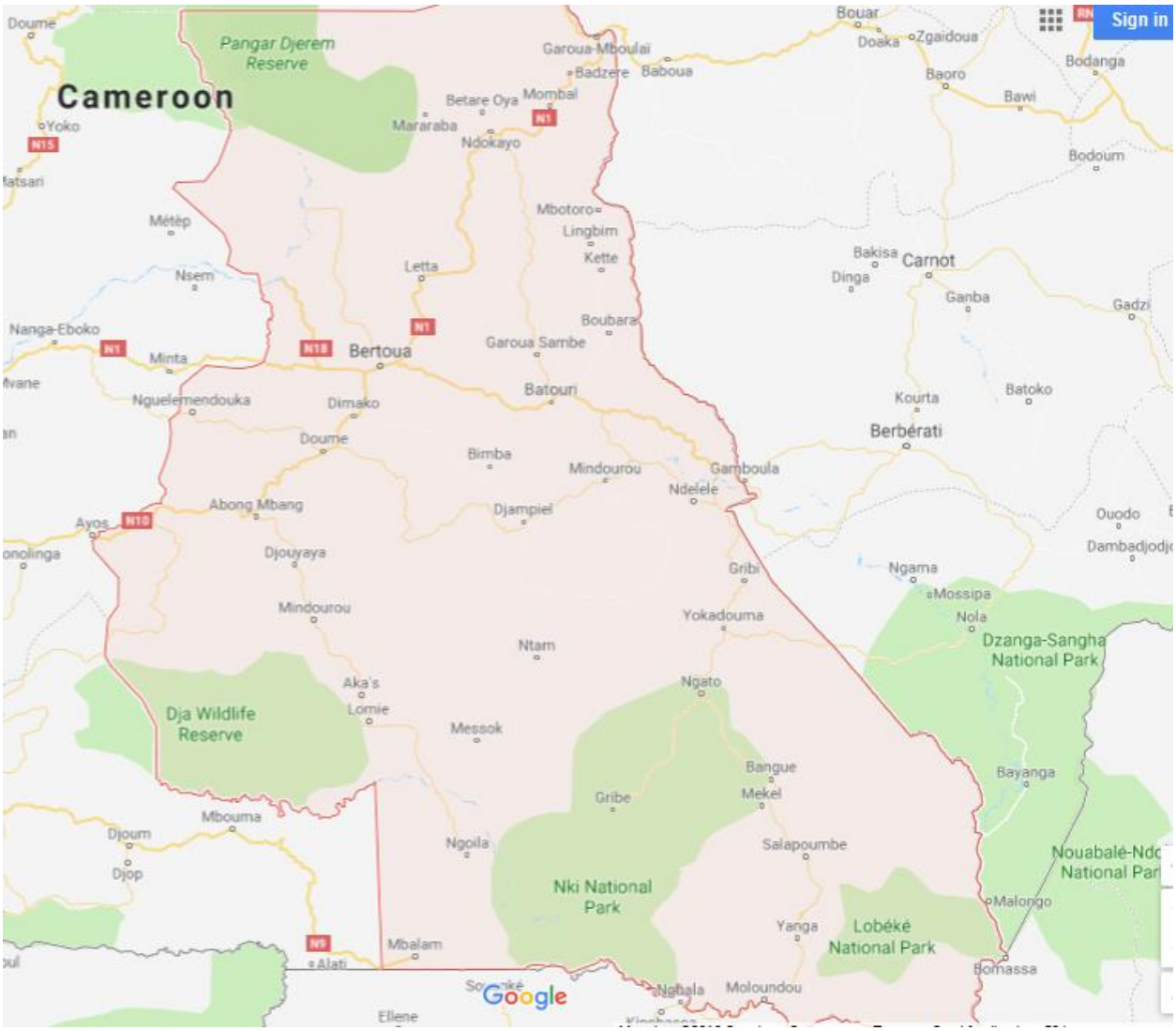
The vegetation shows a transition between the equatorial forest in the southern zone and the savanna that grows under hot seasonal dry climate, moving north-wards (www.britanica.com).

Concerning education, the East Region is considered as part of the zones were education is prioritized. This is because it has the least number of primary , secondary and higher institutes of learning as compared with the other regions. It has1759 primary schools made up of 1273 public,176 community schools and 287 private schools with secondary schools as well. It has one Higher Teacher Training College (ENS) Bertoua, and the University of Bertoua, recently created. It also has private higher institutes of learning such as HIPTEX, Catholic university etc.

The choice of the study area was because the researcher lives in Bertoua in the East Region and is teaching at the Government teacher training college where she interacts with the primary school teachers and attend seminars with them. The region is a host to the two sub systems of education. The East region is highly prioritized as far as education is concerned because of the influxof refugees and according to the sustainable development goals, the population needs to acquire certain competences to be able to adapt easily (Education in Emergency). There are many primary school teachers who complained about the new curriculum and the challenges faced with the new

system of evaluation, that motivate the researcher to which to carry out a study in this domain.

Figure 8: **Map of the East Region, showing the area of study**



Source: Wikipedia.org

3.4 POPULATION OF THE STUDY

In research, population is defined as a comprehensive group of individuals, institutions, objects etc, with common characteristics that are of interest to the researcher or as an aggregate or totality of all the objects, subjects or members that conform to a set of specifications (Polit & Hungler, 1999). Population is the main focus of a research question. A research population is also known as a well-defined collection of individuals or objects known to have similar characteristics. All individuals or objects within a certain population usually have a common, binding characteristic

or trait. Population can also be defined as all individual that meet a set of specification or a specific criteria (Mahmood, n.d). All researches are done for the benefit of population . The population for this study is made up of primary school teachers. The primary schools are made up of 1119 both government schools and private schools in the two subsystems and 5154 teachers.

Table 5: Distribution of schools in the East Region

Type of school	Communuataire	Publique anglophone	Plublique BiL Ap	Publique	Publique francophone	Publique Application	Privee anglophone	Privee francophone	total
Number of schools	11	49	2	5	858	27	56	111	1119
Number of teachers	22	240	24	66	3450	377	367	608	5145

Source: Annual Statistics for the East Region 2020-2021

3.4.1 The Target Population

The Target Population is also known as the theoretical population and refers to the entire group of individuals or objects to which a researcher is interested to generalize the conclusions. This type of population usually has varying degree of characteristics. The target population is the actual population to which a researcher would readily like to generalize his findings. for this study, the target population are the teachers in the primary schools in the four divisions of the East Region.

3.4.2 The Accessible Population

The Accessible Population is also known as the study or sampled population (Amin 2006). It is the population from which the sample is actually drawn. Also it is the population to which a researcher can apply the conclusions of the study. This population is a subset of the target population. The accessible population is made up of the teachers in the public and private French and English schools of the East region, (5066) leaving out 88 community and inclusive schools as shown below

Table 6: Distribution of schools in the target population

Division	English Public (teachers)	English private	Public French schools (teachers)	French private	Total
Bomba & Ngoko	8 (27)	00	124(426)	12 (64)	144 (527)
Haut-Nyong	13 (59)	2 (14)	309(1107)	19 (114)	343 (1294)
Kadey	11 (50)	7 (39)	210(772)	17 (118)	245(979)
Lom & Djerem	19 (128)	47 (314)	242(1500)	63 (312)	371(2254)
Total	51 (264)	56 (367)	885 (3827)	111(608)	1119(5066)

Source: Annual statistics for 2020-2021, DDBE East Region

3.5 SAMPLE AND SAMPLING TECHNIQUES

Cresswell, (2007) defines a sample as a collection consisting of a part or subset of the objects or individuals of population which is selected for the purpose, representing the population sample obtained by collecting information only about some members of a population. It is a subset of the population from where the researcher collects data for the research, since it is practically not possible for a researcher in social sciences to approach all the elements in a population for the purpose of data collection. Based on the results, the researcher generalizes the findings to the target population, hence the sample needs to clearly represent the characteristics of the intended group of the population.

Sampling, according to Amin (2006) is the process of selecting elements from a population in such a way that the sample elements selected represent the population. In short, it is the process of selecting a sample from the population. For this, population is divided into a number of parts called Sampling Units. A good sample should be a true representative of the population, be free from error due to bias and should be adequate in size for it to be reliable. The main function of the sample is to allow the researchers to conduct the study to individuals from the population so that the results of their study can be used to derive conclusions that will apply to the entire population (Mahmood, n.d).

The sample size is the total number of sample selected for the study. It is the number of teachers and other stakeholders that the researcher intended to collect information from regarding his research questions. The minimum acceptable sample size should be 30, as statistically, it is

regarded as a large sample (Cresswell 2007). The sample size for this study is 357 teachers from the east region, taken from the Kregcie and Morgan table (for a population of 5000, Amin 2005, p.455). A total of 30 test papers from the two regions on all the subject areas were analysed. The interview will be conducted on 5 inspectors at the Regional delegations (since they are the main resource persons on the new curriculum to the teachers), 10 teachers (5 French and 5 English) , 5 inspectors (2 French and 3 English) and 5 assessors (2 French and 3 English) from MINEDUB both regions.

Table 7: Distribution of samples of teachers for the East and Centre

Division	English schools (teachers)	English private	French schools (teachers)	French private	Total
Bomba & Ngoko	6	00	15	10	31
Haut-Nyong	15	10	45	20	90
Kadey	8	6	22	10	46
Lom & Djerem	30	40	70	50	190
Total	59	56	152	90	357

The main advantages of sampling , are outlined by Amin (2006; p.7), as follows:

- To reduce the cost and time needed to collect the data for an investigation. It is cheaper to obtain data from a sampe than from an entire population.
- By concerntrating on fewer elements in the population, more comprehensive dat may be obtained through sampling than in a census.
- In investiations whereby sampling will lead to the destruction of the sampled unit, there is no alternative than to sample. For example, bood extracted from a malaria patient to count the number of parasites, cannot be injected back into the patient.

Despite these advantages, Amin, also pointed out the main disdvantage of sampling which is that the selected units may not be representative of the population, even when the best statistical methods have been applied.

- **Sampling technique**

Sampling technique refers to the technique or the procedure the researcher would adopt in selecting

some sampling units from which inferences about the population is drawn. It is the process of selection or drawing of the accurate representation of a unit, group or sample from a population of interest (course notes by Dr. Rafeedalie). It is the sampling procedure which will decide the accurate representation of the sample selected for the study as well as relevance of generalization made from the research.

The sampling techniques used for this study were: disproportionate stratified sampling to select the number of respondents from each division, and convenience sampling for the teachers of the selected schools. Nana (2012) defines convenience sampling as a kind of random sampling technique used when the participants are not known or initially identified but are involved at random once met in the course of the study till the sample size is met.

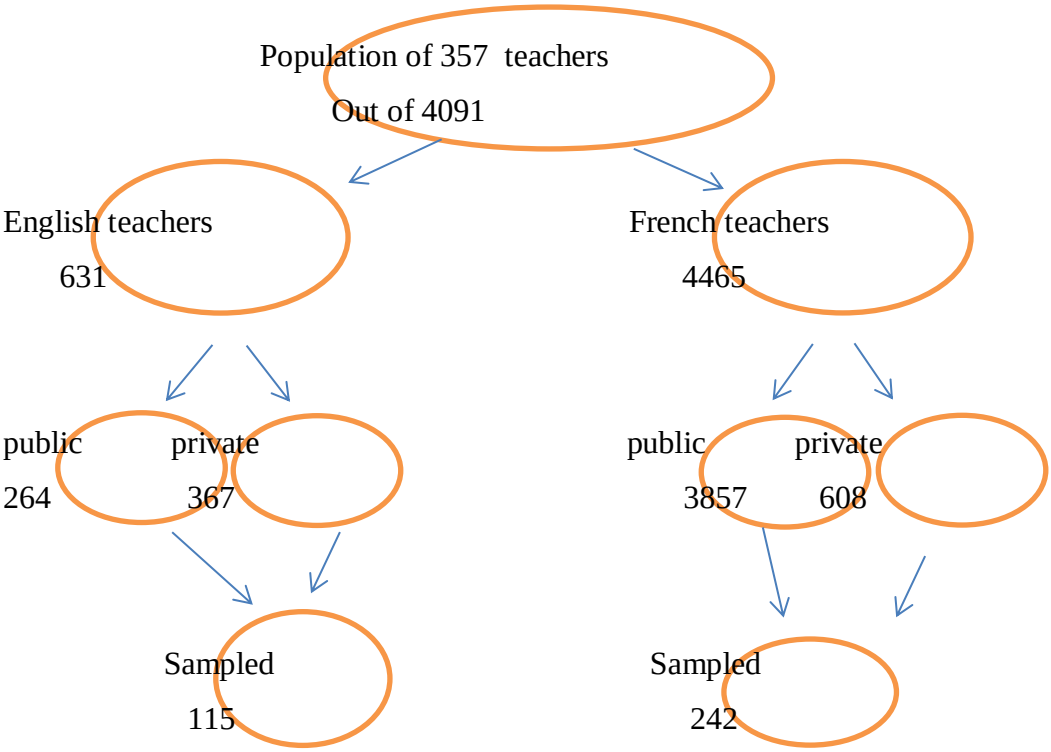
3.5.1. Stratified Sampling:

This type of sampling methodology, takes into consideration, the heterogeneous nature of the population to be sampled, (Amin, 2005). Here the population is divided into smaller homogenous group or strata by some characteristic and from each of these strata at random members are selected. Here the researcher first classifies the population into strata based on a single characteristic. In this study, the strata were the divisions in the East region. The selection was done through a disproportionate stratified sampling technique where the sample sizes from the different strata must not necessarily be proportionate to the sizes of the strata. The selected number of teachers per division was based on the observed ratio of the total number of primary schools in the division. The sampling fractions differ from one stratum to another. Sampling is done by selecting a sample in such a way that identified sub- groups in the population are represented in the sample in the same proportion that they exist in the population, (Amin, 2005).

Amin (2005, p.248) outlines the steps in stratified sampling which are :

- Identify and define the population
- Determine the desired sample (351 using the kregcie and Morgan table)
- Identify the sub groups for which you want to guarantee representation
- Classify all members of the population as members of one of the identified sub groups
- Randomly select (using a table of random numbers) the sample.

Figure 9*: *An example of disproportionate stratified sampling



Note: Adapted from Amin (2005,p.248).

3.5.2 Purposive Sampling:

In this sampling method, the researcher selects a "typical group" of individuals who might represent the larger population and then collects data from this group. The researcher purposefully administered the interview to the regional inspector coordinators and divisional pedagogic advicers in charge of primary education, educational technology and bilinigualism as in the East Region since they are the ones concerned with evaluation of learning.

3.5.3 Convenience Sampling:

It refers to the procedures of obtaining units or members who are most conveniently available. It consists of units which are obtained because cases are readily available. Amin (2006, p.15) terms this as ‘accidental sampling’ as the researcher accidentally comes across his sample over a iven period of time. In this technique a researcher relies on available subjects, such as stopping peoples in the markets or on street corners as they pass by. This method is extremely risky and does not allow the researcher to have any control over the representativeness of the sample (Mahmood, n.d). It is useful in selecting the incidental sample, the researcher determines the required sample size and then simply collects data on that number of individuals who are available easily. The researcher gave the questionnaire to any teacher of the primary schools that were selected in any division.

3.6 INSTRUMENTS FOR DATA COLLECTION

The selection of suitable instruments or tools is of vital importance for successful research. Different tools are suitable for collecting various kinds of information for various purposes. The researcher made use of three of the tools in combination for this study.

3.6.1 Questionnaire:

The survey made use of the questionnaire. A questionnaire is a form prepared and distributed to secure responses to certain questions. It is a device for securing answers to questions by using a form which the respondent fills by himself. It is a systematic compilation of questions that are submitted to a sampling of population from which information is desired. Questionnaire rely on written information supplied directly by people in response to questions. The information from questionnaires tends to fall into two broad categories – 'facts' and 'opinions' (Cresswell, 2007). It is worth stressing that, in practice, questionnaires are very likely to include questions about both facts and opinions. The purpose of the questionnaire is to gather information from widely scattered sources. It is mostly used in cases where one can not readily see personally all of the people from whom he desires responses. The questions that call for short check responses are known as restricted or closed form type. For Example, they provide for marking a 'yes' or 'no', a short response or checking an item from a list of responses. The questionnaire can be of various type on the basis of it's preparation. They are like:

Structured **v/s** Non Structured ; Closed **v/s** Open ; Fact **v/s** Opinion

- ***Structured v/s Non-Structured Questionnaire*** **:**

The structured questionnaire contains definite, concrete and directed questions, where as non-structured questionnaire is often 224 used in interview and guide. It may consist of partially completed questions.

Closed v/s Open Questionnaire **:** The question that call for short check responses are known as restricted or closed form type. For Example, they provide for marking a yes or no, a short response or checking an item from a list of responses. Here the respondent is not free to wrote of his own, he was to select from the selected from the supplied responses. On the other hand, increase of open ended questionnaire, the respondent is free to response in his own words. Many questionnaire also included both close and open type questions.

Fact and Opinion **:** Incase of fact questionnaire, the respondent is expected to give information of facts without any reference to his opinion or attitude about them. But incase of opinion

questionnaire the respondent gives the information about the facts with his own opinion and attitude.

The researcher selects the type of questionnaire according to his need of the study. The researcher selects the type of questionnaire according to his need of the study. But for this study, with the open-ended questions, the respondent gives the information about the facts with his own opinion and attitude.

The questionnaire for teachers initially consisted of 68 closed-ended questions, 10 per research questions, and 8 for the 7th question, measured on a 5-point likert scale, and 6 semi-structured questions, one on each research. The closed ended items were further reduced to 63, that is, 9 per section. The Likert scale uses items worded for or against the proposition, with four or five point rating response indicating the strength of the respondent‘s approval or disapproval of the statement. All favourable statements are scored from maximum to minimum i. e. from a score of 5 to a score of one or 5 for strongly agree and so on 1 for strongly disagree. The negative statement or statement opposing the proposition would be scored in the opposite order i.e. from a score of 1 to a score of 5 or 1 for strongly agree and so on 5 for strongly disagree. The likert scale for this study consist of SD –strongly disagreed 1point, D-disagree 2 points, U-undecided , A-agree 3point and SA-strongly agreed 4 points.

Table 8: Likert scale scores

Positive statement score	Statement	Negative statement score
5	Strongly agreed SA	1
4	Agreed A	2
3	Undecided U	3
2	Disagreed D	4
1	Strongly disagreed SD	5

The total of these scores on all the items measures a respondent‘s favourableness towards the subject in question. If a scale consists of 30 items, Say, the following score values will be of interest.

30 X 5=150 Most favourable response possible

30 X 3= 90 A neutral attitude

30 X 1= 30 Most unfavourable attitude (Cresswell, 2007,p.218)

For this study, if the respondents answer all the positive statements with strongly agree along with all negatives ones with strongly disagree, he or she will get 50 for the 10 items per construct. And the one who answers all positive statements with strongly disagree along with all negative statements with strongly agree gets 10. Strongly agreed and agreed will be combined to have a favourable response, while disagreed and strongly disagreed will be combined to show unfavourable response attitude.

In a Likert scale, the respondent is asked to respond to each of the statements in terms of several degrees, usually five degrees (but at times 3 or 7 may also be used) of agreement or disagreement (Kothari, 2004). After developing the scale as stated above, the respondents were asked during the administration of the scale to check the statements with which they agree. The mean value of the statements was used to check out and establish the score or quantifies their opinion. The mean score of 3 and above shows acceptance with the statement in the item while mean score of less than 3 shows rejection. The higher the mean value, the more positive is the perception or practice. The criteria for constructing judgments on the statistical means (M) of responses was as follows

Table 9: Interpretation of mean values

Range	Degree
M>3.67	High
2.34<M<3.67	Moderate
M<2.34	Low

This comes from the formula 5-1/3 = 1.33 (Rababah,Ebtesam , 2021). We subtract 1.33 from the highest score in the scale which is 5 to have 3.67 and we add 1.33 to the lowest score to have the cut-off point from the bottom which is 2.33.

Cresswell (2007) explains the choice of a questionnaire. Questionnaire are used at their most productive: when used with large numbers of respondents; when what is required tends to be fairly straight forward information; when there is a need for standardize data from identical information; when time is allows for delays; when resources allow for the cast of printing and postage; and when respondents can be expected to be able to read and understand the questions.

The choice of a questionnaire assumes that the respondents can read and understand the items; possess the information to answer the questions, and are willing to answer the questions honestly. The researcher decides to use the questionnaire as it is less expensive and can be served to a wide

range of respondents within a short time. Participants will be given the questionnaire to fill in the survey anonymously, at their leisure time and to submit within a period of two days.

3.6.2 The interview guide:

The second instrument is the interview guide, (structured interview guide). It is like a questionnaire predetermined list of questions. Taken from *Research methodology document* ; p :251 ; interview is particularly appropriate when the researcher wishes to collect data based on:

Emotions, experiences and feelings.

- Sensitive issues.
- Privileged information.

It is appropriate when dealing with young children, illiterates, language difficulty and limited, intelligence.

It supplies the detail and depth needed to ensure that the questionnaire asks valid questions while preparing questionnaire.

It is a follow up to a questionnaire and complement the questionnaire.

It can be combined with other tools in order to corroborate facts using a different approach.

It is one of the normative survey methods, but it is also applied in historical, experimental, case studies .

Each respondent is faced with identical questions. The choice of alternative answers is restricted to a predetermined list. This type of interview is rigidly standardised and formal. Structured interviews are often associated with social surveys where researchers are trying to collect large volumes of data from a wide range of respondents Interview is a loosely structured qualitative in-depth conversation with people who are considered to be particularly knowledgeable about the topic of interest. Interview data is collected directly from others in face to face contact. The semi-structured interview permits the researcher to seek new insights, ask questions, and assess phenomena in different perspectives (Jilcha, 2019, p.7). The interview is not done by secret recording of discussions as research data. The consent of the subject is taken for the purpose of interview. The agenda for the discussion is set by the researcher. It is dedicated to investigating a given topic. Interview is particularly appropriate here as the researcher wishes to collect data based on experiences, feelings and privileged information. It is appropriate as it is a follow up to a questionnaire and complements the questionnaire.

An interview guide with 12 semi-structured items, was administered to some Regional Inspector Coordinators of DDBE East Region and with some Divisional Pedagodic Advisers, to obtain detailed information concerning the study. In semi-structures interview, according to Cresswell (2007), the interviewer also has a clear list of issues to be addressed and questions to be answered. There is some flexibility in the order of the topics. In this type of interviewee is given chance to develop his ideas and speak more widely on the issues raised by the researcher. The answers are open-ended and more emphasis is on the interviewee elaborating points of interest. The following are the steps involved in all forms of interviewing, as presented by (Amin 2005, p. 179):

- Interviewer should contact the interviewee(s) and set up the time and a convenient place for the interview.
- Occasionally, the interviewer should verify the tape recorder (if used) is working. Interviewer should ask one question at a time.
- Interviewer should avoid ambiguous questions that inquire ones private life
- Interviewer should attempt to remain neutral as possible.
- Interviewer should encourage the use of body expression e.g. nodding the head.
- Interviewer should provide transition between topics

The respondent has a right to decline the invitation for an interview as well as the right to refuse answering some of the questions. The responses for this study will be recorded on the authorization of the interviewee, and also by note-taking.

The responses from the interview were coded before analysed descriptively using percentages. The type of coding used was descriptive and *heuristic coding*. In a heuristic approach, code words are primarily flags or signposts that point to things in the data. The role of code words is to help you collect the things you have noticed so you can subject them to further analysis. Heuristic codes help you reorganize the data and give you different views of the data. The heuristic approach does say that coding the data is never enough. It is the beginning of a process that requires you to work deeper and deeper into your data.

The researcher chose the interview as it has the following advantages (Research methodology, p. 256)

Depth Information : Interviews are particularly good at producing data which deal with topics in depth and in detail. Subjects can be probed, issues pursued lines of investigation followed over a

relatively lengthy period.

Insights : The researcher is likely to gain valuable insights based on the depth of the information gathered and the wisdom of ―key informants.

Equipment : Interviews require only simple equipment and build on conversation skills which researchers already have.

Information Priorities : Interviews are a good method for producing data based on informant's priorities, opinions and ideas. Informants have the opportunity to expand their ideas, explain their views and identify what regard as their crucial factors.

Flexibility : Interviews are more flexible as a method of data collection. During adjustments to the line of enquiry can be made.

Validity : Direct contact at the point of the interview means that data can be checked for accuracy and relevance as they are collected.

High response rate : Interviews are generally pre-arranged and scheduled for a convenient time and location. This ensures a relatively high response rate.

Therapeutic: Interviews can be a rewarding experience for the informant, compared with questionnaires, observation and experiments, there is a more personal element to the method and people end to enjoy the rather rare chance to talk about their ideas at length to a person whose purpose is to listen ad note the ideas without being critical.

But one disadvantage of interview is difficulty in data analysis **:** This method produce non-standard responses. Semi-structured and unstructured interviews produce data that are not pre coded and have a relatively open format.

3.6.3 The checklist:

The checklist will be used to analyse the content validity of the test papers. The checklist consists of a list of items with a place to check, or to mark yes or no. The main purpose of checklist is to call attention to various aspects of an object or situation, to see that nothing of importance is overlooked (Cresswell, 2007). Responses to the checklist items are largely a matter of fact, not of judgment. It is an important tool in gathering facts for educational surveys. The checklist for this study is an observation checklist. It is used to record behaviour in observational studies.

3.7 VALIDATION OF THE INSTRUMENT

Validation of instrument describes the procedures adopted in ensuring that the instrument used would measure what it is designed to measure. Validity is the most important consideration in the

selection and use of any testing procedures. The validity of a test, or of any measuring instrument, depends upon the degree of exactness with which something is reproduced/copied or with which it measures what it purports to measure. It is a measure of the test's appropriateness, meaningfulness and usefulness of any inference made from its scores (Linn and Gronlund, 1995). Cresswell (2007, p.190) defines validity of a test as "the accuracy with which a test measures what it attempts to measure."

Types of validity used in this study are face validity and content validity.

Face validity*:* This is an estimate of whether the items of the questionnaire seems to be appropriate or not, that is, the face value. Face validity is when a test appears valid to examinees who take it, personnel who administer it and other untrained observers. Face validity is not a technical sense of test validity; i.e., just because a test has face validity does not mean it will be valid in the technical sense of the word.

The face validity was carried out after the researcher personally drafted the items for the research instruments. After construction of the instrument, the researcher discussed the items with some classmates, and the supervisor to make some criticisms and corrections, before sending to the expert panel made up of three evaluators for the content validity and final corrections.

Content validity involves essentially the systematic examination of the text content to determine whether it covers a representative sample of the bahaviour domain to be measured. It refers to how well our tool sample represents the universe of criterion behaviour. Content validity is employed in the selection of items in research tools (Amin, 2005). A questionnaire or any instrument has content validity if it measures knowledge of the content domain of which it was designed to measure knowledge. Another way of saying this is that content validity concerns, primarily, the adequacy with which the test items adequately and representatively sample the content area to be measured .The content validity is done to determine if the items are clear and correctly grouped into the domains of research questions, or if the items are poorly worded or not.

Expert judgment (not statistics) is the primary method used to determine whether a test has content validity. The judges made of three evaluators, checked the relevance of the items to the objectives of the study. They checked to see if some questions need item clarity or need to be revised. The judges used the Criteria of Evaluating a Questionnaire , as seen in the *Research methodology document* (p.229) which are as follows:

It should provide full information pertaining to the area of research.

It should provide accurate information.

It should have a decent response rate.

It should adopt an ethical stance and

It should be feasible.

Then the panel give a comprehensive feedback and opinion on the validity of the content, relevance of the items to the domains, and redundancy between the items. From the results , the content validity index (CVI) was calculated using the formula

CVI=number of items judged correctly by the experts,

Total number of items

The following were the rating of the three judges

Judge 1 =55/68

Judge 2 =60/68

Judge 3= 62/68

An average of 59/68 was obtained which gave the value 0.867. 5 items were rejected , leaving a total of 63. This value is the CVI. According to Amin (2005), a CVI value greater than 0.8, shows that the instrument is good.

Thereafter, a further test was conducted after the pilot testing to see the consistency of the responses known as the reliability test.

3.8 RELIABILITY

Reliability means the degree to which the questions on the research instrument will yield the same results consistently. The pilot testing involved administering one test to the respondents at one time point. Methods used to estimate reliability under this circumstance are referred to as measures of internal consistency. In this case, a single score is used to indicate a respondent's level of understanding on a particular topic (Wells & Wollack, 2003). Furthermore, because all items on each section of the questionnaire tap some aspect of a common domain of interest, it is expected that respondents will perform similarly across different items within the domain. One of the most popular statistical indexes that may be used to measure the amount of internal consistency is referred to as Cronbach's alpha. Cronbach's alpha provides a measure of the extent to which the items on a test, each of which could be thought of as a mini-test, provide consistent information with regard to students' mastery of the domain. In this way, Cronbach's alpha is often considered

a measure of item homogeneity; i.e., large alpha values indicate that the items are tapping a common domain. The formula for Cronbach's alpha is as follows:

$$\alpha = \frac{k}{k-1}\left[\frac{1-\Sigma\delta^2_k}{\delta^2}\right]$$ taken from Amin (2005, p. 302)

where k is the number of items on the questionnaire

$\Sigma\delta^2_k$ is the sum of the variance of the k parts of the questionnaire

and δ is the standard deviation

According to Wells and Wollack (2003), Cronbach's alpha ranges from 0 to 1.00, with values close to 1.00 indicating high consistency. Professionally developed high-stakes standardized instruments should have internal consistency coefficients of at least .90. Lower-stakes standardized tests should have internal consistencies of at least .80 or .85. It is always desirable to have high instrument reliability in order to make valid inferences from the instrument (Amin, 2005) . Therefore , for a questionnaire, a reliability coefficient of .70 or higher is accepted (Wells & Wollack , 2003).

For this study, after pilot testing with 50 teachers that do not constitute the sample, the items were analyzed to ensure reliability using Cronbach alpha with the help of SPSS version 20.

Table 10: **Reliability values for the pilot testing of the instrument**

a- *Scale Statistics*

Mean	Variance	Std. Deviation	N° of Items
221.6667	484.161	22.00366	63

b- Case Processing Summary

		N	%
Cases	Valid	50	100.0
	Excluded[a]	0	.0
	Total	50	100.0

a. Listwise deletion based on all variables in the procedure.

c- Reliability Statistics

Cronbach's Alpha	N of Items

.836	63

The above table 8c shows a correlation coefficient 'r '= 0.836. Amin (2005) states that a value of r=0.7 and above is a good indicator for the instrument to be used, while a value below 0.7 calls for revision of some items.

To improve on the reliability of the instrument, the researcher made use of two primarily factors at an instructor's disposal for improving reliability: increasing test length and improving item quality (Wells & Wollack , 2003). In general, longer tests produce higher reliabilities. This is because the percentage of measurement error decreases as test length increases. The researcher set 10 items per each research question. Amin (2005) reiterates that although an instrument yield a number of sub scores that sum up to a total score, it should however be noted that reliability is often reported only for the total score.

Item quality, which is the second factor, has a large impact on reliability. Poor items tend to reduce reliability while good items tend to increase reliability. Normally good items are those understood by the respondents and they answer in a similar manner. To correct for guess work, the researcher mixed up positively and negatively scored items in the questionnaire.

3.9 METHOD OF DATA COLLECTION

The researcher began by collecting the research authorization letter from the head of department before going to the field to administer the instruments. Authorization was equally sought from the minister of basic education to grant permission for interview to be conducted with the staff. Also , at the regional level, the regional delegate of basic education gave the go ahead for data to be collected from the teachers of the various divisions in the region. The researcher then proceeded to the divisional delegations and to the sub divisions where he presented the authorization letter to the inspectors. The inspectors granted the researcher permission and access to the primary schools in their respective sub divisions. In each primary school, the head teacher led the researcher to meet some teachers. The respondents were given a period of two days in which they responded and handed back the copies.

Data was collected through personal administration of the instruments to some teachers and inspectors, while some questionnaire were sent to be administered with the help of some teachers serving as contact points in the divisions outside Lom et Djerem division. Any teacher who showed interest in the project, was given a copy of the instrument, which he/she was to be filled at his

leisure time and return within two days, to the head teacher to ease collection. In some schools, the headteachers helped to share to the teachers and the ccollection too was faster through the same means.

Throughout the data collection process, the respondents were assured that their privacy would be protected and anonymity was assured. They were not required to provide sensitive information as their name or name of school. Instead they were to write only the type of school, secondly they were to hand the questionnaire to the head teacher, by so doing the researcher would not know whose paper it was.

- **Collecting the structured interview data**

The researcher conducted some formal interview with some inspectors, teachers, and assessors and the responses were recorded using the phone, on acceptance by the inspectors; as well note book. Collection of the structured interview data involved interaction between the researcher and the respondents which needed to be documented. For the purpose of this study, the interviews were tape recorded, and I took notes at the same time. After the interviews, I reviewed the tape and notes, and wrote down direct quotes that were found to be relevant. The tape and the notes were kept as records for future reference. With regard to the setting for the interview, the following measures were taken into consideration.

I ensured that each interview was conducted in comfortable, secure, and private surroundings, preferably in the interviewees‘ office or any place which was convenient for them. This was necessary to ensure that the interviewees felt comfortable in their own surroundings and that they did not feel intimidated during the interviews. I assured them that the information which they were going to provide would be treated in the utmost confidence. This was achieved by allocating pseudonyms for each participant and securing their permission to record them as they responded to the questions. I sought informed consent by explaining the objectives of the study, confidentiality, and the procedure that would be adopted in conducting the interviews. I provided the letter of informed consent to the interviewees to read and sign and I also signed it in their presence.

As the interviewer, I served only as a facilitator who encouraged the interviewees to respond. This was achieved by my assuming a neutral stance and non-judgemental attitude towards them. I also assumed an invitational attitude by creating a friendly atmosphere where the interviewees were encouraged to request repetition of any question in the event that they did not understand a

particular question.

3.10 RETURN RATE OF THE QUESTIONNAIRE

Table 11: Questionnaire return rate for teachers' respondents

Types of school	Number Distributed	Number Returned	Return rate (%)
Francophone Primary schools	242	225	93%
Anglophone primary schools	115	110	95.6%
Total	357	335	93.8%

Table 11 above indicates that a total of 357 questionnaires were administered to teachers' respondents and a total of 335 were returned giving a 93.8% success return rate.

3.11 METHOD OF DATA ANALYSIS

This study made use of the correlational design which describes the extent to which the variables are interrelated. According to Amin (2005), a correlational research attempts to determine whether , and to what extent, a relationship exists between two variables. The relationship can now be used to make predictions. Data was analyzed descriptively and inferentially according to the research hypotheses.

3.11.1 Descriptive statistics

Descriptive statistics are used to present quantitative descriptions in a manageable form. In a research study, we may have lots of measures. Or we may measure a large number of people on one measure. Descriptive statistics help us to simply large amounts of data in a sensible way. Each descriptive statistic reduces lots of data into a simpler summary. Descriptive statistics are the techniques that allow a researcher to quickly summarize the major characteristics of the data set (Mahmood et al 2017). Descriptive Statistics, as the name implies, describes the data. It consists of methods for organizing and summarizing information. These are statistical procedures that are used to organize, summarize, and simplify data. In these techniques raw scores are taken and undergone some statistical techniques to obtain more manageable form. These techniques allow the researcher to describe large amount of information or scores in a few indices such as percentages, mean, median, standard deviation etc. It organizes scores in the form of a table or a graph. The demographic data will be analyzed descriptively with the help of SPSS version 20 and

presented on tables and graphs showing percentages.

- **Graphical Presentation of Data:**

This includes bar diagrams, pie charts and line graph. The line graph is usually used to represent the distribution of the scores obtained on a variable with the objective of indicating the shape of the distribution. The bar diagram are used for making comparisons of Mean scores on the variable being studied in various sub-groups. Pie charts re circular graphs used to represent catergorical or qualitative data. Segments of a circle represent the relative frequency of the catergory. With a line graph, the frequency (read on the y-axis) of any value on the x-axis, is represented by by a point on the line , rather than a column. It is used for continuous data.

3.11.2 Inferential statistics

Inferential statistics, on the other hand, are techniques that allow a researcher to study samples and then make generalizations about the populations from which they are selected. It is also used to make judgments of the probability that an observed difference among groups is a dependable one or one that might have happened by chance in the study (Mahmood et al 2017). These techniques are part of the process of data analysis used by the researchers to analyze, interpret and make inferences about their results. Descriptive data analysis only describes the data and the characteristics of the sample in terms of statistics. Its findings could not be generalised to larger population. On the other hand, the findings of the inferential analysis can be generalised to larger population. Inferential statistics helps researchers to make generalization about a population based on the data obtained from the sample. Since the sample is a small subset of the larger population, so the inferences made on the bases of the data obtained from sample cannot be free from errors. That is, we cannot say with 100% confidence that the characteristics of the sample accurately reflect the characteristics of the larger population. Hence only qualified inferences can be made, with a degree of certainty, which is often expressed in terms of probability (90% or 95%) probability that the sample reflects the population). Inferential statistics deals with hypothesis testing. Here a researcher can use sample data to answer research questions. A number of different types of inferential statistics are in use to determine a relationship or a difference between two variables. All these statistics depend of the type of variable i.e. nominal, ordinal, interval, and ratio.

Research questions were analysed descriptively using the mean values and inferentially using Pearson moment product correlation and t-test respectively**,** with the help of SPSS version 20. The

statistical tests for this study are:

Pearson moment product correlation: Karl Pearson's coefficient of correlation (or simple correlation) is the most widely used method of measuring the degree of relationship between two variables. This coefficient assumes the following:

(i) that there is linear relationship between the two variables;

(ii) that the two variables are casually related which means that one of the variables is independent and the other one is dependent; and

(iii) a large number of independent causes are operating in both variables so as to produce a normal distribution. (Kothari, 2004, p.139)

This test measures the strength of relationships that exist between and within variables, that is, the choice of assessment model and effective implementation of CBA. It is in line with the above The statistic used here is the correlation coefficient given by 'r'. the value of 'r' ranges from 0 to 1. The more positive the value 'r', the stronger the relationship existing between the variables. This will be calculated with the help of SPSS version 20.

Interpretation of "r" : This takes into account three major aspects as follows:

a. Level of significance (usually at 0.01 or 0.05 levels in educational research, 0.05 for this study). b. Magnitude of "r": In general, the following forms the basis of interpreting the magnitude of the "r".

Table 12: Interpretation of 'r'

No.	Value of "r"	Magnitude
1	0.00-0.20	Negligible
2	0.21-0.40	Low
3	0.41-0.60	Moderate
4	0.61-0.80	Substantial
5	0.81-1.00	Very High

Source: **Cresswell, (2007, p. 269)**

C. **Direction of 'r'**: The value of 'r' could be positive, negative or zero.

(i) A positive 'r' signifies that the relationship between two variables is direct i.e. if the value of

one variable is high, the other is also expected to be high. For example, if there is a substantial relationship between assessment models and effective implementation of CBA, it implies that better the choice of assessment models, the more effective the implementation of CBA.

(ii) A negative 'r' signifies that the relationship between two variables is inverse i.e. if the value of one variable is high, the other is also expected to be low. For example, if there is a substantial relationship between assessment models and effective implementation of CBA, it implies that better the choice of assessment models, the less effective the implementation of CBA. As far as this study is concerned, a negative 'r' will mean a Type II error has occurred. Type II error occurs when a false null hypothesis is accepted. It is also known as Beta (β) error i.e if the null hypothesis (H0) is false but is accepted.

(iii) The relationship between the two variables could be zero, meaning no effect of one variable on the other.

The level of significance: The level of significance is set at 95% (0.05) which should be chosen with great care, thought and reason. In case we take the significance level at 5 per cent, then this implies that H0 will be rejected when the sampling result (i.e. observed evidence) has a less than 0.05 probability of occurring if H0 is true. In other words, the 5 percent level of significance means that researcher is willing to take as much as a 5 percent risk of rejecting the null hypothesis when it (H0) happens to be true. Thus the significance level is the maximum value of the probability of rejecting H0 when it is true and is usually determined in advance before testing the hypothesis (Cresswell, 2007). A decision rule will be made to which we accept H0 (i.e. reject Ha) or reject H0 (ie. accept Ha).

Research questions 1-6 were analsyed using Pearson correlation.

- **T-Test**

A t-test is a useful statistical technique used for comparing mean values of two data sets obtained from two groups. The comparison tells us whether these data sets are different from each other. It further tells us how significant the differences are and if these differences could have happened by chance. The statistical significance of t-test indicates whether or not the difference between the mean of two groups most likely reflects a real difference in the population from which the groups are selected. t-tests are used when there are two groups (e.g French and English sub sections) or two sets of data (before and after), and the researcher wishes to compare the mean score on some continuous variable.

The type of T-Test for this study, is the independent sample t-test Independent sample t-test is used when there are two different independent groups of people and the researcher is interested to compare their scores. In this case the researcher collects information from two different groups of people on only one occasion (Mahmood et al 2017).

- **General assumptions regarding use of t-test.**

The first assumption regarding t-test concerns the scale of measurement. It means that it is assumed that the dependent variable is measured at interval or ratio scale.

The second assumption made is that of a simple random sample, that the data is collected from a representative, randomly selected portion of the total population.

The third assumption is that the data, when plotted, results in a normal distribution i.e. in bell-shaped distribution curve.

The fourth assumption is that the observation that make up data must independent of one another. That is, each observation or measurement must not be influences by any other observation or measurement.

The fifth assumption is that a reasonably large sample size is used. A large sample size means that the distribution of results should approach a normal bell-shaped curve.

The final assumption is homogeneity of variance. Variance will be homogeneous or equal when the standard deviation of samples is approximately equal.

The research question 7 (What is the mean difference of the assessment strategies used in the two sub systems and how they affect the implementation of CBA?) was analysed using the t-test.

3.11.3 Qualitative data analysis

The open –ended questions were coded and then analysed descriptively using percentages. The researher also made use of qualitative data analysis, since the research uses a mixed method design. Qualitative data analysis is the array of processes and procedures whereby a researcher provides explanations, understanding and interpretations of the phenomenon under study on the basis of meaningful and symbolic content of qualitative data (*Research methodology).* according to Nana (2012), qualitative data analysis consist of oranisin concepts, ideas, viewpoints or perceptions, emotional attitudes or observations as to make them more comprehensibe and meaninful. It provides ways of discerning, examining, comparing and contrasting and interpreting meaningful patterns and themes. Meaningfulness is determined by the specific goals and objectives of the topic at hand wherein the same set of data can be analysed and synthesised from multiple angles

depending on the research topic. Qualitative data are subjective, soft, rich and in-depth descriptions usually presented in the form of words. The most common forms of obtaining qualitative data include semi-structured and unstructured interviews, observations, life histories and documents. The process of analysing is difficult.

In qualitative analysis, the researcher uses the principle of selectivity to determine which data are to be singled out for description. Miles and Huberman , as cited in the document titled: *Research design and methodology;* describe several tactics of systematically examining and re-examining the data including noting patterns and themes, clustering cases, making contrasts and comparisons, partitioning variables and subsuming particulars in the general which can be employed simultaneously and iteratively for drawing conclusions in a qualitative research.

The procedures of qualitative data analysis as oulined in the document titled *Research methodology, p.* 288-289)

These are as follows:

1 Coding/indexing

2 Categorisation

3 Abstraction

4 Comparison

5 Dimensionalisation

6 Integration

7 Iteration

8 Refutation (subjecting inferences to scrutiny)

9 Interpretation (grasp of meaning - difficult to describe procedurally)

Steps of Qualitative Data Analysis The Logico-Inductive process of data analysis is as follows;

• Analysis is logico-inductive.

• Data are mostly verbal.

• Observations are made of behaviours, situations, interactions, objects and environment.

• Becoming familiar with the data

• Data are examined in depth to provide detailed descriptions of the setting, participants and activity (describing).

• Coding pieces of data. Coding , according to Nana (2012) is a process of grouping qualitative responses , and picking out a key element that is common to all. It can involve single words, clauses and sets of words or phrases, depending on what the researcher decides to do.

NB: Nana cautions that during coding, it is generally assumed that any idea if it emerged at least once, is relevant. The existence of ideas is therefore considered more important than frequency. However, the frequency aso reflects how many times a concept emerged and can be a major indicator of emphasis.

• Grouping them into potential themes (classifying) which are identified from observations through (reading / memoing).

• Themes are clustered into categories.

• Categories are scrutinised to discover patterns.

• Explanations are made from patterns.

• Interpreting and synthesizing the organised data into general written conclusions or understandings based on what is observed and are stated verbally (interpreting).

• These conclusions are used to answer research questions.

The steps in qualitative analysis are summarized in table below.

Onwuegbuzie and Teddlie (2003) as cited in the *Reseach design and methodology* document, state that when analyzing qualitative and quantitative data within a mixed methods framework, researchers undergo at least seven stages, which is the procedure that I adopted in this study. The following table represents the operation of the seven stages in the data analysis process:

Table 13: Steps in the qualitative data analysis process

Stages in the mixed methods data analysis process	**Description of each stage**	**Application in quantitative data analysis**	**Application in qualitative data analysis**
1. Data Reduction	Reducing the dimensionality of the qualitative and quantitative data	Via descriptive statistics, (exploratory factor analysis and cluster analysis –*not in this study*)	Via exploratory thematic analysis
2. Data Display	Pictorially describing both the qualitative and quantitative data	Using tables and graphs	Using matrices, charts, graphs, networks, lists,

			rubrics, and Venn diagrams
3. Data Transformation		Quantitative data are converted into narrative data that can be analyzed qualitatively	Qualitative data are converted into numerical codes that can be represented statistically
4. Data Correlation		Quantitative data is correlated with qualitative data	Qualitative data is correlated with quantitative data
5.Data Consolidation	Both qualitative and quantitative data are combined to create new or consolidated variables		
6.Data Comparison	Involves comparing data from both the qualitative and quantitative data sources		
7. Data Integration	This is a final stage, wherein both qualitative and quantitative data are integrated into either a coherent whole or two separate sets of coherent wholes		

Source: Research designs and methodology , p.91

Thick description- as a method of data analysis (taken from the *Research design and methodology document, p. 94)*

Thick description is a procedure that is used in qualitative research to ensure validity and reliability. This procedure is concerned with describing the setting, the participants, and the themes of a qualitative study in rich detail. Thick description has been used in this study in the presentation of the qualitative research findings where the actual words of the participants have been used constantly. The purpose of thick description is that it creates ―verisimilitude, that is, statements that produce for the readers the feeling that they have experienced, or could experience, the events being described in the study.

The purpose of reporting the findings using thick description is to provide as much detail as possible for the readers. It also enables the readers to make decisions about the applicability of the findings to other settings or similar contexts. In this study, I have described in detail the responses

to the semi-structured questions gotten from the teachers and the responses to the iintervew wth the inspectors

3.11.4 Analysis and Interpretation of Checklist Data

The tabulation and quantification of checklist data is done from the responses. Frequencies are counted, percentages and averages calculated, central tendencies, measures of variability and co-efficient of correlation completed as and when necessary. In long checklists, where related items are grouped together category wise, the checks are added up to give total scores for the category wise total scores can be compared between themselves or with similar scores secured through other studies, (Cresswell, 2007): As a follow up for research questions 4 and 5, as stated above, the researcher went further to analyse some of the test papers using percentages of the frequencies of the indicators highlighted on the checklist.

3.12 ETHICAL ISSUES

The following ethical issues were considered:

The principle of voluntary participation was explained to the respondents and they were also informed that they had the right to withdraw from the study at any time. The principle of informed consent was attached to the questionnaires and verbally explained to the interviewees. Both principles entailed explaining the research process and its purposes to the participants.

Informed consent: The informed consent is a process which is aimed at needing voluntary participation in a research project. Here the respondent or participant needs to be fully informed about what the research is all about, so that he or she may decide whether to take part in the study or not. Information here includes the risks, benefits and what will happen to the information given (Milsha, Antie & Regahr , 2004). Informed consent is interwoven with some ethical issues such as confidentiality, voluntarism. Initially the issue of informed consent came up when children and people with disabilities, that is people who cannot take decisions by themselves, are to be included in the research. But in this study the informed consent was given to the inspectors , especially those to be interviewed in order to make them psychologically prepared to take part in the study.

The first part of the informed consent form gives information about the study, the researcher, the purpose of the research, the procedure of the collection of information, the duration the interview will take and some risks that may be involved etc. the second part is the certificate of consent to be signed by the interviewee to be , to declare his consent to the researcher.

The following ethical issues were considered: The respondents were informed on the purpose of

the questionnaire or interview. Their willingness to participate was sought and they were assured that the information they would give would be strictly used for academic purposes and that it was optional for them to fill in their choice of answers.

Confidentially: Confidentiality refers to handling the information concerning the respondents in a confidential manner. Respondents were assured that their names and the names of their schools would be dealt with in the strictest confidence. This aspect includes the principle of trust in which I assured the participants that their trust would not be exploited for personal. The respondents were also informed about the confidentiality of the results. Their identity was not to be disclosed in the study, as it is purely an academic work.

Voluntariness: As stated by Amin (2005), the participant's consent to participate has to be voluntary and free from any coercion or promises of benefits likely to result from participation. The researcher met some teachers who were busy with examinations and they answered politely that they won't be able to participate.

3.13 SUMMARY

In the above section, the researcher discussed and justified the research design, area of study, sampling and sampling techniques, research instruments and validation, method of data collection and data analysis. The ethical issues were also highlighted. The data obtained will be presented and analysed in the next chapter.

CHAPTER FOUR: PRESENTATION OF FINDINGS

4.1 INTRODUCTION

This chapter deals with the analysis of the data collected from the field. It is composed of the following sub units:

- Demographic information
- Presentation of findings per research questions
- Summary

4.2 DEMOGRAPHIC INFORMATION

Demographic data is statistical data collected about the characteristics of te population e:g gender, age etc. For this study, demographic information, data was collected on the sub system of education,division, sex, professional training, level taught, number of seminars on CBAp attended, teaching experience. Collecting demographic data enables us to see if there are differences in care provided to people based on their personal caracteristics. It allows you to work out who you are talking to. Demographic data is used to make sure that the sample is a representative of the local community. In this study, it was used to make sure all the various divisons are represented and to be sure that the respondents understand what the topic is all about. The results were as follows:

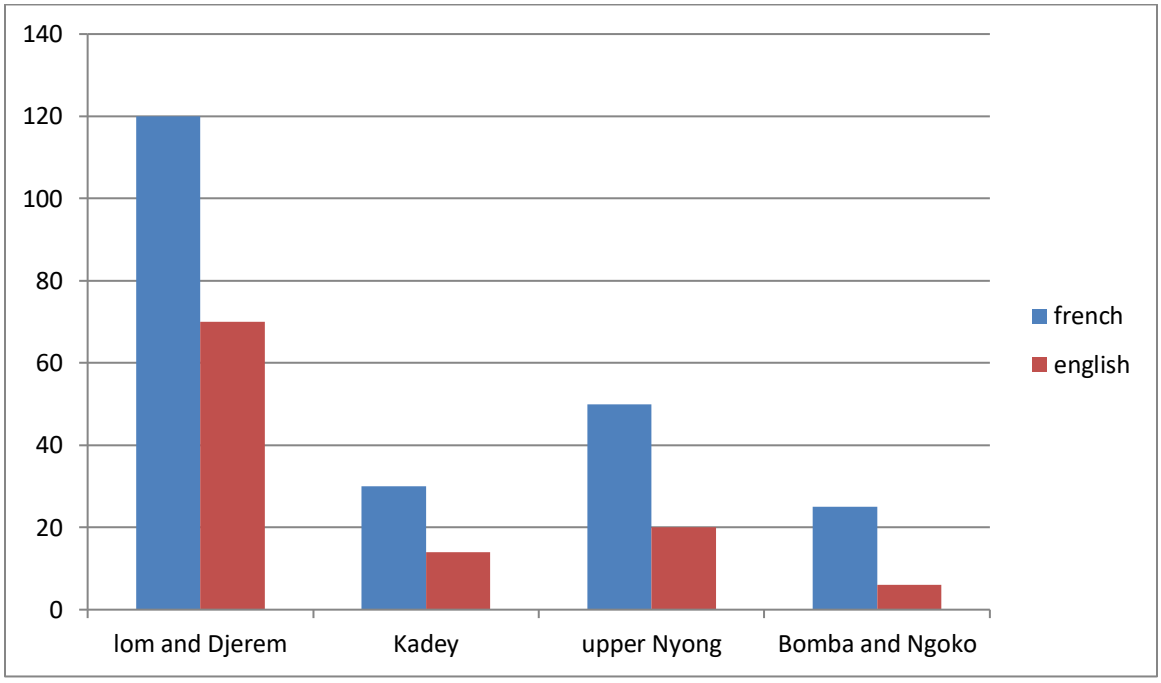
Sub- system and Divisions

Table 14: Respondents per sub system and per division using cross tabulation

		Divisions				Total
		Lom and Djerem	**Kadey**	**Upper Nyong**	**Bomba and Ngoko**	
Sub system	French	120	30	50	25	225
	English	70	14	20	6	110
Total		190	44	70	31	335

A total of 335 questionnaires were returned instead of 357 as indicated n the sample size, gving a percentage of 93.8%. The analysis will be done on the actual respondents that answered and returned the questionnaire. 225 responded for the French sub system while 110 responded for the English sub system, giving a total of 67.2% and 32.8% respectively. Out of those that responded, 190; 120 French and 70 English came from Lom and Djerem division giving a total of 56.7%. 44 respondents made up of 30 French and 14 English came from Kadey division giving a total of 13.1%. 70 respondents made up of 50 French and 20 English came from Upper Nyong division giving a total of 20.9%. 31 respondents made up of 25 French and 6 English came from Bomba and Ngoko division giving a total of 9.3%. This information is further illustrated in the graph below.

Figure 10: **Bar chart showing distribution of respondents according to division**



Gender or sex

Both male and female participants were selected in each of the divisions to constitute te sample. This was done to ensure gender equality in the data collection process. The results are shown below:

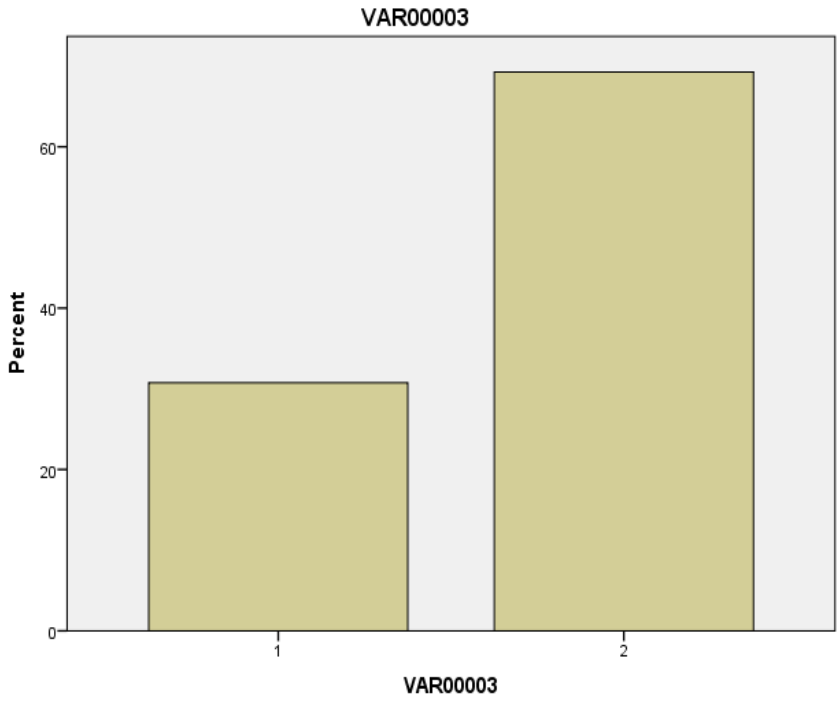
Table 15: Respondents according to sex

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	male	103	30.7	30.7	30.7

	female	232	69.3	69.3	100.0
	Total	335	100.0	100.0	

The table above indicates that the sample consisted of 103 male teachers, which corresponds to 30.7%; while the majority were female teachers, 232 of them giving a total of 69.3%. this is further displayed in the bar chart below:

Figure 11: **Bar chart showing distribution of responses according to gender**



Male female

- **Professional training**

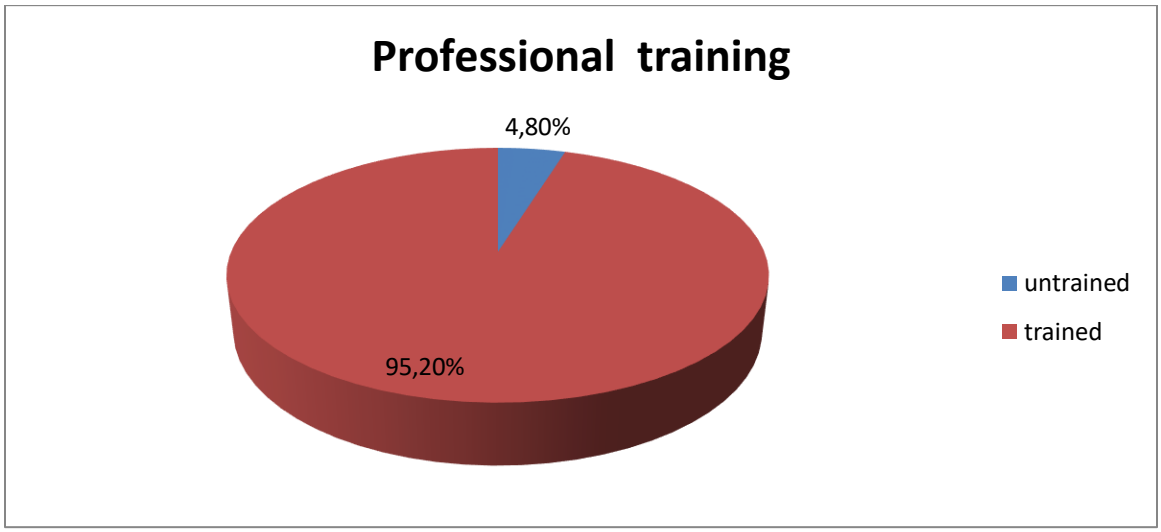
Table 16: Distribution of respondents according to professional training

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	untrained	16	4.8	4.8	4.8

trained	319	95.2	95.2	100.0
Total	335	100.0	100.0	

Out of the 335 respondents , majority were trained , meaning they had at least the teachers grade one certificate or CAPIEMP, while a minority, 16 , making -4.8% only, were untrained but had teaching experience in the primary school.

Figure 12: Pie chart showing the distribution according to professional qualification



- **Teaching experience**

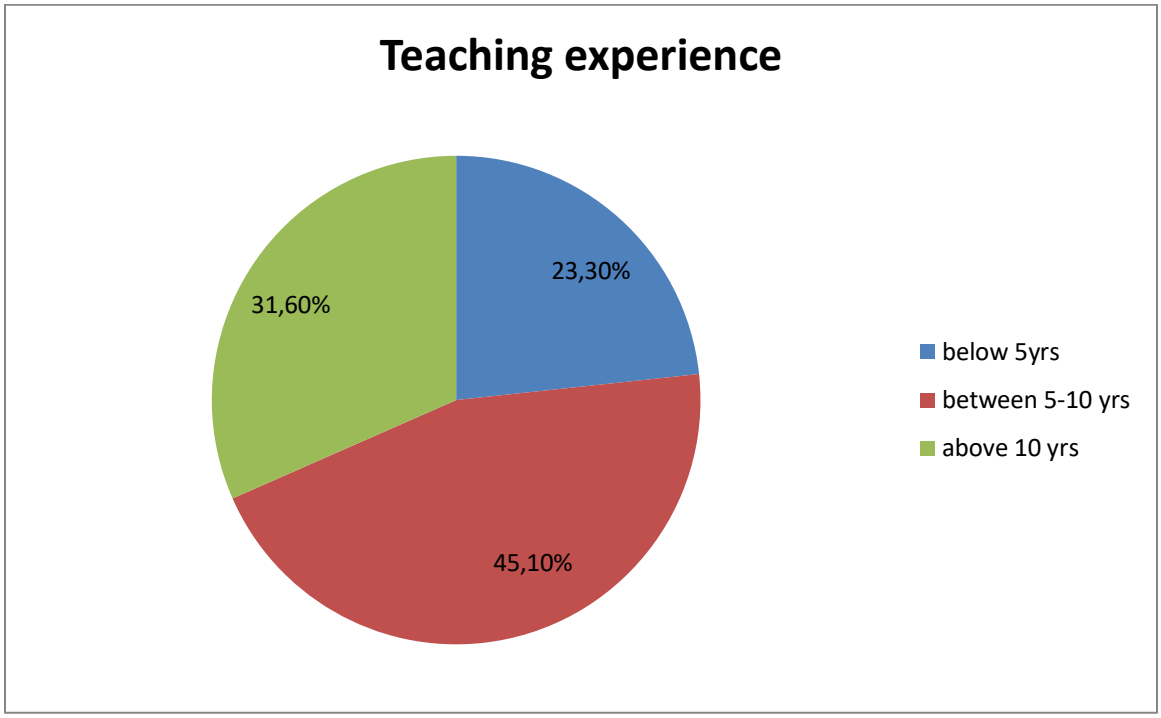
Table 17: Distribution of respondents according to years of teaching experience

	Frequency	Percent	Valid Percent	Cumulative Percent

Valid	Below 5yrs	78	23.3	23.3	23.3
	Between 5-10	151	45.1	45.1	68.4
	Above 10 yrs	106	31.6	31.6	100.0
	Total	335	100.0	100.0	

The majority of the teachers had been teaching between 5-10 years (45.1%), followed by those who had a teaching experience of above 10 years (106, 31.6%) and the last group have been teaching from 1 to 4 years (78, 23.3%). This is further displayed below:

Figure 13: **Pie chart showing distribution of respondents according to teaching experience**



- **Level taught in the primary school**

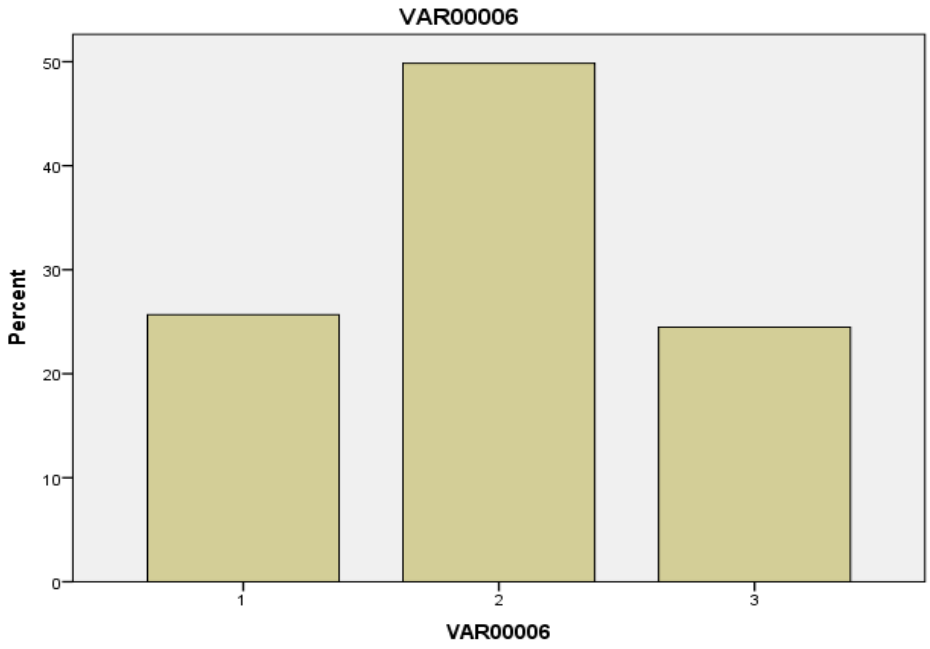
Table 18: Distribution of respondents according to the level taught

	Frequency	Percent	Valid Percent	Cumulative Percent

Valid	Level 1	86	25.7	25.7	25.7
	Level 2	167	49.9	49.9	75.5
	Level 3	82	24.5	24.5	100.0
	Total	335	100.0	100.0	

Among the respondents, majority were those teaching level 2 (167) giving a total of 48.9 %, that is class 3 and 4, followed by level 1(86) which was 25.7%. These teachers are those implementing the new curriculum in their classes while level 3 teachers (82, that is 24.5%) are blending the old and new methods. This is to say that all these teachers were versed with the concepts under study. Below is a bar chart to display the number of teachers per level taught.

Figure 14: **Bar chart showing the levels taught**



Level 1 Level 2 Level 3

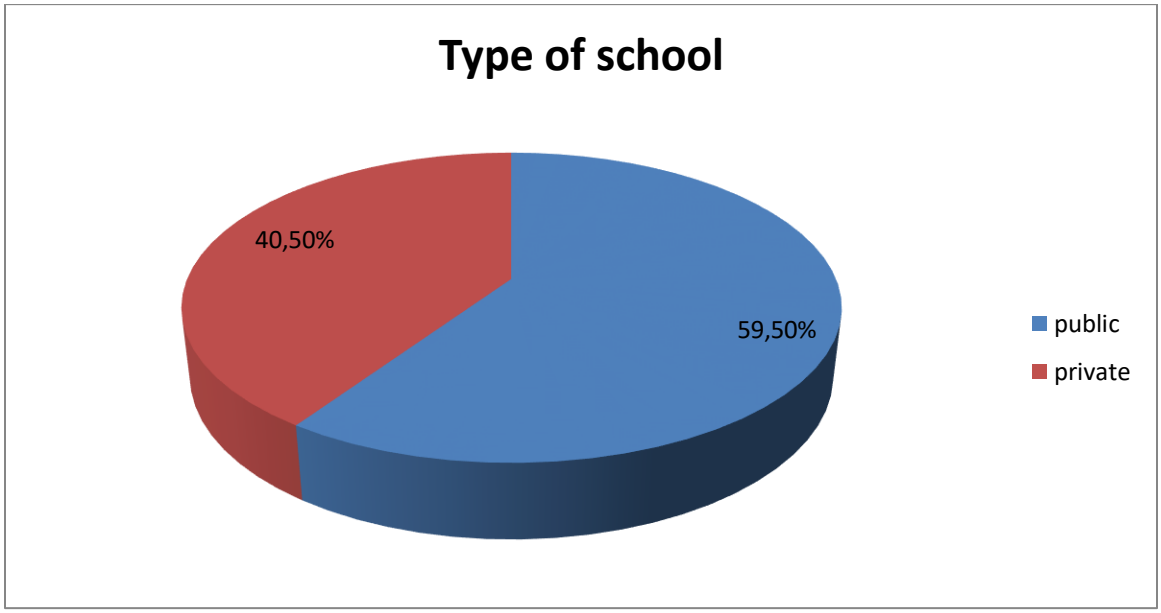
- **Type of school**

Table 19: Distribution of respondents according to the type of school

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	public	200	59.5	59.5	59.5
	private	135	40.5	40.5	100
	Total	335	100.0	100.0	

It can be observed that the highest number of teachers came from the public schools (200) with a percentage of 59.5 ; while those from the prvate schools were 135 ; giving a percentage of 40.5.

Figure 15: Pie chart showing type of school



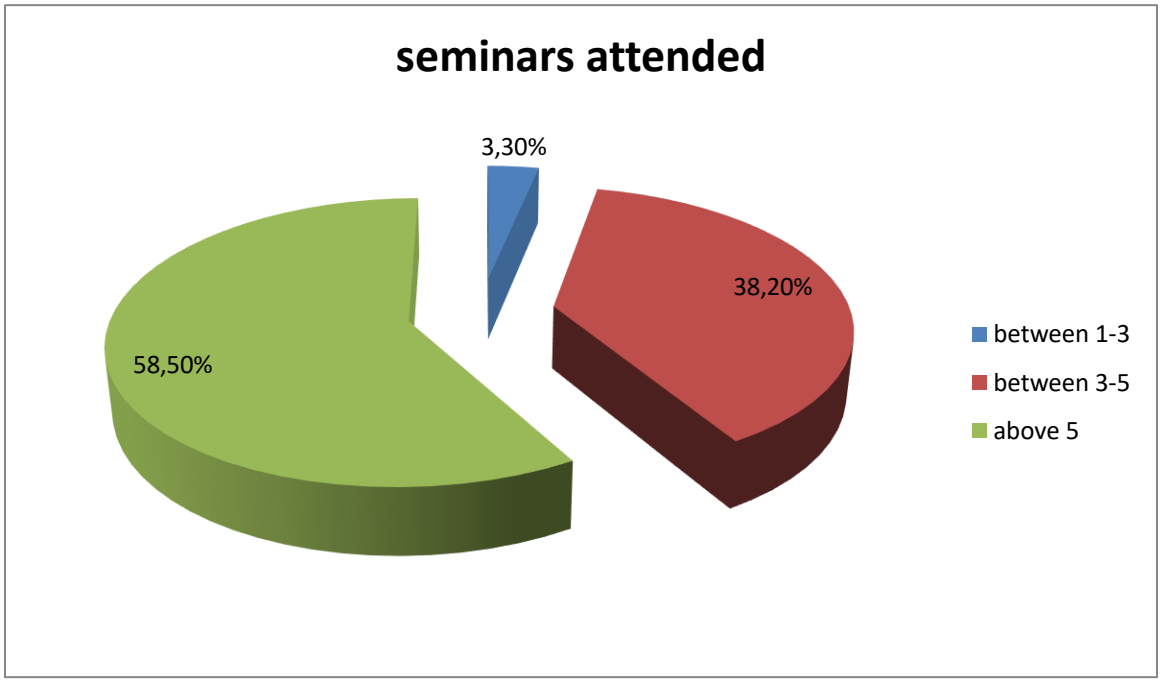
- **Number of seminars attended on competency based approach (CBAp)**

Table 20: Respondents according to seminars attended on CBAp

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Between 1-3	11	3.3	3.3	3.3
	Between 3-5	128	38.2	38.2	41.5
	Above 5	196	58.5	58.5	100.0
	Total	335	100.0	100.0	

The larger sample population have attended seminars on CBApproach at the regional or divisional and sub divisional levels, and so had an idea on the competency based assessment. 196 teachers (58.5%); the highest , have attended above 5 seminars, followed by those who have attended between 3-5 seminars (38.2%) and lastly 11 (3.3%) who attended between 1-3 seminars.

Figure 16: **Pie chart showing number of seminars attended on CBAp**



4.3 PRESENTATION OF FINDINGS ACCORDING TO RESEARCH QUESTIONS

The study was guided by the following research questions:

- To what extent does the concept of competency based approach on the implementation of CBA?
- Which type of assessment (formative or summative) gives deeper understanding of competencies acquired?
- To what extent does assessment methods/strategies affect the implementation of CBA?
- To what extent does the type of item format lead to a better assessment of competencies?
- To what extent do the instructional methods in CBA align with the assessment practices for proper implementation
- How appropriate is the criteria and grading system for judging the level of competence?
- What is the mean difference of the assessment strategies used in the two sub systems and how they affect the implementation of CBA?

The results will be displayed using means and standard deviation followed by correlation tables and analysis of open ended questions and interview

The researcher used the criteria for constructing judgments on the statistical means (M) of responses as stated by Rababah and Ebtesam , (2021)

Range	**Degree**
M>3.67	High
2.34<M<3.67	Moderate
M<2.34	Low

It is important to note that the researcher used a mixed method research design, meaning that data was collected from different sources using different instrumnets (questionnaire, interview guide and observational cheklist for test papers).

Research question 1: To what extent does the concept of competency based approach affects the implementation of CBA?

The table below provides the teachers' responses following their conception of how CBA should

be like. This is based on how it was introduced to them.

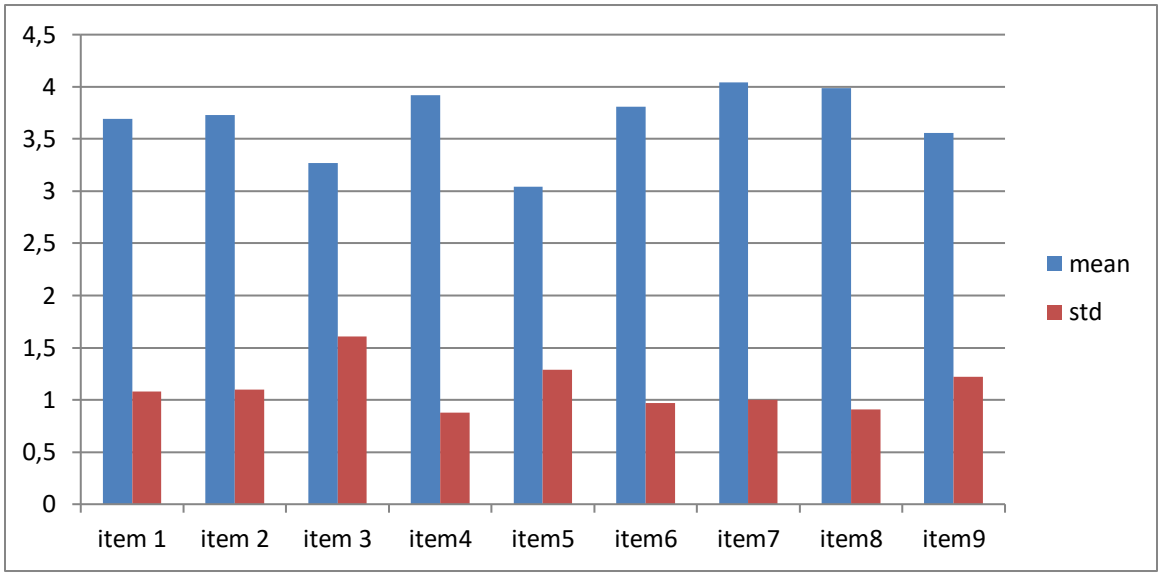
Table 21: Distribution of respondents opinions related on the conception of competency based assessment

SN	ITEM	M	STD
1	CBA is better done following the learning outcomes per subject	3.69	1.08
2	CBA is better done following the integrated learning themes	3.73	1.10
3	CBA is better done using the overall competency statements that cut across different subjects	3.27	1.61
4	CBA is better done following the holistic competences involving cognitive, psychomotor and affective domains	3.92	0.88
5	Much emphasis should be laid on knowledge and skills acquired and must not necessary involve performance in a real life setting in the primary school	3.04	1.29
6	Terminal evaluation should be on solving problems situations in the subject area	3.81	0.97
7	Much emphasis should be on integrating knowledge from different subject areas to solve real life problems	4.04	1.00
8	Learners' competencies are better assessed beginning from specific subject areas competencies to integration of knowledge from different subject areas	3.99	0.91
9	Classroom assessments should be subject centered while terminal evaluation should involve integration of knowledge with many subjects	3.56	1.22
	Mean total	3.67	1.12

From the table 19 above , the overall mean value was 3.67, showing acceptance level was moderate. Analyzing the different items, it was seen that generally the respondents were aware that CBA involves integration of knowledge from different subject areas to solve real life problems as seen in item 7: Much emphasis should be on integrating knowledge from different subject areas to solve real life problems, which had the highest mean value (M= 4.04, std= 1.0). Item 8 :Learners' competencies are better assessed beginning from specific subject areas competencies to integration of knowledge from different subject areas , showed high acceptance (M= 3.99, std= 0.91), followed by item 4: CBA is better done following the holistic competences involving cognitive, psychomotor and affective domains (M= 3.92, std=0.88), then item 6 : terminal evaluaton should be on solving problems situations in the subject area (M=3.81, std= 0.97). But when asked in item 3 if they feel that CBA should be better done using the overall competency

statements that cut across different subjects, the mean value dropped to 3.27 with std = 1.16. also looking at the percentage count for item 5: Much emphasis should be laid on knowledge and skills acquired and must not necessary involve performance in a real life setting in the primary school, majority 105 respondents disagreed giving 31.3 percent, thereby accepting item 4 meaning CBA should involve oral , written and practical. The respondents were of the opinion that classroom assessments should be subject centered while terminal evaluation should involve integration of knowledge with many subjects and that CBA is better done following the integrated learning theme

Figure 17: Responses to the concept of competency



A follow up open question was asked about which of the approaches (problem solving per subject area, integration of subjects approach, holistic approach) the respondents think can lead to effective implementation of CBA in Cameroon. In response to this, the responses given by the teachers are presented on the table below using the real words of the teachers in both languages. (The responses in French language are italised). It should be noted that not all the teachers answered the open ended questions.

Table 22: Responses to open-ended on the competency based approach to be used for CBA

Problem solving per subject area	integration of many subjects	holistic competence
163 (62.5%)	84 (32.2%)	14 (5.3%)

Facilites la spécialisation des apprenants et favorise la maitrise de ce qu'il aura appris- *-car chaque apprenant a en lui des compétences dans domaines précis* -to see the subjects in which subject area the learner is competent in or not - it will enable learners to master and apply each unit/content through a given ILT *-parce que à chaque domaine les critères sont bien définir* *-parce que l'enfant doit mobiliser les connaissances selon les domaines* *-pour ne pas saturer la tête des élèves* -because learners are not taught to integrate interdisciplinary -Because lessons are many, one problem situation for all disciplines is too broad -Not to derail the learners, the questions should be per subject -Some learners are good in different subject areas -For better exploitation by the teacher -To ease tasks -Overall competency statements are difficult to set -For better understanding -To ease evaluation of pupils -To know where learners are weak -To help the slow learners understand -Some pupils are gifted in different areas -Because its subject has its own languages/ specificities -Helps candidates to focus their reasoning on specific subjects -Pupils perform differently with different subjects	*-favorise la maitrise des savoirs* -because learning cuts across different spheres -life problems of life are diversified -to reduce the number of subjects *- pour que l'enfant puisse se retrouver dans complementarite totale* *-l'intégration partielle* *-L'interdisciplinarité est un facteur qui favorise la maitrise* *- L'interdisciplinarité est un facteur facilitant les apprentissages* *-pour aider l'élève à résoudre plusieurs problèmes de la vie courante* -Because assessment per subject is time consuming -Because it will make the learners reason fast on the real life situations -It will help the pupils to think widely and approach problems on real life issues easily -To ease the teachers work - the integration of different subjects is also a way to achieve an objective -To open the mind of the candidate -Overall but brief so that learners don't spend time doing reading comprehension -Overall because some of the subjects may be intersecting	*-l'apprenant observe , attend , puis applique* - Some preferred both formats

From table 20 above, 62.5% felt that CBA should be done through problem solving in individual subject areas (the analytic view); 32.2% felt CBA should be done using problem solving that arrants the integration of knowledge across disciplines (the constructivist integration view), while 5:3% think CBA should follow a holistic approach that combines the above two approaches. Those

for setting items following individual subjects advanced reasons such as each subject has a well defined criteria in the curriculum, subjects have their specificities and pupils perform differently in different subjects meaning he can do well in an practical lesson than a mathematical lesson and as such we would be wrong to say the learner is incompetent. Others felt that the analytic approach is preferable because the learners have not yet been taught to integrate many subjects. The subjects are many and setting a problem situation that will cut across many subject areas, it will derail the learners , and for the teacher to better identify the areas of weaknesses and strengths of the learners etc.

On the other hand, those for the integration approach that requires mobilization of KSAs from different subject areas, advanced that life problems are diversed, so this will cause learners to think widely think out of the box in order to solve problems. Also they said some subjects have similar content, and by setting one item that cuts across these subjects, will ease the work of the teacher. Those who chose the holistic approach simply suggested that both approaches are good, that is problem solving per subject area and problem solving to test overall competencies ith many subjects.

Another clarification was given by the interview conducted with 6 inspectors, 3 for the English section and 3 for the French section. The English carry out integration activities through project pedagogy while the French use competency statements and problem situations for integration, though for now it is done within subject domains not cutting across many subject areas as demanded by the curriculum.

Pearson correlation was also done to see if the conception of competency from the approach affects the implementation of CBA. (We shall see in the table at the end of the discussion in this unit).

Summarily, the results showed the presence of different approaches to the concept of competency which in turn affects how the competences should be assessed. Although the respondents agreed on the use of real life problem situations, how it should be used differs. One school of thought is in support of assessing at subject level while others feel it is best done through integration of different subjects. Those in favour of the subject level (analytic or behaviorist approach) advanced reasons such as not to derail the learners, while those in favour of integrating different subjects, feel that life problems are diversed and so learners should be prepared to solve problems using knowledge fom various sources (the integration approach). The value for the standard deviation for item 3 above: CBA is better done using the overall competency statements that cut across different subjects, is 1.61, which is very high for the responses meaning the respondents had varying opinions on this aspect.

- **R.Q.2 Which type of assessment (formative or summative) gives deeper understanding of competencies acquired?**

The researcher wished to find out which types of assessment should be used for CBA, and how far does the choice of the assessment type affects the implementation of CBA. The findings are presented in the table below.

Table 23: Distribution of respondents opinion on the type of assessment for CBA

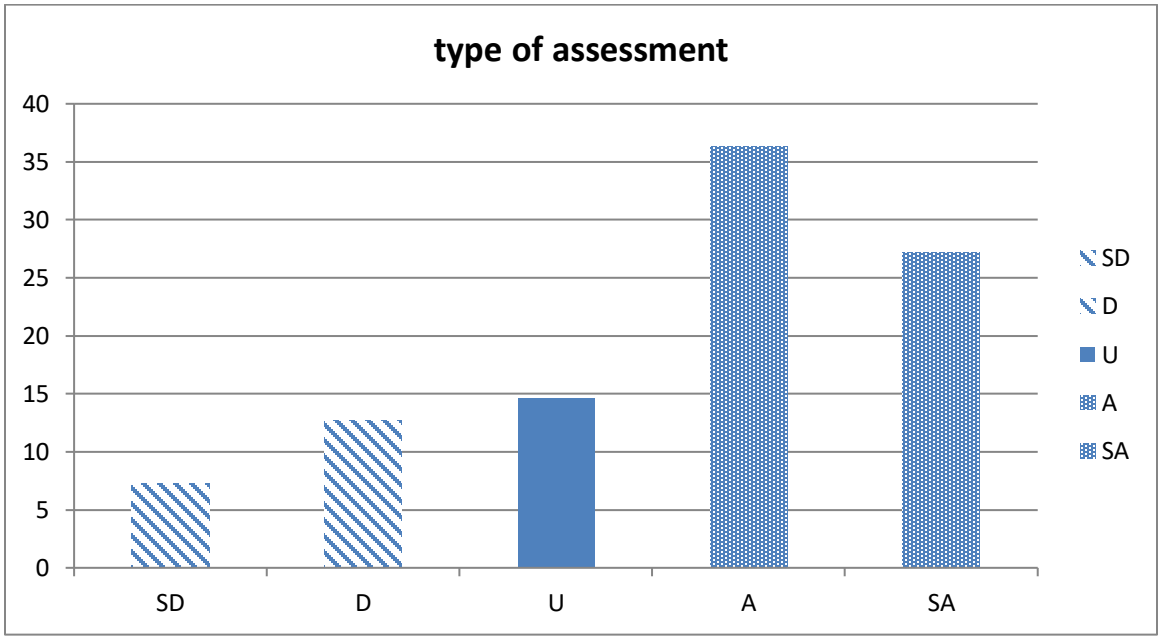
SN	ITEM	M	STD
1	Formative assessment of competencies yields good judgment of competency acquired	3.73	1.33
2	Summative assessment of competencies yields good judgment of competency acquired	3.98	0.98
3	Assessing learners weekly or monthly gives a good picture of the competencies acquired	4.03	1.07
4	The integration week or 4th week for evaluation yields good judgment of competencies	3.6	1.06
5	Competencies require time to be developed , as such are better assessed at the end of the term or course of study	3.84	1.21
6	Evaluation of competencies done for each week is a good way to assess competencies	3.35	1.21
7	The problem situations per lesson can be used to assess learners' competences	3.62	1.51
8	Many formative assessment results should be summed up to summative assessment	3.60	1.23
9	Learners' competencies can be judged from a single set of scores	2.53	1.27
	Overall total	3.59	1.21

Concerning the type of assessment, higher mean values were recorded for both formative (item 3-4.0, item 1 3.74 and item 7) and summative also recorded high means for item 2 (M= 3.98, std=0.98); item 5 (M= 3.84. std=1.21). A lower mean value was recorded for item 6 talking of weekly evaluation (M= 3.35) and the lowest for item 9 (M= 2.53). Here most of the respondents denied the fact that learners' competencies can be judged from a single set of scores, thus accepting a continuous form of assessment that will yield many sets of scores at the end of the year for a better judgement of learners competences. Response for item 4 : The integration week or 4th week for evaluation yields good judgment of competencies, showed (M=3.6, SD=1.06). This also was moderate acceptance. Some see it as monthly evaluations wile others see it as a week set aside for the evaluation of competencies acquired for the three weeks of teaching. Item 5: Competencies

require time to be developed , as such are better assessed at the end of the term or course of study; as mentioned above, had the highest mean value (M= 3.84), thus in support of summative assessment as a better way to assess learners. When asked if many formative assessment results should be summed up to summative assessment in item 8, the mean value was 3.6 and SD=1.23. This means that the judgment of competences should be based on a series of assessments as opposed to item 9 talking of using a single score.

The overall mean value was 3.59 showing a moderate level of acceptance of the type of assessment. From the responses, both types were accepted to be used for CBA .

Figure 18: **Responses for the type of assessment to be used for CBA**



In a follow up question: *Among formative and summative assessment of learners' competences, which one do you think can make good judgment of the competences acquired?. Explain.*
From the experience the teachers have gathered, they were able to give their views concerning these two assessment practices , looking at the judgment of the level of competency acquired.

The responses gotten were displayed on the table below.

Table 24: Responses to the open-ended question on type of assessment practices

Formative assessment	Summative assessment
148 (58.5%)	**105 (41.5%)**

-Facilite l'insertion social de l'enfant et permet a la fin d'une formation de l'auto-prendre en charge	*-pour réassurer les atteint des objectifs à la fin du cycle*
-car elle est precise	*- car elle est certifiée*
-parce qu'on peut multiplier les exercise pour mieux peser les competences	-because it comes when much content has been covered
-because the workload is not heavy on learners	-to award end of school certificates
- parce qu'on doit évaluer progressivement le dégrée d'acquis des enfants	*-on suppose que l'apprenant doit mobiliser un ensemble de savoir-faire et savoirs-être pour être évaluer*
-Parce qu'elle améliore l'apprentissage en cours en détectant les difficultés des apprenants afin de lui venir en aide	*Parce qu'il survient au terme d'un processus d'enseignement*
-elle implique les deux	*-à la fin de chaque mois pédagogique pour mesurer le dégrée d'atteint des enseignements*
-parce qu'elle permet à l'apprenant de remédier ses lacunes	*-il mobilise le maximum de connaissance*
-cela permet de suivre de bout en bout l'évolution des apprenants	*- elle permet mieux les compétences de façon globale*
-to see if learners are following up	

Some of the responses advanced for the choice of formative assessments were that it gives room for the learners to identify their weakness and improve on their learning. The development of competences is gradual and higher competences build on those already acquired. When assessed formatively, the learners won't feel the load of the workdone as opposed to summative that covers a lot of content. For summative assessment, the reasons advanced were that it requires the mobilisation of much knowledge, skill and attitudes. It is only at the end of the teaching unit or term that the competences can be better judged.

It is important to note here that the researcher observed that mostly those who chose problem situations per subject areas, also chose formative assessment while those who chose integration of many subjects were in favour of summative assessment.

The inspectors (all 6) were in favour of both types of assessment. while the French talked of

formative through monthly evaluation done on the 4th week also known as the integration week, the English inspectors were in support of formative assessment done in form of continuous assessments leading to terminal assessments. This means that teachers teach and assess at will depending on the workload covered , yet still carry out harmonised examinations at the end of the month, per levels.

- **R.Q.3 To what extent does assessment methods/strategies affect the implementation of CBA?** The findings are summarized in the table below.

Figure 19: Responses related to the choice of assessment methods

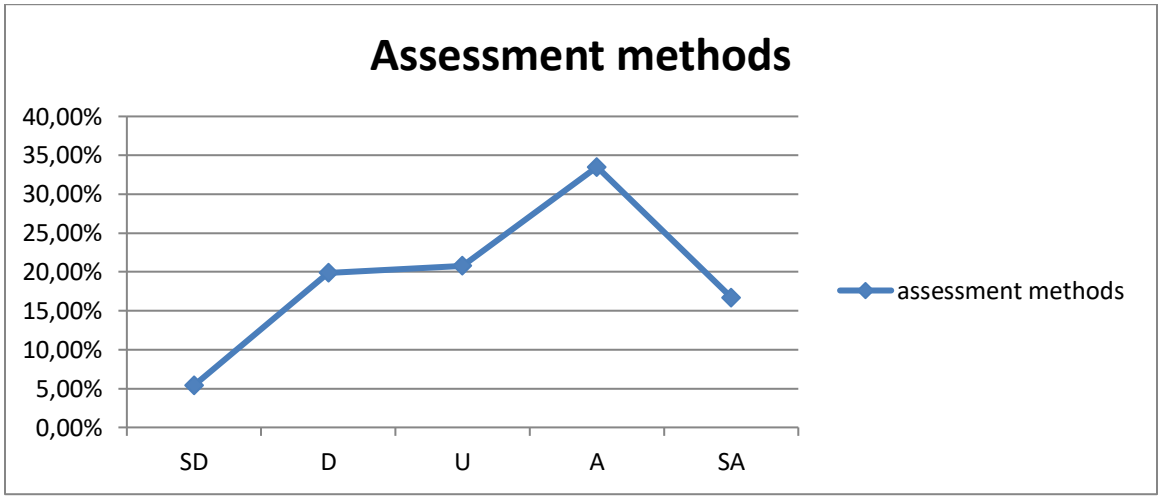
SN	ITEM	M	STD
1	Traditional testing methods as used in past questions involving MCQ, can successfully measure learners' competences	2.74	1.25
2	Authentic methods or non-traditional methods of assessment can better measure learners' competences	3.25	1.02
3	Performance based assessment can successfully measure learners' competences	3.54	1.09
4	A combination of traditional and performance assessment will better assess learners' competencies	3.84	0.89
5	Learners in the primary school must not do something practically before being judged competent	3.41	1.22
6	Students take fewer tests under a competency-based grading system	3.15	0.98
7	Portfolio or a collection of pupils' work, projects and homework are considered when assigning end of year grades in CBA.	3.24	1.14
8	Learners' competencies should be judged using many methods	4.02	1.06
9	Classroom behavior should be incorporated in the calculation of grades in CBA	3.69	1.03
	Overall total	3.43	1.08

Results from the above table indicate that the respondents show a high degree of acceptance for item 8: Learners' competencies should be judged using many methods (M=4.02, SD= 1.06), item 4 which talks of a combination of traditional and performance assessment as a better way to assess learners' competencies (M= 3.84, SD= 0.89) and item 9 which suggests that classroom behavior should be incorporated in the calculation of grades in CBA (M= 3.69, SD= 1.03). The respondents refuted the fact that traditional testing methods as used in past questions involving MCQ, can successfully measure learners' competences as shown in tem 1 (M= 2.74, SD= 1.25). this is because the item formats were designed to measure mostly knowledge of content and not the application of this knowledge to solve real life problems. All the other items recorded moderate acceptance. The respondents answered favourably for item 2, 3 and talking of assessing using

authentic or non-traditional performance based tests, including portfolio. Item 6 was to find out if students should take more tests in CBA or not. Many respondents feel fewer tests should be taken while other methods of assessing competences be used. For item 5: Learners in the primary school must not do something practically before being judged competent, many teachers accepted because they feel competences can also be evaluated using written assessments with problem situations, and also because the learners are too young to carry out practical activities as well as lack of resources. However, some teachers think that practical activities is very important in the assessment of competences.

Summarily, the overall results were favourable, (M=3.43, SD=1.08) meaning that the choice of assessment methods affects the effective implementation of CBA.

Figure 20: **Line graph showing the effect of the assessment methods on CBA implementation**



Looking at the open question ; *To you, which is the best assessment strategy to use (tests only; practicals and tests,; multiple methods) ?Please explain*

The following results were obtained: majority of the respondents 172 were for the fact that CBA should involve practicals and tests, while 76 were for multiple methods with only 3 for tests only. Meaning that the assessment methods involving practicals; or combination of tests and authentic assessment methods will lead to a clear judgment of learners' competences. The results support what was stated in item 1: Traditional testing methods as used in past questions involving MCQ, can successfully measure learners' competences, which showed a disfavourable answer. Tests

alone are seen to be limited in CBA whereas using multiple methods is indicated as one of the principles of CBA.

The reasons advanced by the respondents on their choice of assessment methods, are seen on the table below. Those who chose multiple metods says it takes care of the different types of learners and their learning needs. Those who chose practicals and test says they are all methods to measure learners understanding . very few persons (only 3) said they preferred tests only. Though no reason was advanced, it may be because they feel other metods of assessment are challenging.

Table 25: Responses to open-ended question on preferred methods of testing in CBA

Written tests only	**practicals and tests**	**multiple methods**
3 (1.2%)	172 (68.5%)	76 (30.3%)
	-to measure the level of understanding and how the learner is using the knowledge to solve their daily life problems	-different learning styles -different ways of understanding - so that if one method is difficult , the other ones can help learners to progress -because it involves integration of subjects -because not all learners can perform the same orally, written or practically -to assess the KSA -to help take care of learners' differences (able and disabled

From the inspectors' point of view, all the six, were for the fact that a combination of tests and practical activities gives a good judgment of competences acquired. One of the reasons for these methods was to meet the need of individual learners as some are good in written exercise while others excel with practical exercises.

- **R.Q 4 To what extent does the type of item format lead to a better assessment of competencies?**

This question was to examine if the item formats such as traditional structural tests items, complex

problem situations, or items that test higher order thinking skills, influence the judgement of learners competences. The results obtained from the respondents are presented on the table below. The table below presents the responses of the respondents in relation to the above question.

Table 26: Responses related to the choice of item types for CBA implementation

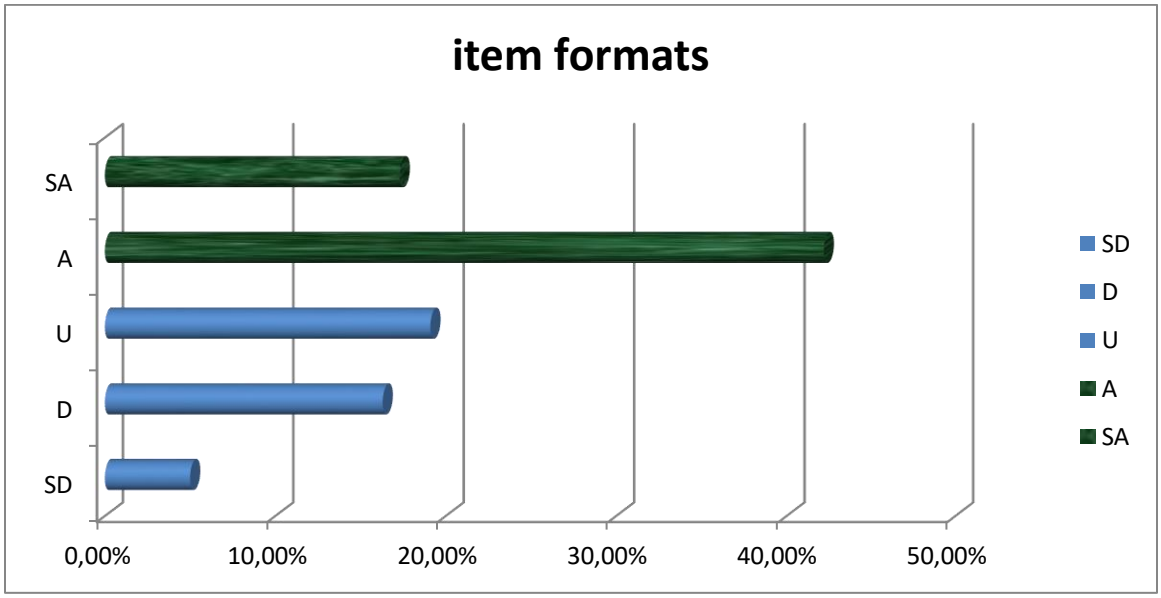
SN	ITEM	M	STD
1	Assessing learners using the old format of setting items such as MCQ, fill in blanks, matching items etc gives a good judgment of learners' competencies	3.09	1.27
2	Essay format or open-ended questions can make teachers assess competences easily	3.55	0.99
3	Items should have problem situations for better judgment of competencies	3.90	0.94
4	Items involving practical activities will give a good judgment of competencies	3.94	0.85
5	Item formats that test higher thinking order (analysis, synthesis and evaluation levels according to Bloom) should not be included in CBA	2.87	1.21
6	Not only textbook-provided test items should be used for classroom assessment in CBA	3.49	0.93
7	There is an assessment model guiding how assessment in CBA should be done in the classroom	3.66	1.14
8	Competency statements should not be used in assessing learners' competencies in the primary schools as they cannot read and understand	3.55	1.13
9	CBA should assess also higher order tests not just recall of facts in primary schools	3.49	0.97
	Overall total	3.50	1.05

Concerning item types, the respondents answered favourably for item 9: CBA should assess also higher order tests not just recall of facts in primary schools (M= 3.49, std =0.97) as opposed to item 5 asked in a reverse manner viz: Item formats that test higher thinking order (analysis, synthesis and evaluation levels according to Bloom) should not be included in CBA, a total of 142 respondents as opposed to 102, responded negatively to that item , if we groupe SA and A for agree and SD and D for disagree. They refuted the idea , meaning the opposite was accepted as is confirmed with item 9. The mean value was (M= 2.7 , std =1.21). CBA items should involve all the formats ranging from MCQ as in item 1, open ended questions in item 2, problem situations in item3, practical activity in item 4 and higher order thinking questions in item 9. These items may or may not be selected from textbooks (item6) or follow the model and criteria described in the curriculum (item7). Also , majority are of the opinion that competency statements should not be

used in assessing learners' competencies in the primary schools as they cannot read and understand (tem 8, M= 3.55, SD= 1.13).

The overall responses proved that item format has an effect on the judgment of learners' competences as given by the high mean values of 5.50 and SD =1.05. Competencies are better judged using essay questions, items that involve higher other thinking skills, items that ave problem situations and assessments that involve practical activities.

Figure 21: Bar chart showing the effect of item formats on CBA implementation



An open ended question was asked to further consolidate the respondents' views; as displayed in the table below.

To you, which item format do you often use (old testing format, testing with problem situations, or both) for CBA? Please explain your choice.

The respondents were asked to identify the item format they often use to measure learners competences. Majority (173) used testing with problem situations, 6 use the old format of setting while 74 said they use both. Their reasons are presented in the table below.

Table 27: Responses to open-ended question on choice of item format for CBA

old testing format,	testing with problem situations	both
6 (2.4%) *-le CEP est base sur l'ancien format* *- à la sil car ces enfants ne sont pas à mesure de lire les énonces et les expliquer clairement*	173 (68.4%) -helps leaner to solve daily life problems *-à la demande de hiérarchie* *-parce que l'enfant émet des idées, il réfléchit* *- ça donne a une élève l'idée de ce qu'on attend de lui* *- cela amène l'enfant à lire* -congruence with lesson objectives in a problem situation *–pour mieux comprendre le niveau de compétences de l'apprenant* *- pour donner l'occasion à l'apprenant de raisonner et mettre en pratique ce qu'il a appris* *-car ces enfants aujourd'hui feront face aux plusieurs problèmes dans l'avenir et doivent résoudre*	74 (29.2%) -variation of formats help to better evaluate -because some learners cannot read, so the two formats will give the learner a chance to earn some marks - because both are complementary *-pour mieux voir dans quel domaine l'apprenant a des compétences* *-il permet à l'élève de s'évaluer lui même* -because a child can do well in one area as well as not understand the other -gives room for pupils to show their capabilities *-pour diversifier le dégrée d'atteints des objectives* *-parce que l'apprenant doit s'arythmie aux deux* -leaner self evaluation -to see his area of competence -we have learners of different levels - this is the transition period from old to new curriculum -old formats for level of knowledge acquired and problem situation to expand the learners ' horizon *-parce qu'il doit integrer les saviors et des saviors-faire* *-parce que l'APC est en cour d'implementation*

Majority of the respondents (173, 74 =97.6%) were in favour of both testing with problem situations or both combination of the old format but involving real life problems. Those who used tests only as in the old format of setting, say they do so because the end of course examination (CEP or FSLC) is still set using the old format, so they still follow it in order not to confuse the learners. Another reason was that the pupils of class 1 cannot read and so cannot understand problem situations.

Those in favour of testing with problem situations, say it gives the learners the opportunity to reason and put into practice what they have acquired. Others said learners of today are going to meet challenges tomorrow in their daily life, as such, have to be presentented with problem situations. Also, for congruence with the lesson objectives, learners need to be tested with problem

situations.

On the other hand, respondents who use both the old format of testing and testing with problem situations, advanced the following reasons: to diversify the attainment of objectives, to cater for the needs of the learners such that those who cannot read , will do well with the old format using MCQ, matching items and true or false,etc; while those who can read can proceed to problem situations. Also this is done to see the learners area of competence, is it still at the knowledge level –*know* or at the level of knowledge application-*know-how*. The old formats is used for assessing the level of knowledge acquired while problem situation is to expand the learners ' horizon. Another reason for using both, is that this is the transition period from old to new curriculum and so changes should be done in a progressive manner.

To conclude, all the item formats ranging from MCQ; matching; questions that involve high order thinking levels according to Bloom are to be used. This was confirmed by all the 6 inspectors. While the French inspectors talk of writing competency statements in order to assess the level of attainment of competencies, competency statements are no longer set in the English sub system. But both the English and French inspectors were in favour of setting items that task the higher thinking levels.

- **R.Q.5 To what extent do the instructional methods in CBA align with the assessment practices for proper implementation**

This question aimed at finding out if the instructional methods as proposed in the new curriculum to help learners acquire the necessary competences, such as the cooperative method, project pedagogy and flip classroom technique, should be used in the assessment of learners competences: The table below shows the results as collected from the field.

Table 28: Responses related to alignment of instructional methods

SN	ITEM	Me	STD
1	Learners competences should be assessed taking into consideration the projects carried out	3.70	1.07
2	Learners should be assessed through their participation in group work done in class	3.55	0.99
3	Learners competences should be assessed through written exercises only	2.35	1.36
4	Learners competences should be assessed involving marks obtained in homework	2.78	1.17

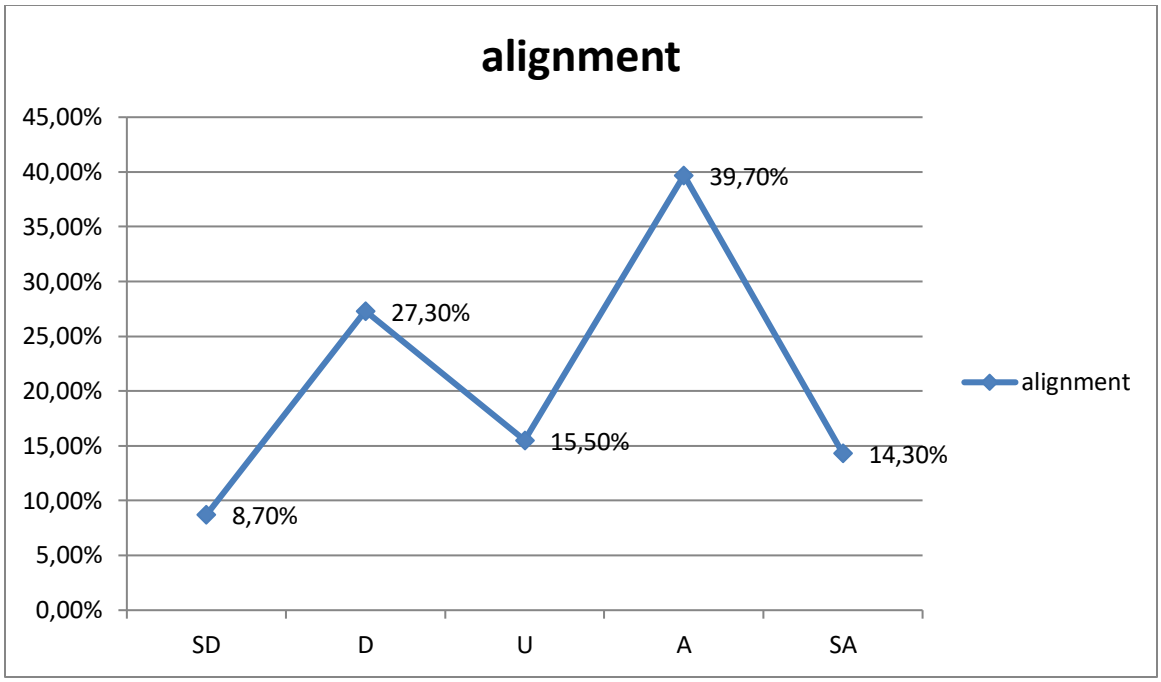
5	Learners competences should be assessed through their ability to solve a real life problem situation or simulations	4.05	0.93
6	Oral tests should be for languages only	2.70	1.25
7	Practical tests should be for vocational subjects only	2.89	1.25
8	The instructional strategies like project pedagogy and group work should be reflected in the assessment of classroom assessment only	3.70	0.99
9	The instructional strategies should be reflected in the assessment of classroom assessment as well terminal competencies such as FSLC	2.88	1.14
	Overall total	3.18	1.13

The respondents had an overall moderate view of the alignment of instructional methods such as group work and project pedagogy in the classroom assessment (M=3.18, SD=1.13). From item 8 which purports that the instructional strategies like project pedagogy and group work should be reflected in the assessment of classroom assessment only (M= 3.70, std = 0.99) majority of the respondents answered favorably while item 9 which reads that the instructional strategies should be reflected in the assessment of classroom assessment as well terminal competencies such as FSLC, the mean value dropped to 2.88, std 1.14 , suggesting that the teachers feel it is easier to align for formative than certificate exams.

When asked in item 3 if learners competences should be assessed through written exercises only, most of the teachers refused (M=2.35, SD =1.36). This value shows a rejected of the claim which therefore means that other forms of assessments are needed. The respondents also rejected the claims that oral tests should be for languages only (item6); competencies are better judged for vocational studies (item 7) giving them low mean values that fall below 3. For item 5, talking about their ability to solve a real life problem situation or simulations, a very high degree of acceptance was recorded (M=4.05, SD=0.98).

To summarise, the respondents feel that there should be an alignment between the instructional methods and the assessment methods, as shown in the line graph below.

Figure 22: Aligment of instructional methods with assessment methods



A further study of the open question:

To you, should the teaching methods used for CBAp be reflected in the assessment? Please explain.

The results are shown below. 287 (98.9%) of the respondents answered 'yes' and some gave their reasons which are written using their real words. Only 3 (1.1%) answered 'no' and also advamced their reason.

Table 29: **Responses to the open-ended question on alignment of instructional and assessment methods**

Responses	**yes**	**no**
Respondents	287 (98.9%)	3 (1.1%)

Justification of the answers	-*l'enfant est au centre des savoirs* -*on évalue ce qu'on a enseigné* -to help evaluator to better see his area of competence -pour la coherence -*car l'apprenant doit juste restitue les acquis* -*pour permettre à l'enfant de rester dans le même cadre pédagogique* - *pour la congruence avec les énonces de compétences* -to make learners familiar - *parce que c'est la compétence de l'enfant qu'on évalue* -to fully integrate social life -to link theory and practice -*l'enfant se sent directement concerné* -*bien sur car comment utiliser une méthode pour enseigner et ne pas utiliser pour évaluer*	-because they are many ways in which each problem can be solved

A total of 287 (98.9%) as opposed to 3(1.1%) respondents were in favour of aligning the instructional methods with the assessment methods. Some of the reasons they gave, were that teaching is learner-centred and the learners need to be fully involved in their learning. It makes the learners to be familiar with the assessment, thus reducing test anxiety. Another reason is to help the learner stay focus and in the same line of competency development.

Those who feel that the instructional strategies should not be used for evaluation of learner competences, advanced that they are many ways in which each problem can be solved meaning that some solutions may be provided in ways that are not taught or practiced in class.

The inspectors had a similar opinion with the first group of respondents, confirming that the instructional methods should be aligned with the assessment though mostly for formative assessment but that it can also be done for terminal as well as certificate exams where pupils can be made to carry out practical activities in groups. But this will depend on the level of training that will be given to the teachers.

- **R.Q 6. How appropriate is the criteria and grading system for judging the level of competence?**

To get a clearer view of the criteria, the responses from the respondents were recorded as shown on the table below.

Table 30: Distribution of respondents opinions related to the Criteria and grading system

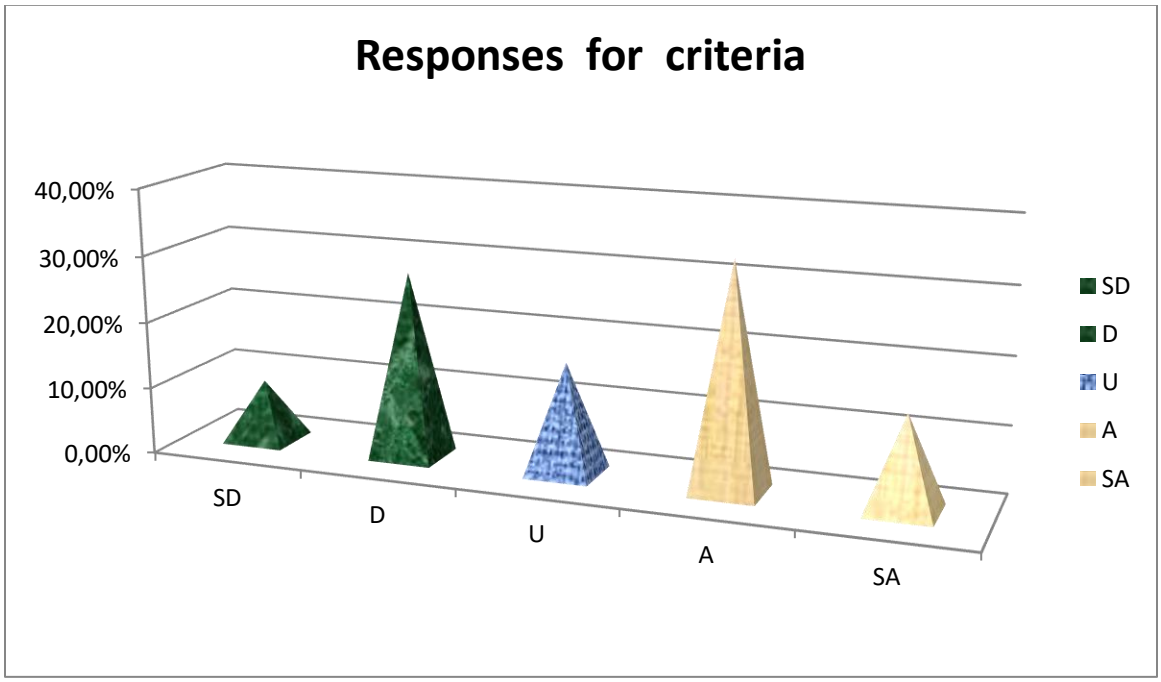
SN	ITEM	M	STD
1	Written exercises should have the more mark allocation in CBA	3.87	1.59
2	Oral exercises should be given more marks in CBA	2.49	1.03
3	Practical activity should be given more marks in CBA	3.41	1.19
4	Written exercises should have the same mark allocation as for orals and practicals	2.55	1.09
5	The assessment must follow the criteria set not how learners have performed	3.50	1.11
6	The grading system , CA, CNA, CBA, Expert give a true picture of competences	3.48	1.12
7	CBA looks at the individual performance and does not encourage the comparison of learners in a class	3.32	1.04
8	The level of the learners should determine the grading criteria in CBA	3.60	0.98
9	The score of a single assessment can be used to judge mastery of competences	2.36	1.09
	Overall total	3.21	1.1

It can be observed from table 27 that the highest score is where teachers feel that Written exercises should have more mark allocation in CBA (M= 3.87;SD= 1.59). The moderate scores were obtained where level of learners should determine the grading criteria (i.e. item 8 M =3.60, SD= 0.98); the assessment must follow the criteria set not how learners have performed (i.e. item 5; M =3.50, SD= 1.11); The grading system , CA, CNA, CBA,(competency acquired, competency not aqured and competency being acquired respectively); Expert, give a true picture of competences (M =3.48, SD =1.12); Practical activity should be given more marks in CBA (M =3.41 SD =1.19) ;CBA looks at the individual performance and does not encourage the comparison of learners in a class (M =3.32, SD= 1.04). Low scores were recorded for item 9 where it was suggested that the score of a single assessment can be used to judge mastery of competences (M =2.36, SD= 1.09); and those suggesting the mark allocation for the distribution of marks for the written and oral exercises, meaning the learners rejected the claim.

To summarise, judging the level of attainment of competencies should follow the criteria spelt out in the curriculum, should consider the level of learners or the time taken to achieve competency,

and mark allocation should be according to the type of learning task or type of subject. Also, competency should be judged based on a number of assessments not on one.

Figure 23: **Responses about the criteria of judgement of competency**



The table below gives the responses gotten from the open question

-To you, which criteria is good for judging the level of competences of learners. Please explain

Table 31: Responses to the open-ended question on the criteria for judging competence

SN	-evaluate what is taught or -teach what is to be practiced before time
	–using CA, CBA ,CNA, and Expert
	-competences should be judged from practical activities or project-based
	-written, oral and practical

	-the criteria in the curricula are well outlined -weak , very weak , fairly good , good, should be used to make learners understand their level -*Par niveau* -*en fonction du critère de performance* -*on doit suivre le modèle dans le curriculum* -scores from multiple evaluations should be used -written and practicals - *le critère doit être mesurable de forme qualitative et quantitative* -project based because it evaluates the level of understanding -*les critères chiffres* -written because you will know if the learner has learnt or not -judged from weekly and monthly evaluations -Written because the learners cannot write down what he or she cannot understand -Using marks -The allocation of marks should depend on the subject ie more on practical for vocational subjects and sciences, and more on orals for languages -Allocation of marks should be according to the tasks -For sports evaluation consider written and practicals -less scores for attitude/ attitude is not even important because some teachers give marks to children just because they are happy/ giving marks for attitude because some children are happy is causing more harm than good to the child -more marks for orals in level 1 and languages

The above results show that the teachers had mixed feelings concerning the evaluation criteria to be used. While some teachers feel that competency can be better judged using practical activities (authentic performance), some feel it can be judged from the written work (written performance). Concerning the mark allocation; majority of the teachers were for the fact that the written test should be allocated more marks than practicals or orals. They suggested the sharing in percentages as follow:70/20/10 ; 50/25/25*;* 60/25/15. Others suggested only two sections, written and practicals leaving out orals e.g -60/40. Some respondents felt that practicals should carry more marks than

written and orals; while others were in support of more marks allocated to orals than the other type of tests; then 17 respondents were for equal mark distribution.

The discussion with the inspectors made it clear that judging the level of attainment of competencies should follow the criteria spelt out in the curriculum, should consider the level of learners and mark allocation should be according to the type of learning task or type of subject. This, they explained that they are some learners who will excel in practical activities , more than written or orals; while others will do better in oral more than the ohter types. Therefore the learner traits should also be considered .

- **SUMMARY OF THE EFFECTS OF THE ABOVE MENTIONED VARIABLES**

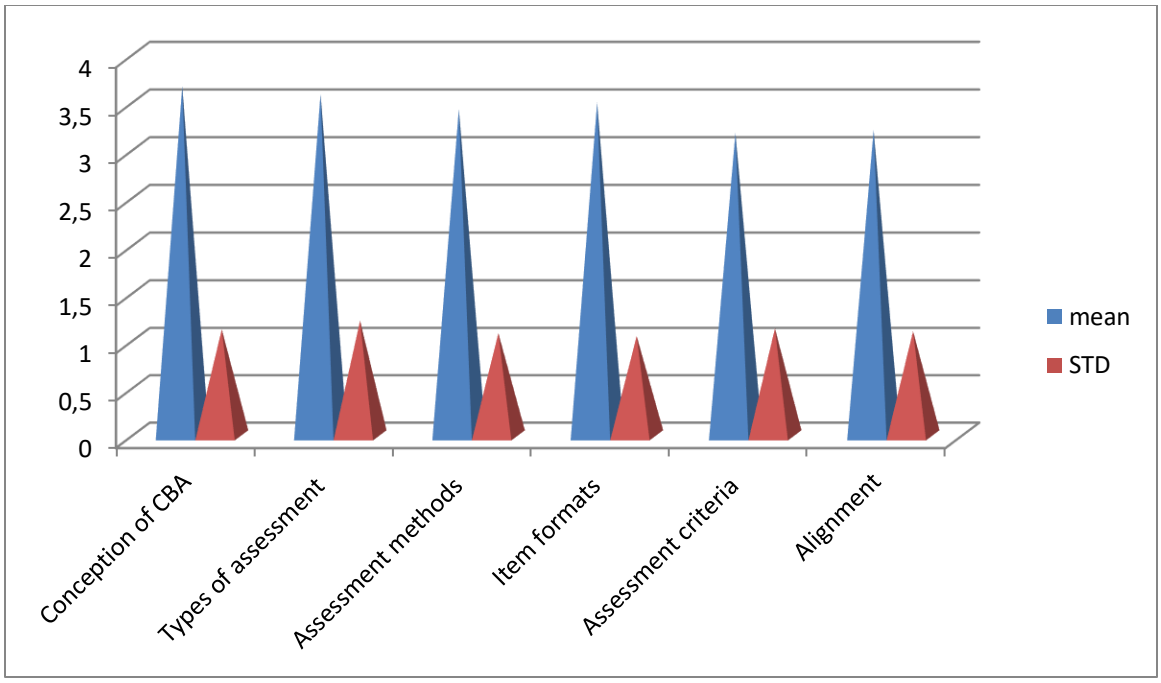
A summary of the effect of the independent variable on the dependent, was as follows:

All the variables viz: conception of CBAp, types of assessment, assessment methods, item formats used, the criteria for judging level of competency acquired and alignment of nstructional metods with assessment metods, all proved to have an effect on the implementation of CBA in our schools. The comparison has been done descriptively using the mean values and the standard deviations. All the mean values ranged between 3 to 3.5 , which according to the above scale, the level of acceptance was moderate. The values for standard deviation were all below or equal to one, showing that the respondents did not differ so much in their ideas (the lower the values of standard deviation, the closer the responses towards a particular direction, and vice versa). This moderate degree instead of very hig, may be because te teacers are still in the first phase of te implementation of CBA.

A further comparison to determine the extent of the relationsip of these variables with te dependent variable, will be done inferentially using Pearson correlation as we shall see below.

The results for descriptive analysis are presented in the figure below.

Figure 24: **Effect of independent variables on the dependent variable**



- **Summary of correlation of the variables of assessment models and CBA implementation**

Total 1 -Conception of CBA

Total 2 -Assessment types

Total 3 -Assessment methods

Total 4 -Item formats

Total 5 -Alignment of instructional methods

Total 6 -The criteria for judging level of competence

Total 7 -Assessment models and implementation of CBA

The first six variables were correlated with the seventh to see the extent to which they affect the implementation of CBA in the primary schools. Hence multiple correlations were used. Pearson product moment correlation (r), was used and judged at the significance level of 0.05. Any value below 0.05 is accepted whereas above 0 .05 shows rejection of the hypothesis.

Table 32: Summary of correlation of assessment models and CBA implementation

Correlations								
		Total 1	Total 2	Total 3	Total 4	Total 5	Total 6	Total 7
Total 1	Pearson Correlation	1						
Total 2	Pearson Correlation	.519**						
Total 3	Pearson Correlation	.458**	.497**					
Total 4	Pearson Correlation	.377**	.396**	.354**				
Total 5	Pearson Correlation	.384**	.427**	.263**	.253**			
Total 6	Pearson Correlation	.295**	.299**	.114*	.243**	.397**		
Total 7	Pearson Correlation	.420**	.375**	.320**	.281**	.241**	.323**	1

**. Correlation is significant at the 0.01 level (2-tailed).

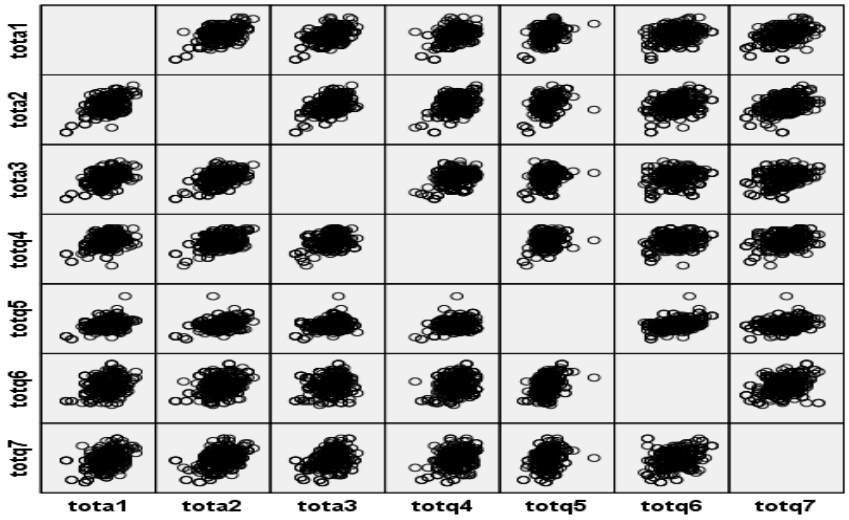
*. Correlation is significant at the 0.05 level (2-tailed).

The above table reveals that assessment model significantly affects the implementation of CBA in Cameroon. The comparison was done using pearson correlation , all the different sub variables were significant ($p < 0.01$; N 335). Secondly, the relationships are all in the positive direction but the strengths vary. The judgement was done using the table for the interpretation of 'r', taken from Cresswell, (2007, p. 269) as presented in table 9 above; as follows: 0.00-0.20 negligible; 0.21-0.40 low, 0.41-0.60 moderate; 0.61-0.80 substantial and from 0.81-1.0 very high.

It was revealed that the relationship ranged from low to moderate. Beginning from the higher value, the conception of CBA had a higher value, r =0.420, followed by types of assessment r = 0.375; then criteria for judging level of competence r= 0.323, choice of assessment methods r= 0.320 ; item types r =0.281 and lastly alignment of instructional methods r=0.241.

The correlations are further dispayed by the scatterplots below:

Figure 25: Scatterplot for correlation of variables



Scatterplots are useful for plotting multivariate data. They can help you determine potential relationships among scale variables. A simple scatterplot uses a 2-D coordinate system to plot two variables. Each variable in the drop zone is plotted against every other variable to create a matrix of individual scatterplots. Scatter plots are used for the study of of relationships between varibles X and Y. The pattern of dots or points on the scatter diagram, gives an approximate description of the nature of the relationship between X and Y. The more the dots are clustered along a straight line, the more the correlation between the variables (Amin, 2005, p 137). The arrangement of the dots in the above table , falls under the range $0< r < 1$, shown by Nana (2012) in the typical scatter plots displayed. This range means all the different correlations are positive but weak.

- **R.Q.7. What is the mean difference of the assessment strategies used in the two sub systems and how do they affect the implementation of CBA?**

To understand if there is a difference in the manner of implementing the competency based evaluation in both French and English sub systems; the respondents answered the following questions that were analysed descriptively using the mean and standard deviation; but were further analysed using inferentialt statistics (the independent t test that is presented below).

Table 30

Responses in line with the Assessment models and effective implementation of CBA

SN	ITEM	Me	STD
1	The approach used for competency based education (CBE) affects the implementation of CBA	3.62	0.79
2	The type of assessment (formative or summative) does affect the depth of understanding of competencies	3.31	1.09
3	The choice of the assessment methods/strategies does not affect the level of mastery of competences in CBA	3.09	1.21
4	The type of item format used in CBA determines the level of attainment of competencies	3.57	0.83
5	The instructional methods used for competency based approach should be reflected in the assessment practices	3.17	1.13
6	The criteria and grading system for judging level of competence does not give a significant measure of learners' competences	2.86	0.95
7	There should be an assessment model guiding how assessment in CBA should be done in the final examination	3.41	1.05
8	I have received adequate training on assessment methods used in CBA	3.27	1.04
9	Teachers in my sub section have fewer challenges with the design and implementation of CBA	3.03	1.10

From the above table, it was observed that majority of the respondents had high scores for the fact that the approach used for competency based education (CBE) affects the implementation of CBA(M =3.62, STD= 0.79); followed by the type of item format used in CBA determines the level of attainment of competencies (M =3.57, STD= 0.83), then there should be an assessment model guiding how assessment in CBA should be done in the final examination (M =3.41, STD = 1.05); adequate training (M =3.27, STD =1.04); alignment of instructional strategies with assessment (M 3.17, STD 1.13) and lastly the criteria for judging the level of competency acquired (M =2.86, STD=0.95). The task of implementing CBA is still challenging to both sub systems (item 9: M =3.03, STD= 1.10).

To further appreciate the extent to which the assessment model affects implementation, the inspectors attest to the fact that the main difference is in the conception of CBAp because each sub system has its own orientation of what the CBAp is concerned. Secondly, the absence of an evaluation model makes implementation difficult as teachers are trying to conceive the assessment model based on literature given in the curriculum. The inspectors all accepted that at their level , they cannot really say with confidence how the assessment should be as they are still waiting for a sample from the ministry. The alignment, criteria for judging competencies, the choice of assessment methods and item types , they say, depend on the level of the learners, the subject area and the teachers discretion.

4.4 PRESENTATION OF RESULTS FOR THE MEAN DIFFERENCES

Below is an independent t test carried out to see if the implementation phase is same or different in the two sub systems. The table chosen is the section of responses for assessment models and implementation of CBA as seen in table 30 above.

Table 31

Mean differences between the English and French sub systems

1= French sub system 2=English sub system

Group Statistics

	Sub system	N	Mean	Std. Deviation	Std. Error Mean
Item 1	1	225	3.2222	1.12379	.07492
	2	110	3.0727	1.13096	.10783
Item 2	1	225	3.2133	1.11755	.07450
	2	110	3.5182	1.01124	.09642
Item 3	1	225	3.0578	1.15002	.07667
	2	110	3.1818	1.31457	.12534
Item 4	1	225	3.4800	.89682	.05979
	2	110	3.7727	.61568	.05870
Item 5	1	225	3.6356	.86115	.05741
	2	110	3.6182	.64937	.06192
Item 6	1	225	2.8400	.93121	.06208
	2	110	2.9000	.97633	.09309
Item 7	1	225	3.4756	1.01356	.06757
	2	110	3.2727	1.12445	.10721
Item 8	1	225	3.3689	1.03160	.06877
	2	110	3.0818	1.04163	.09932
Item 9	1	225	3.1911	1.07898	.07193
	2	110	2.6909	1.07298	.10230

Table 33: Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Item 1	Equal variances assumed	.018	.894	1.141	333	.255	.14949	.13102
	Equal variances not assumed			1.139	215.225	.256	.14949	.13130
Item 2	Equal variances assumed	1.640	.201	-2.417	333	.016	-.30485	.12610
	Equal variances not assumed			-2.502	236.924	.013	-.30485	.12185
Item 3	Equal variances assumed	11.577	.001	-.884	333	.377	-.12404	.14035
	Equal variances not assumed			-.844	192.698	.400	-.12404	.14693
Item 4	Equal variances assumed	29.926	.000	-3.085	333	.002	-.29273	.09488
	Equal variances not assumed			-3.494	296.941	.001	-.29273	.08379
Item 5	Equal variances assumed	0.003	.0959	.187	333	.852	.01737	.09285
	Equal variances not assumed			.206	277.269	.837	.01737	.08444
Item 6	Equal variances assumed	.006	.939	-.545	333	.586	-.06000	.11008
	Equal variances not assumed			-.536	207.539	.592	-.06000	.11189
Item 7	Equal variances assumed	2.941	.087	1.659	333	.098	.20283	.12229
	Equal variances not assumed			1.600	197.619	.111	.20283	.12673
Item 8	Equal variances assumed	1.602	.207	2.384	333	.018	.28707	.12040
	Equal variances not assumed			2.376	214.589	.018	.28707	.12080
Item 9	Equal variances assumed	3.934	.048	3.992	333	.000	.50020	.12530
	Equal variances not assumed			4.000	217.541	.000	.50020	.12506

The results from the Levenes test for equality variances in table 31 above shows significant differences with items 3,4,and 9 with p values less than 0.05, that is 0.001, 0.000, 0.048, respectively. Items 1, 2, 5, 6, 7, and 8, had significant values greater than 0.05 (p= 0.894; 0.201, 0.959, 0.939, 0.087 and 0.207 respectively). These second set of values showed that there were no significant differences in the responses coming from the two sub systems.

For item 1, which sought to find out if the approach used for competency based education (CBE) affects the implementation of CBA, it was clear that the two sub systems have differences in conception of competency stemming from the different approaches to competency based education but which are not significant. This can be seen in the mean differences from the table 30 above, French (M 3.22, SD 1.12) ; English (M 3.07; SD 1.13). It is worthy to note that this was the result from teachers' opinion which are different from the inspectors' views, because the teachers have limited knowledge on what is happening. Some items were further selected to verify if truly the competency approach is implemented in the same or different way. The results are displayed on the table below.

For item 2, the type of assessment (formative or summative) does affect the depth of understanding of competencies. The higher mean values for the English showed their preference for formative through continuous evaluation, than summative for the French with monthly evaluations (French M=.3.21, SD=1.12; English M=3.51, SD=1.01). though the mean values reveal differences, yet they are not significant.

For item 6; The criteria and grading system for judging level of competence does not give a significant measure of learners' competences. They were differences in the mean values French (M 2.84, SD 0.93,) ; English (M =2.9; SD 0.98). The English prefer judging competences from what the child can do practically as opposed to the French whose judgment is based on how the child can integrate the different resources to solve problem situations, yet the differences are not significant.

For items 5, 7 and 8 on the alignment of instructional methods; need for an assessment model guiding how CBA should be done, and the need for adequate training on CBA methods; the results proof no significant difference in both sub systems, meaning both have the same views.

Items 3, 4 and 9, proved significant difference in manner of implementation. The differences were

at the level of the choice of the assessment methods; the type of item format used in CBA and the alignment of instructional methods with assessment methods. The English prefer authentic performance while the French prefer measuring performance with written exercises. Also, while the French set items using competency statements, the English use mainly the old format of setting but goes s far to include higher order items. For item 9: Teachers in my sub section have fewer challenges with the design and implementation of CBA; , they were differences in the mean values French (M 3.19; SD = 1.07) ; English (M =2.69; SD =1.07). The French proved to have fewer challenges in implementing CBA than the English. Their curriculum is well elaborated especially as concerns evaluation while this is lacking with the English curriculum. *(see selected portions of the curriculum in the appendix*).

To show proof if they are differences or not and where the differences are coming from; some items in the questionnaire were further selected and the independent t test was run and results are presented below.

Table 34: Group statistics

Group Statistics

	Sub system	N	Mean	Std. Deviation	Std. Error Mean
VAR00010	1	200	3.4700	1.08859	.07697
	2	135	4.0222	.98091	.08442
VAR00016	1	200	3.8950	1.04375	.07380
	2	135	4.2519	1.07007	.09210
VAR00023	1	200	3.9850	1.03932	.07349
	2	135	4.0963	1.11217	.09572
VAR00024	1	200	4.0750	.98704	.06979
	2	135	3.5481	1.09761	.09447
VAR00036	1	200	3.4750	1.07478	.07600
	2	135	3.3259	1.41331	.12164
VAR00049	1	200	3.5000	1.12531	.07957
	2	135	3.6148	1.13286	.09750

NB: 1-French; 2-English

Var00010-CBA is better done following the learning outcomes per subject (M=3.47 and 4.02) showing that more of group 2 (the English) responded favourably for this than those in group 1

(the French). This means the dfference was significant as seen from the table below (F 12.9; p<0.001, df=333)

Var00016- much emphasis should be on integrating knowledge from different sources to solve real life problems (M=3.89 and 4.25) for French and English respectively, but the table below proofs that the differences is non-significant (F=3.000, p=0.084; p>0.001; df=333): this means both groups have the same view, that is rejecting the claim as proven by the low F value.

Var00023- assessing learners weekly or monthly, gives a good pcture of competences acquired, i:e formative assessment (M=3.98, and 4.09). The table below confirms a non significant difference (F=0.458; p>0.001; df=333), both groups have smilar views.

Var00024-The integration week or 4th week for evaluation yields good judgment of competences: The mean diffrence (4.07 and 3.54 for the French and English respectively), reveals a significant difference as shown o the Levenes table below: F =16.429; p<0.001; df=333). Most of the favourable answers came from the French teachers.

Var00036-Learners in the primary school must <u>not</u> do something practically before being judged as competent: The results for mean differences (3.47 and 3.32 for the French and English respectively), reveals a significant difference (F=32.028; p<0.001; df=333) as shown below. Majority of the francophones accepted the claim. This question was asked in a reverse form, meaning that the Anglophone teachers are in support of the view that competency is judged based on the ablity of the child to do something practically or manually.

Var00049-CBA should assess also higher order tests not just recall of facts: the results showed no significant difference in the mean values, meaning the teachers in both sub groups feel that competency based assessment should not be limited only to the recall of facts. The mean values are 3.50 and 3.61, showing no significant difference as confmed by the levenes test (F=0.001 ; p=0.973; p>0.001; df=333).

To conclude, the differences in the believes and practices of CBA in the two sub systems, stems from the fact that the approaches for CBE adoption are different.

Table 35: Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
VAR00010	Equal variances assumed	12.912	.000	-4.737	333	.000	-.55222	.11658	-.78155	-.32290
	Equal variances not assumed			-4.834	306.683	.000	-.55222	.11425	-.77703	-.32741
VAR00016	Equal variances assumed	3.000	.084	-3.038	333	.003	-.35685	.11745	-.58789	-.12581
	Equal variances not assumed			-3.024	282.830	.003	-.35685	.11802	-.58916	-.12454
VAR00023	Equal variances assumed	.458	.499	-.934	333	.351	-.11130	.11910	-.34558	.12299
	Equal variances not assumed			-.922	274.346	.357	-.11130	.12068	-.34887	.12628
VAR00024	Equal variances assumed	16.429	.000	4.579	333	.000	.52685	.11506	.30052	.75319
	Equal variances not assumed			4.486	266.704	.000	.52685	.11745	.29560	.75811
VAR00036	Equal variances assumed	32.028	.000	1.095	333	.274	.14907	.13615	-.11876	.41690
	Equal variances not assumed			1.039	234.930	.300	.14907	.14343	-.13350	.43164
VAR00049	Equal variances assumed	.001	.973	-.914	333	.362	-.11481	.12569	-.36205	.13242
	Equal variances not assumed			-.912	286.394	.362	-.11481	.12585	-.36252	.13289

4.5 ANALYSIS OF OTHER OPEN QUESTIONS

4.5.1 Do our primary schools need an assessment model? If yes , propose what should be adopted for the class assessment and FSLC examination

Table 36: Proposals on how the class assessment and FSLC should be organised

yes	no
157 (91%)	15 (9 %)
-multiple methods , MCQ -weekly/ monthly -summative - *oui nous allons besoin d'un exemplaire* *-Ce modèle peut provenir des enseignants mais amender et adopter par les ICE* Use both old format and problem situations per discipline - *Juste une question de familiarisation* *-doivent être conformément à ce qu'on fait en classes* *-la pédagogie est une science évolutive et diversifier de ses méthodes et évaluations* -it should adopt the CBAp - *L'évaluation qui intègre l'écrit, l'oral et le pratique* -subject centered assessment for class work and old format for FSLC -all the formats from MCQ to inferential questions -allow old format of testing for now because of lack of resources, more time and days will be needed, more examiners, thus expensive to run -much work should be given in social studies -include group work in FSLC -prefer stimulus to competency statements -per subject competency, then overall competency -questions should be asked in a way that pupils can easily express their ideas rather than tied to a particular language or idea -avoid trickish questions for the learning process is not a trap -Include problem situations for orals and practicals -Complex real life problems but brief so that learners don't spend time doing reading comprehension	-have a model already -teachers plan their assessment in line with agreement reached by the school *-car cela rendra certaine enseignants paresseurs* *- ca dépend de la situation géographique qui est différents* *-EBC rendre les élèves faible et avancent avec les difficultés de lecture* *-parce qu'on doit évaluer l'élève en fonction de son environnement, son ère géographique et de son climat* --don't think FSLC should follow the new program because grading will not be easy and many days will be needed

157 (91%) respondents accepted the need for an assessment model as opposed to 15 (9%). Those

who are for it gave suggestions such as: the use of both the old format of setting and the new way using competency statements. Others preferred stimulus in items than competency statements. Evaluation items should start with subjects first before moving to overall competencies. Some felt that complex real life problems should be used but they should be brief so that learners don't spend time doing reading comprehension; while others suggested teachers should propose the setting for those above in hierachy to amend.

Those who were against the need for an assessment model said an assessment model would make teachers lazy. Others said they don't think FSLC should follow the new program because grading will not be easy and many days will be needed; while others feel that learners' environment should be considered in assessing them (that is, the rural and urban setting), therefore an assessment model won't fit well in all geographical environments.

The inspectors , on their part rely much on an assessment model to be presented to them so that they will in turn train the teachers on how to better evaluate learners' competencies.

4.5.2 What are some of the challenges faced with the competency based assessment

What are the challenges faced with their assessment practices and design of CBA?

The teachers were asked to enumerate 5 main challenges they face with the assessment of the learners following the new curriculum. The results are tabulated below and any single complain was noted. Only 296 respondents answered this question. The answers are coded directly using the respondents' words; that is similar ideas are grouped and the number of teachers who wrote similar ideas are counted and noted under frequency.

NB: It is worthy to note that some teachers gave more than five difficulties as well as less than five.

Table 37: Main challenges faced by the teachers with the CBA in the two sub systems

SN	Challenge	Total
1	Difficulty to conduct orals per subject/language barrier	81
2	Lack of resources/ space for practicals	111
34	Setting problem situations or real life situations	52
5	Large class size	86
6	Learners difficulty to understand the new way of teaching	106
7	Judging the level of competency acquired by the learners	48
8	Assessing learners' attitude per subject	52
9	Particular subject areas do not favour practicals or integration	47
10	Understanding the CBA concept by the teachers	30
11	Textbooks for kids and teachers on CBAp not available	38
12	Grading / scoring rubrics not well understood	62
13	Frequency of evaluation which leaves short period of teaching	52
14	Communicating results to parents is difficult	12

From the table above, their major obstacles out of the 14 different ones cited were lack of resources for practicals; learners problems; and large class size.

These complaints were stated as follows, quoting directly as the teachers presented them using their own words as follows:

-manque de matériels didactique pour les projets

-difficile à évaluer le savoir-être car on ne peut pas suivre les enfants à la maison

-l'attributions des notes à l'oral envoie en classe supérieure les élevés incapable d'écrire

- **Learners difficulty to understand**

Most teachers said one of the greatest difficulty is with the learners' level of understanding. Some complained that the learners in primary school now are too young to understand and apply knowledge to solve problems. Others cannot read because the allocation of marks to oral assessment makes most of those who cannot read to be promoted to the higher class, a kind of mass promotion strategy that makes them unable to cope with the demands of CBA. One must be able to read the problem situations, understand before trying to provide solutions. Below are some of the teachers' comments:

- *learners think differently according to their backgrounds*

- *using the problem situation in asking questions, makes it long and confusing to the learners*
- *some teachers have difficulty to guide learners to realize the task especially in level 1*
- *difficult to manage groups and to evaluate children in a group*
- *some children cannot write since they were promoted based on high oral scores*
- *children who were not prepared for the next class based on the type of evaluation*
- *CBA is fashioned to encourage mass promotion which is not a good foundation for learning*
- *grading learners who cannot read but have passed because of orals*

- **Judging the level of competency acquired, grading and scoring rubrics**

Another major challenge was how to determine the level of competency acquired. The teachers complained of mark allocations for orals at times which helps to promote the learner but who may be still incompetent for that class. Others complained of grading the attitude of the child since children easily change behavior and attitude continuous right back to their homes, thus teachers can't follow them up to that level. Others complained of no systematic grading available or they do not fully understand the grading process, making it difficult to communicate the results of the learners to their parents. Below are their comments in their own words:

- *Since learning is a life long process, some competences may not be seen at one period but in the next*
- *Studying each learner's behavior to record marks for attitude, is difficult as children easily change their modes*
- *when the child is absent, it becomes boring for the teacher to assess the child again*
- *it is not really easy to come out with the grading per subject*
- *some learners can answer questions well orally but face difficulty in written*
- *some have problems in grading them i.e. competent acquired, not acquired*
- *writing competency statements that integrate most subjects/ bringing out a project integrating all subjects was difficult at first but now we no longer use competency statements in our sub system, (*while the French have ameliorated this practice through the seminars they have had*)*
- *no systematic grading is available*
- *evaluation model is not well understood*

- *Difficult to judge as some do well in orals or practicals or written only and are poor in other areas or they may be good in one subject and poor in the other*
- *Conformity to marking guide is difficult*
- *Relating the integrated learning theme to problem situation is problematic*
- *Creating practical activities in all subjects is not easy*

- **Difficulty with orals**

Conducting orals with the learners was seen to be problematic due to the large class size and the frequency of evaluations especially with the integration week now practiced by the French schools. The English teachers complained of most pupils that are French speaking and so cannot express themselves well in English; while other pupils are shy to talk, making the grading difficult.

- **Lack of resources**

Most teachers mentioned lack of resources as one of the major problems. Since CBAp is a pragmatic approach to teaching and learning, the learners are supposed to be provided with enough materials to practice with. Some schools lack space to carry out practical activities like agriculture and others complained of no equipment to teach ICTs practically. One of the comments made by the teacher reads thus: -*on doit d'abord transformer les salles en atelier pratique,* meaning classrooms need to be transformed to workshops furnished with the necessary materials for work. With this challenge, one of the inspectors said it is no longer a big challenge because teachers have been encouraged to make use of salvage materials for practical activities

- **Understanding the concept of CBA during in-service training:**

Some teachers pointed out that they still face difficulties in understanding really how the CBAp should be done . They complained of frequent changes coming up all the time. At times the seminars organized do not really explain well how the system functions, especially how to assess the learners. New ideas are being introduced every time that confuses them more especially the format of the lesson notes; while some added that seminars do not really tell them what to do well. This worry was also spoken of by one of the inspectors that since it is still a new approach and the curriculum is still new, they are still in the process of masterying the concepts and contents (*Notre problème de la chaine educative, est d'abord de s'approprie au nouveau curriculum. Il faut comprends bien pour mieux expliquer aux enseignants comment faire pour mieux évaluer les*

saviors). This creates a disagreement among some inspectors, since everyone tries to understand in his own way, thereby leading to several changes along the line. More so, the absence of textbooks following the CBAp and lack of an assessment model to guide the teachers on how to assess the learners, all what they say are their own suggestions which may differ from one person to the other.

- **Difficulty designing assessments**

Designing assessments following the competency based approach was seen as another greatest challenge. Most teachers were seen to assess mostly following the old format of setting items. For the few that used problem situations, the statements were not well framed. The stimulus was not captivating and some do not know how to set questions that cut across many subject areas, as we shall see in the analysis of samples of the tests papers below. Some of their complains were:

- no evaluation model to follow

-bringing out a problem situation integrating all or many subjects is difficult

-Relating the learning theme to problem situation

-Creating practical activities in all subjects

- lack of textbooks with assessments following the competency based approach

The lack of textbooks on CBAp is a serious one because it should have contained exercises that would serve as a model for teachers to follow when setting items for their evaluation.

NB: Time constraint was no longer seen as a challenge as evaluations are done now in a continuous manner and only the terminal evaluation is recorded for the English schools; meanwhile for the French, though they do monthly evaluations, they use just a single problem situation for each subject area or domain.

4.6: PRESENTATION OF THE INTERVIEW WITH THE INSPECTORS

The interview was conducted on 6 persons, that is three Regional Inspector Coordinators of Primary Education, Bilingualism and Educational Technology : and three Pedagogic Advisors for Primary Education, Bilingualism and Educational Technology at the Divisional level. The interview was tape-recorded and note-taking too was used. The reults are presented below, using the interviewees real words. The interviewees are represented with coded letters , that is I1 for the first interviewer, I2 up to I6. The respondents were made up of three English speaking and three French speakng personnels. Their comments have been incorporated in the presentation of results

in the section above.

4.6.1 What view of competency is highlighted in the new curriculum of the primary school?

The inspectors gave varied definitions of the concept of competency or competence such as mobilization of resources to solve problems, competency as learning outcomes intended to be achieved in a given period of time, and competency as the integration of knowledge, skills and attitudes (KSAs) to solve real life problems. Competency is what is needed to prepare the learners to cope with life challenges in future even after leaving the primary school.

Two main distinctions can be seen: competency as integration of resources to solve real life problems and competency as a set of learning outcomes to be achieved at the end of course work, hence different schools of thought were reflected here. These responses are presented below in their own words and they correspond to the definitions of competency as seen in the review of literature.

I1. *Competency, to me is the mobilsation of resources to solve daily life problems*

I2. *Competency, to me is the mobilsation of resources to solve daily life problems*

I3 *Competency, to me is the learners profile; a set of learning outcomes for learners to achieve and portray after leaving the primary school*

I4 *: Competency, to me is what the learner is expected to achieve and be able to do after passing through the primary school*

I5 *: « La competence pour moi c'est une méthode d'enseignement qui favorise la mobilisation des ressources tels que le savoir, savoir –faire, et le savoir-être; pour résoudre une problème lies à la vie courante »*

I6: *competency is the ability to solve real life problems using the KSAs acquired in the course of learning*

4.6.2 What do you understand about the following approaches of competency based approach? Behaviourist b. constructivist c. learning area approaches

The inspectors did not really seem to have a mastery of these approaches of the competency approaches but they could infer from the answers they gave , drawing from their knowledge of psychology, especially the behaviourist and costructivists approaches as described by Boukhentache (2016).

I1: *Behaviorists like Pavlov; something must be seen; constructivist is in line with pedagogy of integration*

I2: *« Le curriculum a 6 grandes compétences disciplinaires et 7 compétences transversales. Les compétences disciplinaires sont liés au constructiviste alors que les compétences transversales sont liés aux comportementalistes. Les deux sont complémentaires"*

I3: *Behaviorist meaning there should be an observable change in behaviour, the learner is not only taught to know but to show with the skills acquired*

Constructivist involves the construction of ideas to solve real life problems

I4: same as for I3 above

I5 same as for I2 above

I6 *Cameroon has not started implementing the competency based approach, so we cannot talk of C.B.A , instead we should be concerned about the new curriculum with its different approaches which are project based learning, objective based learning, CBAp as one of the approaches. The learning themes are areas of focus for teaching for the whole month. The themes are stated at the level of the nation but can still be selected by a school district.*

4.6.3 Which of the above approaches of competency based education in your opinion should be given more emphasis to in our context ?

I1*: Constructivist*

I2: *Constructivist*

13: *Both behaviorist and constructivist or better still holistic approach; including learning themes so that the resources; knowledge, skills and attitudes, are not acquired haphazardly but in a context*

I4 *: Both approaches*

I5 *: « Les deux mais le plus part, constructiviste car il s'agit de l'intégration »*

I6 : *Both approaches*

From the responses given above, two inspectors talked of constructivist approach while 4 preferred both approaches , that is , holistic approach to CBAp.

4.6.4 What models of Competency-based assessment in your opinion, are to be followed in Cameroon (analytic, integration of many subjects, holistic etc)?

I1. *The main focus of the new curriculum is integration of knowledge from different sources,*

cutting across many disciplines, or inter- disciplinary approach to competency evaluation; but what is practiced at the moment is analytic or isolation: that is, integration of resources following the subject areas

Some teachers are trying to set items that cut across many subjects but it is not yet finalized:

I2. *« Evaluation de compétences n'est pas encore transversale, bien qu'on ait mentionné dans le curriculum. Pour le moment on fait encore les compétences disciplinaires, c'est à dire analytique. Les énoncés des compétences est pour le sous-système francophone. »*

Though the view of the new curriculum is inter disciplinary approach to competency evaluation, teachers are not yet versed with the approach so they use but the subject areas. There are 10 subject areas to be evaluated under 8 themes; so at the end of each pedagogic month, the fourth week or the integration week, the teachers set integration activities for each of the 10 subject areas.

Before the new curriculum, I had the chance to participate in training sessions where the main focus was bringing out items that cut across different subjects, but from the look of things and the way the teachers have been oriented towards integration following subject areas; it will be a bit difficult to tune them to the inter disciplinarity as proposed in the curriculum , though some few teachers are trying to set on their personal effort:

I3. *The analytic because a child has to master little sets of competencies in a lesson , in a month or term as well as judging competencies using oral, written and practicals. Integration of knowledge with the English sub system is done using project pedagogy and integrated learning themes , no integration of different subjects but a child can gain knowledge of different subjects from a project.*

I4: *Holistic, as it covers both analytic and constructivist, no problem situations or competency statements with the English sub system, but children are exposed to real life setting in the tests , items must have stimulus , task and instruction:*

Analytic for formative and summative but no integration of different subjects for summative as it confuses the child: teachers are yet not versed with the setting.

I 5*: "constructiviste par integration"*

I6: *The teachers are not yet competent enough to construct competency statements that could integrate many subject areas…the teachers and the learners are not used to doing complex*

integration situations where many subject areas are evaluated

From the above responses, the inspectors from the French sub system specified that the new curriculum emphasises on the integration of KSAs from different subject areas, that is , interdisciplinary though the teachers at the moment are still integrating KSAs per subject area (analytic) because the concepts are still to be internalised by te teachers. The English inspectors on their part talked of the analytic approach where single subject areas are tested but integration comes in with project pedagogy, hence the interdisciplinary approach to assessment with compex problem statements is not yet practiced. One inspector was in favour of blending the analytic and the integration approach, in other words, a holistic approach can be done.

4.6. 5 Is there a model of assessment for the high stakes examination such as FSLC?

All the inspectors agreed that no model of assessment has been given by the ministry as of now, but from the guidelines in the curriculum, the teachers are being guided on what to do. The old format of setting still prevails in the English sub system while the French are trying to set using competency statements.

The responses to the above question were as follows:

I1. *At the moment; no model of evaluation following CBAp is out due to the top-bottom approach put in place by the ministry. We are still waiting on the hierarchy; since those following the new curriculum are in class four now, we hope by the time they reach class 6; a model will be available*:

***Q1.*So how are these teachers setting their evaluation and what about class 6?**

The teachers follow the criteria given in the curricular documents. How the items should be written is clearly specified using problem situations; teachers begin by stating the competency statements (les énoncés des competences) to be developed for the month and then set integration activities that follow the different subject areas. For class 6, they are using mostly the old format of setting although competences are evaluated in formative evaluation.

I2. *« Pour le moment il n'y a pas un modèle. On utilise encore le model traditionnel. On attend encore la model par compétences pour le CEP et c'est ça qui cause même les problème chez les enseignants. Les carnets qui sont sortie c'est pour l'évaluation par compétences, mais au niveau de CEP, on est encore avec les évaluations traditionnelles »*

No model at the moment but the curriculum contains guidelines on how evaluation is to be done. The teachers construct their tests though they had difficulties at the beginning coming

out with the competency statements:

« Il n'y a pas un modèle mais il y a les barèmes dans le programme qui montre comme ça doit se faire mais le ministère doit envoyer un masque. »

Class 6 teachers use both the old formats and the problem situations just to prepare the child to solve future problems but only the old format of setting comes in the final examination:

***I3** no model at the moment, old format of setting is used*

***I4** no model teachers are advised to draft both old forms and try to conceive using CBA but not really effective due to lack of a model*

The ministry should provide a model or bring out textbooks with the setting as examples

***I5**: « Pour les moments c'est l'enseignant qui conçoit son évaluation pour le moment, lorsqu'il enseigne à travers les projets, c'est lui qui sait quelle discipline pour intégrer dans son projet... »*

I6: *There is no model of evaluation to follow, the teacher is forced to use his/her initiative to evaluate the learner*.

4.6.6 What major challenges are the teachers, as well as you, the inspectors, facing with CBA implementation?

The inspectors identified challenges faced by the teachers as stemming from their lack of knowledge on designing assessments following CBAp, how to come out with projects from the learning themes, lack of zeal to change from one approach to another at a time; whereas, their main challenge as inspectors of now is to fully assimilate the notion of CBAp so as to better guide the teachers.

Their responses were as follows:

I1. *One major difficulty faced by the teachers in the French section at first was the competency statements but with the many seminars they are now able to evaluate following CBAp:*

As inspector, my major difficulty is to be really versed with the new curriculum. Since it is still a new approach; we are still learning: the theory is good but the implementation is a bit difficult. Our role is just to facilitate the evaluation process but we cannot tell the teachers what they should do with all confidence because no sample of the evaluation has been given yet:

***I2.** « Les enseignants ont quand même les difficultés parce que l'approche par compétences reste*

encore nouveau. On enseigne les savoirs mais pour faire intégrer les savoirs sont problématique. Les outils d'évaluations aussi est un problème. L'évaluation selon APC a une notion de choix, car l'élève doit avoir une canopées des choix pour pouvoir faire le choix: l'enseignant ne doit par être fixe sur une seule manière de réponse.

Les enseignants ont encore le problème de comment conçevoir une situation problèmes c'est à dire énoncer les compétences.

On a le problème de classe pléthorique est les temps aussi qui est mise à leur disposition puisqu'il évalue chaque mois. »

At first the teachers had the problem of stating the competency statements but with the seminars, there is little to worry about.

« Notre problème de la chaine educative, est d'abord de s'approprie au nouveau curriculum. Il faut comprends bien pour mieux expliquer aux enseignants comment faire pour mieux évaluer les savoirs. »

As an inspector, my task is to master the program to be able to better guide the teachers too

I3: *The problem with the teachers is lack of the zeal to change from old ways of doing things to embrace the new program: they do not search for information, as such they see CBA to be challenging:*

Teachers still test only with lower level questions

On my part as inspector, my challenge is working with people who are not willing to change. It's demotivating. Secondly, the absence of a model brings in a lot of controversies from the other team members.

I4: *One of the major problems faced by the teachers is to come out with real life situations to serve as the stimulus from where the questions will be asked.*

Another difficulty is separating the components of the competency into KSA, knowledge , skills and attitudes, therefore they find it difficult choosing the appropriate method to be used.

Another difficulty is the evaluation of attitude because childrens behavior change with time, competencies need time to develop and also different subject areas go with different attitudes.

As an inspector and one of the co-writers of the curriculum, I don't have any problem using this new program.

CBA cannot really be effective in Cameroon because of the large class size. It is a borrowed policy

from the Western world where the teacher-pupil ratio in the primary school is 1:25. Secondly there are no textbooks for the higher classes written following CBA , so teachers are made to follow only the old format of setting in these classes, that is level 3

I5: *The teachers do not have any more worries, they are confident working with the CBAp. The class 5 and 6 teachers are using both old and new formats of evaluation in preparation for any eventualities*

> ***I6:*** *The major challenge that the teachers face concerns the projects and the integrated learning themes. This is because the competency based approach has as pillars the project based learning, cooperative learning and flipped classrooms which are still very difficult for the teachers to apply. The approach is still new and many changes are being introduced all the time, but the teachers are gradually grasping the concepts".*
>
> *The competency based approach as every new approach has to follow the trend before being evaluated. It has to start with the pupils at the base, that is class one up to class six before they are evaluated. Which implies that those who were in class one in 2018 shall be evaluated following the CBA in 2024 when they shall already be writing the official exams in the Ministry of Basic Education.*

4.6.7 Which type of assessment, according to you, gives a deeper understanding of learners' competencies (formative or summative)

The inspectors recommended the use of both formative and summative evaluations for competencies as both are of importance. The manner of practice of these types of assessment slightly differs among the two sub systems as we shal read from the responses below:

> **I1**. *Both types; but what is done now is formative at the end of the month for teachers of the French section, to test integration activities; remediate before evaluating the learners with similar exercises since they are working with what is termed as family situations:*
>
> *Summative assessment would be preferable but because we are still in the trial phase, it cannot fully be implemented; our teachers are used to the 4th week of integration activities.*
>
> ***I2.*** *Both.*
>
> *« Il faut mélanger les deux, mais le problème n'est pas là bas, c'est au niveau de la technique d'évaluation. L'enseignant doit poser cette question: est-ce que je suis dans l'analyse au dans la synthèse. Formative est bon parce que quand les élèves ne vont pas comprendre, il faut les aider et l'évaluation sommative c'est pour mobiliser les savoirs: donc les deux types sont*

accepté. »

I3. *Both, but continuous assessment is preferable. We do not respect the 4th week of integration of activities but teachers are to evaluate along as they teach, yet they do terminal evaluations per levels and end of school year evaluation per level set at the level of the region. The teachers in different inspectorates set the tests and forward through the hierarchy to the region where they are kept in the item banks for later selection and assembly of the items to build a test.*

- **A further lead-in question was asked on the format used in setting these terminal evaluations.**

The tests still follow the old way of setting except that the items must have a stimulus , instruction and task, but not using competency statements as for the French system.

I4: *Both types; but emphasis on the continuous form of assessment which ranges from the diagnostic, through formative, to summative.*

I5: *Both; but diagnostic evaluation is better. For summative assessment, the teachers set the evaluation and forward to the inspectorates for vetting.*

- **Which method of assessment gives a deeper understanding of learners' competencies (tests, authentic assessment, performance assessment)**

The French inspectors were in support of tests well designed to test both lower and highly levels of thinking as they believe that if a student can solve problems in written form, it means they are competent. On the other hand, the English inspectors were in support of doing something prraticaaly before being seen as competenet.thus te French prefer the written performance assessment that is we crafted, while the engish prefer the authentic performance assessment as seen in their comments below:

I1: *To me it is tests. Our system is not like the English where a child is supposed to do something practically before seen to be competent; but in all, the tests should have aspects of orals, written and practicals, proportions varying with different subjects.*

I2: *« C'est un débat de l'école: pour le sous system Anglophone, l'enfant doit fait sortie un projet et doit pouvoir expliquer le projet pour être jugé comme compétent, mais pour les francophone les évaluations se font par énoncé les compétences: c'est a dire les enseignant doivent énoncer les compétences et poser les types de questions pour que les élèves répondent*

pour être juger comme compétent. »

I3*: Testing that must take into consideration the three forms of assessment, viz, orals, written and practiicaly tests and practcals through projects to solve real life situations*

I4*: All the assessments should include the four aspects, orals, written, practicals and attitudes. The new report cards specify the proportions for each of the domains. There are areas where orals take more marks than written or practicals etc. The assessment must take into consideration of the learning styles.*

I5 : *« Chez nous les francophones on préfère plus des épreuves écrit mais chaque évaluation doit avoirs les trois formes d'évaluations oral, écrit et pratique. On a aussi les projets basée autour des centres d'intérêts. »*

I6. *To me, I will prefer authentic assessments because it uses different assessment methods not only testing*.

- **Among the item formats, which of them are appropriate for use in CBA?**

All inspectors suggested all the item formats ranging from traditional item formats such as MCQs, matching, completion, essay should be used for CBA; but the use of problem situations was a bit controversial. While the French are in favour of using competency statements to bring up problem situations, the English preferred using higher order tasks that are related to real life probems. They were against the use of competency statements or a complex situation which is to be broken down before answering. Their responses go thus:

I1: *All the formats but coming from the competency statement and problem situation*

I2 : *« Tous les types d'items mais l'enseignant doit utiliser beaucoup de types pour amener l'enfant traverser la connaissance jusqu'à la synthèse selon la taxonomie de Bloom, mais les enseignants ne sont pas encore très capable de les faire. Il faut un dosage des questions couvert et ouvert »*

I3:*All formats but no more competency statements*

I4: *All formats using real life problems, MCQ, factual questions, high order or inferential questions etc to take care of the slow, middle and fast learners*

I5 *« Tous les type comme le choix à multiple, les questions ferme et ouverte selon le niveau des apprenants, mais les enseignants doivent beaucoup apprendre comment formuler et utiliser ce genres des types d'items »*

I6: *All the different formats because it gives learners a choice, if he doesn't understand a*

question asked in one form, he can understand when asked in another form.

- **Should there be an alignment between the instructional and assessment strategies?**

Asking about alignment of instructional strategeies with assessment strategies, the inspectors accepted with mixed feelings. They said it could be possible with summative evaluation if the teachers are trained to do so, but it works well with formative assessments, such as project pedagogy, cooperative teaching and flip classroom within the month. Below are their responses:

4 *: « Oui, mais non pas pour les évaluations certificatives »*

5 ***: «*** *Il faut qu'il y a un lien, si l'enseignant enseigne a travers l'intégration, l'évaluation doit aussi avoir ces stratégies. Si c'est pour la formation c'est possible mais pour l'évaluation surtout sommative, ça va déranger. »*

I3: *The CBA is not yet applicable in the field, setting is still done following the objective based approach*

I4: *Yes and no but it depends on the type of subject and also depends on the teacher: it can be done e:g bringing out a project in the FSLC where the learners can be grouped to do something*

I5: « *Oui, puis qu'on enseigne par l'intégration, par les projets et aussi la pédagogie inverse, les évaluations diagnostic ou formative doivent utiliser les mêmes stratégies d'enseignements »*

I6 : *Yes, it can be done in classroom evaluation as well as FSLC e:g group work for projects*.

- **Can the teachers really judge the level of learners' competencies from their assessment?**

To answer this question, the inspectors accepted that teachers can judge the level of competency beacause many evaluations are done before the end of year (formative) thus giving room for teachers to identify learners' areas of weaknesses and to improve on the level of competency acquired. Another inspector mentioned the fact that the criteria for evauation is well spelt out in the curicuum and if teachers follow it keenly, they will have litte issues with the grading criteria. Their responses were as follows:

I1 « *Oui ; à travers les critères qui sont définis pour chaque domaine d'enseignement »*

I2*: « On peut faire l'analyse que l'enfant ne peut pas encore faire ceci, mais c'est au niveau 2 or 3 qu'on doit évaluer les compétences. »*

I3: *The best way to judge learners competency in the Anglophone section, is through projects, let the children do something practically*

- **If you are called up to suggest ways of assessing learners competencies at the level of FSLC examination, what proposals would you make concerning the following:**
  a. the structure of the examination
  b. how many parts,
  c. what types of item formats etc should be included?

Below are the responses they gave:

I1: *I will suggest testing while grouping subjects according to skills (those requiring more of oral, more of written and more of practical) to serve as a basis for orientation into the choice of secondary school type since guidance and counseling services do not exist in the primary schools*

I2. *« J'ai parfois participé à une formation avant que le curriculum ne sort. Là, on avait pensé a une évaluation qui a une seule item sur laquelle vont graviter tous les sujets. Maintenant les enseignants font l'enseignant pas discipline et ils vont être évalué pas discipline*

On propose une épreuve transversale. On cherche encore comment ca va sortir mais il doit être orale, écrite et la pratique: on doit prendre compte des types d'élèves.. Pour moi on doit mettre l'accense sur les types des disciplines aussi, les discipline oraux doit avoir beaucoup de notes pour orale et ceux de pratique doit avoir pour la pratique. »

I3: *Giving the children a practical task that they can do and be judged competent or not e:g gardening is to be demonstrated not only in written evaluation*

-testing while grouping subjects according to skills (those requiring more of oral, more of written and more of practical

-testing according to the four broad based skills

-it should involve oral, written and practicals from the same content

-it should begin with aspects of the old format and end up with the new way e:g not only asking a child to name the regions of Cameroon but asking them to cut papers to label the different regions on a map

I4: *Take care of special needs, slow learners, use all the item types, three parts oral, written and practicals in the Anglophone section, we talk of real life aspects not problem*

situations:

I5 *I will propose only one problem situation and questions where all the different item types will be used:*

I6 *The old format for now and add questions with real life situations for learners to apply the knowledge: it should have all the three forms stemming from one problem situation*

4.7. PRESENTATION OF RESULTS FROM OBSERVATION OF SOME TEST SAMPLES USING THE CHECKLIST

A sample of question papers were collected from ten schools; five French (three public and two private) and five English (two public and four private). It was observed that the English schools except two private schools; were evaluating according to different subjects; while one private English school and all the French schools were evaluating based on competences as follows: C1 meaning the first core competency etc

C1a-communication in French; C1b –English ; C1c- National language

C2a-use basic notions of mathematics; c2b-use basic notions of scence and technology

C3 a- practice social values; C3b- practice citizenship values

C4: Demonstration of the Spirit of Autonomy, a Sense of Initiative, Creativity, and Entrepreneurship

C5- use concepts of ICT tools and information technology

C6- practice artistic activities

As shown in the table below; the French used one problem situation for each competence and from there questions were asked in three parts oral, written and practicals. Some included attitude. The English papers had no problem situations except for the two private schools that evaluated based on the competences.

The problem situations were fairly formed having the stimulus; task, instruction and criteria for judgment but they really did not bring out the real life issues that children encounter in their daily lives e.g *your friend Angel was not in class when they taught a lesson on arts and craft; help her by doing the following*:…..Almost all the teachers stated the problem situation in this way, meaning stating a problem situation or setting a complex problem, is still a problem to the teachers. The Engish sub-system started with the integration situation in 2020 and stopped again as they sw it to be a borrowed culture from the French (see ppedix).

Also the mark allocation for orals, written , practicals and attitude were not the same but varied

with the competence . for example for C1a; oral was 15; written 12; Attitude 3, but no practice ; while for C3a; Written 8; Oral 5; practical 7. It was also realized that practical activities varied; while to some it meant drawng exercise, to others it was written as well as contained another section for attitude.

Most of the item formats were those used for traditional assessment such as MCQs, matching, completion by filling in blanks or writing short sentences. The items tested mostly the lower thinking levels, that is they ranged just from knowledge, through comprehension to application.

The table below, better illustrates the observations made. Some samples will be seen under appendix.

Table 38: Results from the observation checklist for the teachers' assessment tools

Class	Sub system	Set according to competences	Set according to domains	setitng per subject	Problem situations	Quality of Problem situations	Ite formats	Scoring rubrics	Forms ofn assessenent	Performance assessment
CM1	French	Yes C2b	no	no	yes	Fairly good	Fill in blanks, short prases	yes	O 6; w7; p 20, A 7	By drawing
CM1	French	C5	no	no	yes	fair	same	yes	O 4, w 10, p 20, a 4	By drawing
CM2	French	C 6	no	no	no	-	Short answer	no	P 12; w 4; o 4	By drawing
CM2	French	C 1b C3a	No no	Yes no	Text yes	- fair	MCQ, completion, sentences	no	O 15; w 12; A 3, W 8. O 5; p 7	None P written
Cl 4	English	no	Yes-ST	Old format	no	no	Matching; completion; classification	no	no	draw
Cl 5	English	no	yes	yes	No	no	completion	No	no	no
Cl 4	English monthly	no	no	Yes-Eng	No	no	MCQ	no	no	no
Cl 6	engliish	no	no	Yes-all	No	No	All	No	No	no
Cl 2	English	Yes-all	yes	no	yes	fair	all	no	ST-O 5; W 15; p 5, A 5	P drawing
Cl 3	English	Yes C1a	yes	no	yes	fair	all	no	Eng- O 20 W 15. A 5	A written
Cl 3	English	no	no	Yes-all	No	No	All	No	No	no
CE 2	French	Yes C1a	no	no	yes	fair	completion	yes	O 11; w 5, p 4	P written

4.8 SUMMARY

This chapter set out to present and analyse the data which were obtained with the questionnaire constructed in relation with the variables of the study; interview guide and the observation checklist for the different test samples collected. Tables and charts were used to give a descriptive representation of results. Pearson correlation was used to determine the extent to which the variables correlate with the dependent variable-effective implementation of CBA. All the variables showed a positive correlation. The independent t test was also used to highlight some mean differences between the responses coming from the two sub systems.

The next chapter is devoted to give a detail discussion of these findings in relation to the research hypotheses and research questions explored in the study.

CHAPTER FIIVE: DISCUSSION OF FINDINGS AND RECOMMENDATION

5.1 INTRODUCTION

The aim of the study was to bridge the gap in the current literature on CBA implementation in Cameroon primary schools, by investigating empirically the relationship between assessment model and the effective implementation of CBA. Seven research questions were formulated to guide this study. A questionnaire for teachers with a five scale likert scale was used, as well as an interview guide for the inspectors. An observation checklist was equally used to study test samples. The results were presented in the preceeding chapter

This chapter focuses on the discussion of the findings per research hypothesis and/or question , after which the recommendations and suggested areas for further research will be addressed. Limitations to the study will be discussed and a general conclusion will be made about the study. The chapter also describes in detail, the proposed assessment model that can be used for assessment of terminal competencies of for summative evaluations.

5.2 DISCUSSION OF THE FINDINGS

This section proposes a discussion to the findings related to each research question and hypothesis. An interpretation as well as a comparison would follow to see if the findings are in line with what

some authors found out based on the review of related literature done, or if they are contrary to previous studies. The analysis focused on the research hypotheses as seen below:

- **H01:** There is no significant relationship between the conception of CBA and its implementation
- **H02**:The type of assessment does not significantly affect the depth of understanding of competencies
- **H03:** There is no significant relationship between assessment methods/strategies used and effective implementation of CBA
- **H04:** There is no significant relationship between the item formats used in assessment of competencies and the implementation of CBA
- **H05:** The instructional methods in used for CBA do not align with the assessment practices for proper implementation.
- **H06:** The criteria and grading system for judging level of competence does not give a significant measure of learners' competences
- **H07:** There is no mean difference between of the assessment strategies used in the two sub systems

From the results of the correlation done using pearson correlation; it was seen that all the above six variables ; that is conception of CBA, the type of assessment, the assessment methods, the item types, the criteria for judging the level of competences acquired and alignment of instructional methods with assessment, all show a significant relationship with the effective implementation of CBA.

5.2.1 Conception of CBA

The results for conception of CBA showed a positive correlation with its implementation ($r(335)= 0.420$; $p< 0.001$) as seen on table 29 above, meaning that the way in which CBA is conceived even from the definition of competency and the approach taken for its introduction in a country will affect how CBA is implemented. The null hypothesis stated was rejected in favour of the alternative hypothesis. The two sub systems, according to the inspectors' responses, had different views of the notion of competency. While the English sub system sees competency as a set of learning outcomes that the learner is expected to achieve at the end of primary school, presented in form of national core skills and four broad based competencies; the French sub system sees

competency as a method of teaching where a child is presented with a set of competency statements reflecting what is to be achieved from the 6 core skills and transversal competencies; for the learners to mobilise or use knowledge acquired from different sources to solve the problem situation.

The English sees CBA as leading learners solve real life problems in smaller task, the French prefer only one competency statement integrating all that is covered , in what they term family situations. This view is in line with Boukentache (2016) who found that there is a difference in the conception of competency in the English and French schools of thought. While the Anglo-Saxon pedagogical community argues that students cannot integrate skills and knowledge until they are fully mastered, the Francophone school holds that students can learn to integrate and transfer skills by solving similar tasks in different situations. This is to say that, the Anglo-Saxon integration framework is based on the reconstruction of the already mastered skills and knowledge to perform a real world task at the end of instruction, whereas the Francophone model is built round on-going integration of skills through working on similar tasks in different contexts within the classroom. The findings also are in line with Wesslinks (2010) who holds that the way in which competence-based learning is operationalised depends on the conceptualization; is also in congruence with our findings. The basic idea of competence-based education ; according to the same author ; that academic disciplines are no longer the starting point for curriculum development; they are replaced by the competencies needed for employment and to participate in society.

The concept of competence, by contrast, has been applied in widely differing ways in different countries and at different times. It is this ambiguity that is one of the major pitfalls in working with competencies in educational programmes (Biemans et al., 2004). People conceptualise competence in different ways and this causes misunderstanding and confusion (Wesselink 2010). This is possible in Cameroon that has two sub systems of education that are allowed to co-exist but with each sub system maintaining its cultural heritage, especially as examinations are concerned, as stated in law no 004 of 14th April 1998 to lay down guideines for education in Cameroon.

According to one of the inspectors, CBA cannot really be effective in Cameroon due to the differences in the approach to be used. The two sub systems derive their conceptions from their colonial masters, the French and the English views. Those who conceived the idea in Cameroon in 2012 were faced with this difficulty and that is why till today, there is no model of assessment

for teachers to follow. A lot of conflicting ideas keep coming up. For example, the English system started off with the fourth week for integration as shown in the curriculum for primary school (2018), but it was short-lived. This change, according to Boukhantache (2016) is because CBE is based on mastery learning and individualization of instruction, so it is impossible to pre-specify and accommodate for scheduled weeks of integration because not all students will reach the prerequisite level of adequacy by this time. The report cards and broadsheets were introduced but later on has changed, no more competency statements in the English primary schools because their system cannot function well with a new culture (though favourable to the French sub system). These controversies are better described by Nickse (1988), in which she says the concept of competency itself is a moving target because what may pass as an adequate answer at any one time in any one arena may be simultaneously premature or obsolete in another.

To conclude, Rogiers (2006, p.19) suggested that any curriculum approach may indeed be defined by two basic characteristics:

- it may rest upon complex statements (e.g. statements of competencies), or on the contrary piecemeal, fragmented statement (e.g. statements of operational objectives);
- it may rest upon a concern regarding teaching-learning processes and considering that assessment is a by-product, or on the contrary it may take the view the assessable character of the statements must be taken into account before anything else.

Results of the open ended question on the appropriate approach for CBA, majority of the teachers were for problem situations following subject areas while others feel competencies are better attained by integrating different subjects. Those in favour of subject areas felt that the evaluation criteria is well defined per subject area; also this will help not to overcrowd the child's mind; whereas those in favour of integration of different subjects advanced as reason that life problems are diverse. Some who were for the integration of many subjects said it would ease the teachers work and also save time. This view is also supported by Darling-Hammond and Adamson (2010) who feel that well designed complex tasks that yield multiple scores reduce the time and costs of task development, test administration and scoring by raters.

There is a divide between the choice of an analytic or isolation model of assessment and the integration model. Boukhentache (2016) explains that the Anglo-Saxon view of competency based instruction (CBI) applies a bottom-up approach to the practice of competencies. This means that this model is also a reductionist approach, that is, any domain of study is subdivided into specific

objectives stated in terms of life skills (such as writing a cheque). From these life skills, basic skills such as grammar, pronunciation, listening, reading, writing, and punctuation are derived. That is why they prefer assessing individual subjects or domains rather than intergrating many disciplines or subjects at a time. As seen on table 19 above, the overall result shows that the respondents were of the opinion that classroom assessments should be subject centered while terminal evaluation should involve integration of knowledge with many subjects and that CBA is better done following the integrated learning theme.

One of the unique components of CBE, as stated by Fritzgerald et al (2015), is that success is based on the learner's competency in specific domains. This allows for assessment of higher level cognitive skills. The clarification here is given in the (OECD) paper of 2018, which indicates that future students will need both broad and specialised knowledge. Disciplinary knowledge will continue to be important, as the raw material from which new knowledge is developed, together with the capacity to think across the boundaries of disciplines ; therefore both approaches are practiced in the two systems at varying degrees (the holistic approach). According to Albert et al (2003) , the holistic and integrative way of thinking that is required to design CBE forces teachers to look over the borders of the subject that they are used to teach in the knowledge-oriented curriculum. In this way, the design of competency based assessments, should not be limited to the subject area. To add, Blömeke et al., quoted by Rotthoff, et al, (2021) though the analytic assessment approach is suitable for assessing constituents of competence, i.e., knowledge, skills and attitudes, they cannot be regarded as an assessment of competence in the proper sense. Its purpose is not so much to assess the personal prerequisites for certain competencies, but to focus on a comprehensive assessment of competence in complex real-life situations by measuring performance. Competences must then be visualised as combined and integrating learning from knowledge, procedures and attitudes that are only definable in action and in experience to acieve teir development and practice.

According to Rogiers, cited by Zineb et al (2017, p.4), the competency-based approach relies on three fundamental objectives:

- Emphasizing the competencies that the student must master at the end of each school year and at the end of compulsory schooling, rather than stressing what the teacher must teach"

- It is also about giving meaning to the learning outcomes, by moving beyond lists of content subjects that have to be learnt by heart , to continuously relate their learning to situations that make sense to them and to use their acquisitions in these situations"
- Finally, CBAp is a matter of verifying and validating the student's achievements in terms of resolving concrete situations, not in terms of the sum of knowledge and know-how that the learner has acquired. This means that the student will be evaluated based on their ability to act instead of being assessed in terms of the knowledge that does not affect the real situations they face.

These three objectives account for the use of competency statements in the assessment of competences.

One of the inspectors pointed out that what is practiced as CBAp isn't it because even the approach was not fully adopted since its inception. He preferred that we refer only refer to the curriculum and not CBAp because the new curriculum is having a mélange of approaches such as the integrated learning, project based, objective based etc. His comment is in line with what Wessliink (2010; p.20) found out: 'that owing to the lack of a consensus definition of competence-based education, the activities that are undertaken in educational practice under the umbrella of competence-based education differ in the extent to which they may rightly be termed 'competence-based'. According to the same author, several countries started developing competency-based education without having a clear conceptualisation of what exactly it entails.

To conclude, both views of competency –behaviourist and constructivist are used in Cameroon but both sub systems are in favour of the integration approach though it differs in the mode of application. While the English sub system is in favour of integration of many subjects through project pedagogy, the French are in support of integration of different subjects through the use of competency statements, although Rogiers (2016) noted that with the unprecedented nature of the integration situation, for some disciplines, the number of integration situations is limited. There is therefore a risk that, at a given time, a situation put to a learner is not a first-time one. Sanchez and Ruiz (2008) opine that competency based learning CBL, should not be understood as fragmented learning as is the view of the behaviourists, but instead CBL should be seen from an intergrating point of view.

5.2.2 The type of assessment used for CBA

A question was raised to see if there is a significant relationship between the type of assessment and the effective judgment of learners competencies. The results gotten shows a low positive relationship between the two variables ($r(335) = 0.375$; $p < 0.001$) which is significant. Results from the respondents showed that the two types , formative and summative assessments are both important pointers to the level of competency acquired by the learners. Munoz and Araya (2017, p.3) opine that 'one is never competent and therefore one learns along life and depends on the needs imposed by the context' .In the open question, majority of the respondents chose summative over formative assessments reason being that it comes when much content has been covered, while those for formative feel that it helps the teacher to see if learners are following up or to check the progressive attainment of competences, allowing remediation for higher competencies to be developed.

Though they chose summative, the explanation given by the inspectors was that evaluations done at the end of the week or month or term, are summative as they come at the end of a process but they are still formative because room is still given for remediation. In this way, we can talk of continuous assessment as the best approach to be used for competencies. Continuous assessment , according to McCarthy (2013), is a combination of summative and formative assessment and usually involves repeated summative assessments. Marks are recorded with little or no feedback given.

These views are supported by Cathy Anderson (nd), who opined that 'competency-based assessments should provide insight in: what the students knows, still needs to learn, has learned, and where the institution can improve'. She identifies three categories of assessments*: prior learning assessments* that test what students have learned before and outside of the classroom; *summative assessments* which provide a summary of what a student has learned over a given time period, and *formative assessments* that are used by teachers to help determine the ideal learning path for their students, helping them to personalize and adjust curriculum, assignments and content, to what a given student needs. In the same vein, Agbor Tabe (2019) says CBA course take into consideration several types of assessments (Initial, formative and summative assessment). The prior learning or initial assessment corresponds to the diagnostic evaluation as prescribed in the curriculum for primary schools (2018). To support the inspectors' views, Kim and Care (2020) are of the view that assessment, particularly formative assessment, is an extremely powerful tool that can give the opportunity to teachers to support and correct students' learning paths and to provide

individual guidance so that learning actually happens. CERI (2008) defines formative assessment in classrooms, as frequent, interactive assessments of student progress and understanding to identify their learning needs and adjust teaching appropriately. Therefore, teachers using formative assessment approaches and techniques are better prepared to meet diverse students' needs – through differentiation and adaptation of teaching to raise levels of student achievement and to achieve a greater equity of student outcomes. Formative assessment thus, promotes the goals of lifelong learning, including higher levels of student achievement, greater equity of student outcomes, and improved learning to learn skills.

Those who prefer continuous assessment are reasoning in line with La Chimea et al (2020) who opined that a completely summative assessment does not guide student learning. Rather it reflects their testtaking ability and study habits leading up to the assessment. Some of the assessment issues ; according to Fritgerald (2015) that should be carefully considered by any CBE program are that assessment data need to be collected frequently, even continuously. Also the same assessment data can be used to make both formative and summative decisions. Gravells (2015) also is in support of continuous assessment as he writes that the frequency of assessment determines the accuracy in assessing competencies. Assessment of competence must be done more than one time in order to ensure validity and reliability of teaching and learning.

5.2.3 Assessment methods used for CBA

The assessment methods used were seen to have a positive relationship with the implementation of CBA; ($r(335)= 0.320$, $p< 0.001$). The responses from the teachers and inspectors proved that CBA needs a variety of assessment methods to help judge the level of competency acquired by the learners. The reasons brought forward were that the learners have different learning styles and learning needs that should be considered. Therefore the learners are to be evaluated using the three forms ; oral; written and practical exercises for each evaluation so that those who can respond more orally will have a chance as those who can answer in written form or do something to be seen. 'CBL requires a varied assessment, since each competence is comprised of very different components that can properly be evaluated through a range of procedures. Therefore, competence assessment calls for different techniques depending on what is to be evaluated' (Sanchez and Ruiz, 2008, p,43). Still in support of this view, Adjibi et al, (2017) adds that notional concepts should be used alongside problem situations. Problem situations should be used as life problems are not crumbled but diverse. Hence, learners need to be equipped for it, bearing in mind that one founding

principle of the competency approach is interdisciplinary. Magain and Dufour, cited by the above authors, purport that the interconnection of disciplines according to a particular context and a specific project, is the most specific feature of the interdisciplinary approach.

One of the English inspectors, during the interview, emphasized on the authentic or performance assessment as opposed to the French inspector who feels that the learners should be able to integrate knowledge to solve a problem in written form not necessary doing something practically. Very few respondents think assessment should be done with tests only. Majority preferred tests paired with practicals for a holistic development of the learners. The findings are convergent with those of Miguel et al (2018) who remarked that depending on their main learning style, students prefer different types of assessment and, likewise, the assessment method they are presented should consider their learning style. That is why teachers must be aware of the type of student learning strategies triggered by certain types of training and assessment. This view is also supported by Agbor Tabe (2019) who feels that both written and oral assessment methods should be used. Observation of learners' behaviour and usage in society and projects tasks are also paramount. Varying assessment tasks to suit various categories of learners such as visual, oral and kinaesthetic angles are relevant to get effective feedback. According to Muñoz and Araya, the domains of competencies are *conceptual, procedural, and attitudinal*, meaning that learners are supposed to be judged using many methods, ranging from tests to practical and also observation on how a child does something. Sanchez and Ruiz (2008), also put forward that competence assessment calls for different techniques and procedures depending on what is evaluated. For the assessment to fully measure the level of competeny,

Mc Clarty and Gaertner (2015) explains that educators must determine that the assessment is a valid measure of those competencies. That means that the test must fully measure the competency; the processes students use to complete the assessment tasks must be an authentic reflection of the competency, and lastly, students would receive the same test results if they were to take a different form of the test scored by different raters. These ideas correspond with validity evidence based on test content, response processes, and internal structure, respectively.

5.2.4 Types of item formats used for CBA

A question was asked to examine if the item formats such as traditional structural tests items, complex problem situations, or items that test higher order thinking skills, influence the judgement

of learners competences. The overall responses as deduced from table 24 above, proved that item format has an effect on the judgment of learners' competences as given by the high mean values of 5.50 and SD =1.05. Competencies are better judged using essay questions, items that involve higher other thinking skills, items that have problem situations and assessments that involve practical activities. The results of the inferential statistics for type of item reveals a low positive correlation of item formats with CBA implementation; ($r(335)= 0.281$; $p< 0.001$). This is because the respondents, both teachers and inspectors attested to the fact that all the item formats can be used for CBA ranging from MCQ, matching , short answer, completion items to items that test higher levels of knowledge according to Blooms taxonomy.

This is in line with what Adamson (2010) found out , that performance assessment encompasses a very wide range of activities, from completing a sentence with a few words (short-answer), to writing a thorough analysis (essay), to conducting and analyzing a laboratory investigation (hands-on). All item formats can be used to assess ccompetencies as revealed by the teachers responses and also the inspectors. This view is supported by MClarty and Gaertner (2015) who opined that CBE assessment can take a variety of formats: objectively scored assessments (for example, those with multiple-choice or true-false questions), performance-based assessments (for example, those including essays, group projects, or simulated environments), and real-world observations (for example, preservice teachers in the classroom). Regardless of format, however, the credibility of inferences drawn from assessment results depends on evidence of their validity. Dierendonck and Annick Fagnant (2014) presents an argument where some people think evaluating high stakes examinations using traditional methods of evaluation, do not really evaluate competencies, whereas others feel that evaluation tools developped for alternative assessment are better.

Quoting from Pearson Education paper (2015), it is said that in order to effectively measure competencies and determine that a student has mastered them, CBE programs must offer multiple measures of those competencies, and with multiple assessment methods in order to build a case for the validity of the CBE program. In other words, each competency must be measured more than one time, and in more than one way (that is, multiple choice tests, papers, presentations, performance-based real-world assessments, etc.). The tests used to measure competencies should focus on clusters of competencies as they might appear in the real world rather than on just one competency. The more real-world the assessment is, the more value the results hold for determining students' competency (Drisko, 2014).

To sum it up, knowledge can be tested using multiple choice or forced response items, but students must demonstrate what they can do by completing real-world, performance-based measures. The assessments used to measure competencies must not only measure one's knowledge and skills, but also get at one's ability to integrate, synthesize, and use the knowledge and skills necessary to become part of a community of practice. Munoz and Araya (2017) supports by saying that competence based assessment, as stated by Tobon, must integrate the qualitative with the quantitative, because with words, one cannot measure, and with numbers one cannot understand or explain. Therefore CBA, according to them , uses the concept of assessment in a multidimensional sense.

Observed from the test papers, most of the items in the English system still followed the old format, whereas the French used competency statements or problem situation which is then broken down to different item types. One inspector pointed out that teachers tend to limit themselves with lower order items than the higher ones due to their inability to use the table of specification. This goes to support what Kim and Care (2020) observed that test formats that are easy to score are used most frequently in Africa, a proof that they do not actually measure the competences. Darling-Hammond and Adamson (2010) and Burdett (2017) also observed that the type of thinking skills addressed in test formats will affect the judgment of competency level.

Another revelation was that the item types depend on the level; for example in level 1 , meaning class 1 or 2, the items are more of knowledge and comprehension while in level 2 and 3, learners can be given items that tests at the level of analysis , synthesis or evaluation; but all relies on the teachers understanding. Sanchez and Ruiz (2008) in the same vein, observed that competence assessment requires technical capacitation of teaching staff and awareness of its true value, so that adequate time and dedication will be devoted to it to ensure success.

From the open question, though majority of the teachers chose testing with problem situation items, many were of the opinion that both the tests using the traditional methods of assessment and the ones using problem situations or competency statements should be used. Reason being that variation of formats will help teachers to better evaluate the learners. Secondly, some learners cannot read, so the two formats will give the learner a chance to earn some marks, while to others both forms should be used because they are complementary and also because the teachers are in a transition phase, so they should be a gradual process. This is similar to what Darling-Hammond and Adamson (2010) said when they mentioned what assessment expert like Lorrie Shepard and

others have found that, when educators teach directly to the content and format of specific high-stakes tests, students are frequently unable to transfer their knowledge to items that test it in different ways. Students' ability to answer multiple-choice questions does not mean they have the ability to answer the same questions in open-ended form. Thus, a focus on multiple-choice testing gives false assurances about what students know and are able to do ; reason why new formats of assessments are needed. Authors of the competence assessment continuum approach **,** Rotthoff, Kadmon and Harendza (2021), put forward that the assessment of competence should, therefore, be seen as a continuum from an analytic to a holistic assessment approach. Cizek (1997) emphasizes that the new assessment types are not replacements for traditional assessments, but that they give answers to different assessment questions than the traditional types. The new types give tutors and students a deeper understanding of the student traits. Examples of the new types of assessment are portfolio assessment, performance assessment, self-assessment and peer assessment. Therefore assessments should be designed in such a way that they can combine the (re-use of) traditional and new types of assessment.

Beetham, cited by Miguel (2018) proposes that when the value of assessment is focused on accurate reproduction, learners are given opportunities to practise the required concept or skill until they can reproduce it exactly as taught. When the value of assessment resides in internalisation, learners are given opportunities to integrate a concept or strategy with their pre-existing capabilities and thoughts, thus giving them the opportunity to reflect on what it means to them and to make sense of it in different ways.

From the interview, one inspector proposed an evaluation with one complex situation only, that can be sub divided, to be used for the certificate examinations. This view is in line with the works of De Ketele and Gérard (2005). They tried to justify the use of complex situations as used in the French sub system. To them, CBAp tries to develop in learners, the possibility of mobilising or integrating a number of resources (knowledge, skills and attitudes) to be able to solve problem situations belonging to a family of situations. The tests following CBAp should consist of two complex situations requiring the learners to solve within a given period of time. They re-iterate the fact that the most importaant element in the notion of competence, is the aspect of integration, because competence manifests itself in complex situations that regroups a number of resources. They proposed an evaluation model in which only one complex task is given, which can then be further broken down into sub units with little tasks ; or can use two or three complex situations

following an evaluation criteria which obeys the « rule of 2/3 », meaning that if a learner can effectively solve two out of three complex situations, then he is considered as being competent. Darling-Hammond and Adamson (2010) feel that tasks designed to yield scores on different dimensions of performance in more than one content domain, has practical as well as pedagogical appeal. Well designed tasks that yield multiple scores reduce the time and costs of task development, test administration and scoring by raters. Tasks that cut across content domains may also motivate a more integrated approach to teaching and learning. Therefore a melange of test item formats should be used to better assess learners competences.

5.2.5 Alignment of instructional methods and assessment

The study also revealed a positive correlation between the alignment of instructional methods and the evaluation methods ($r(335)= 0.241$, $p<0.001$). The teachers' responses showed a high perception of alignment of instructional strategies during classroom evaluation of formative evaluation , than for certificate evaluation as seen from the following questions. The question if instructional strategies like project pedagogy and group work should be reflected in the assessment of classroom assessment only, had a mean score of 3.70 and SD of 0.99; while the same question asked for summative evaluation; i.e., the instructional strategies should be reflected in the assessment of classroom assessment as well terminal competencies such as FSLC had a low value for mean 2.88 and SD=1.14.

Out of the 290 teachers who answered the open ended question on alignment, 287 said 'yes' for the alignment as seen on table 27 above, reasons given that the child is at the centre of learning and all the instructional methods are to be aligned with assessment in order to familiarise the children with how the test will look like. This is also to kill the examination fever that use to attack some learners during evaluation. This is in line with what Sanchez and Ruiz (2008) suggest, that assessment must be planned transversally when planning teaching modality and methods, as well as specific and activities expected of students. It must be integrated in them, so that it will be consistent with expected learning outcomes and processes followed to these ends.

According to John Biggs constructive alignment theory (Biggs; 2003), aligning the assessment with the learning outcomes means that students know how their achievements will be measured. Ramsden , in Mc Carthy (2011) points out that assessment is the curriculum, as far as the students are concerned. They will learn what they think they will be assessed on, not what is in the curriculum, or even on what has been 'covered' in class. In the same line, Munoz and Araya (2017,

p.9) confirms that:

> Competence evaluation in the educational field, proposes a transformation not only in the evaluation area itself, but also in everything that concerns the process of teaching and learning…that is why it is recommended that teaching should address at least three learning areas: the cooperative, the problem-based and the case method (context for application of competences).

Hence, the assessment of competences should also take into consideration, these learning areas.

The inspectors made it clear that alignment can be possible for formative evaluation e.g flip classroom, cooperative learning or group work and project pedagogy, than for summative and that some strategies will fit well with some subjects; but there is a possibility of alignment at the FSLC examination through practical activities that can be done also in groups. One of the teachers concluded when asked if the instructional methods should be aligned with the assessment; that *biensur car comment utilisez une méthode pour enseigner et ne pas utilisez pour évaluer? (*meaning how can we use a method for teachng and not use it to evaluate). This statement ties with Burger (2008, p.4) who re-iterates that 'the alignment of the teaching, learning and assessment process is instrumental in the achievement of the outcomes; therefore the instruction must be planned in such a way that there is a clear link between what is taught, learnt and assessed'. To add, Biggs (1999, cited by Burger 2008, p.53) puts it, 'adopting an integrated approach to teaching, learning and assessment should bring about a match between what is taught, what is assessed and what is intended to be learnt'.

5.2.6 The criteria for grading and judging the level of competency

The criteria for judging level of competence was also seen to be positively related to effective impemention of CBA ($r(335)= 0.323$; $p<0.001$). Most teachers feel that written exercises should have more mark allocation in CBA (M= 3.87; SD = 1.59), followed by practicals Practical activity should be given more marks in CBA (M 3.41 SD 1.19) ; and then orals wth M= 2.49 , SD=1.03) . The moderate scores were obtained where level of learners should determine the grading criteria (M =3.60, SD= 0.98). learners in level 1 who cannot write well, are to be assessed mostly orally, followed by practicals and then written while in level 3, more marks should be allocated for written and practicals with less marks for orals ; as explained by the inspectors.

Secondly, the criteria for judgment should be also looked at in terms of the kind of subject as some subjects e.g more orals for French, written for maths and practicals for vocational subjects.
The criteria should also consider the type of competences, for example: communication competence requires more of oral and written work; methodological competence requires more of practicals than oral and written; with intellectual competence having almost same proportions. This is confirmed y McCarthy (2011) who suggested that we must consider how to match the method of assessment to the different kinds of learning outcomes e.g. a Learning Outcome such as "Demonstrate good presentation skills" could be assessed by the requirement that each student makes a presentation to their peers.

Another suggestion was that the criteria should consider the personal dispositions of the learners as some learners can talk more and write or work less, while others cannot talk but can carry out a task well. Good assessment practice gives students the opportunity to demonstrate learning in different ways. Some students find it difficult to write so they do better in oral assessments (*Oral assessment Teaching & Learning –UCL ; 2019).* Munoz and Araya (2017, p.3) state that competences are linked with personality factors , but they can be learned.

This is to confirm what Dolot (2017) observed, that numerous definitions of competency include different elements in its characteristics. Apart from the most frequently chosen elements, i.e. knowledge, capabilities and attitude scholars also add motivation, self-assessment intellectual abilities ; self-concept, state of one's health, intrinsic motivation or predispositions. Competency is not a homogenous concept but it consists of various elements. Therefore the criteria for judging the level of aquisition of competenies as given in the curriculum per domain should be followed; while taking into onsideration the nature of the learners and what they can do and are apable of doing. The explanations of the inspectors correspond to what Newton and Fastre et al observed. While Newton (2020) talks of domain-specific grading criteria and generic grading criteria, Fastre et al (2014 p.972) examined the effects of type of assessment criteria: performance based vs. competency-based. Within competency-based education, assessment criteria are often formulated as competencies; in other words, what the student is able to do leading to *competency based criteria* to be used. The competency based criteria is prescriptive rather than a descriptive approach. An example is 'to be able to communicate properly', an ability that results from the integration of knowledge, skills and attitudes. *Performance based criteria,* on the other hand, are

formulated in terms of what the student does.

Some teachers still complained that they are unable to judge the level of competence. This is similar to what Roy (2016) found out in his study on competency based assessment in Bangladesh primary schools. He reported that the respective authorities are not giving adequate attention to assessing the students of primary level based on the fixed subject-wise, grade-wise and terminal competencies. Therefore, it is unclear whether the students are really achieving the competencies or not. This is in line with what Hartig et al (2008) noticed, that another challenge is the question of a suitable criterion that will help to evaluate the acquisition of competence Burdett (2017, p.15) warns that "If the question and marking scheme rubric are misaligned, then this is potentially a problem for the validity of the test items and raises questions about the quality of the assessment. As such, the criteria for judging level of acquisition of competence, should be well stated to aid in implementation of CBA.

5.2.7 **Implementation of competency based assessment and challenges**

Results from the interview conducted proved that lack of an assessment model is one of the major challenge that the teachers and inspectors are facing with the implementation of CBA. One of the factors that will influence effective evaluation of CBA is that there should be an evaluation model, as seen on table 7 (M=3.41). The teachers are the ones struggling to come out with the assessment following the guide in the curriculum (well spelt out in the curriculum of the French section). This is similar to the challenges put forward by a Chimea et al (2020). According to them, the challenges to implementing these assessment techniques include a lack of familiarity with the assessment tool, time required to develop the assessment and train instructors, and the dearth of literature on implementing various assessment techniques. The inspectors couldn't say with exactitude whether the teachers' evaluation is appropriate because there is yet no model to compare with. This is to say that teachers still rely on an assessment model for better assessment.

Research tells us that teachers' classroom assessment practice is inevitably influenced by external assessment (Mary James, 2006; Ghaich, 2016; Nyenty and Fotogang, 2014). Some researchers have emphasised the strong role of external assessments in motivating teachers and students for achievement. In the same vein, Whitehead et al (n.d) cautions that, unless educators have effective and relevant assessment tools for all competencies, assessment may end up skewed towards 'easier areas'.

Munoz and Araya (2017) therefore proposed that competence evaluation requires an evaluative model centered on the processes and procedures, basically on the ability of knowing how to do, but integrating the conjunction of the complex and integral learning. Moreover, it must show step by step results and not only oreinted towards the final result of a product of learning. In the same way, Sticker and Syke (2016) discussing on modeling and explaining content, refer to two closely related practices at the heart of teaching: modeling through explanations in relation to a wide range of questions, including *what*, *why*, *when*, and *how to*, among others; and modeling by showing students how to do many things. Showing is a physical activity while explaining is a way to model cognitive processes. By this, it can be deduced that teachers do not only need to be told how assessment following CBAp should look like, but they also need to be shown an example to follow. Miguel (2018, p :2), feels that "the quickest way to change student learning is to change the assessment system". Regardless of the assessment modality, type or method used in any educational situation, its impact on the process and product of education is decisive. Assessment practices in the classroom can both boost and limit student learning, and the quality of their learning outcomes depends on the kind of assessment used. Here he further explained that this impact of assessment on learning, points out how student learning depends to a large extent on what they think will be assessed. Therefore there is a need for allgnment of teaching methods and assessment. For example, when students see assessment tasks as low cognitive level requirements, such as memory recall, they tend to reduce their learning to specific facts, like disconnected pieces of information, and to reproduce them when they are being assessed, which leads to surface learning. Conversely, when students perceive that the assessment task requires demonstrating a personal interpretation of the underlying principles, they are more prone to study while actually understanding what they are studying, which is an approach to deep learning. The learners thus need samples of assessment in order to manage how they learn in this competency based approach.

The implementation of CBA in Cameroon is facing challenges. The findings are similar to those of Agbor Tabe (2018) who reported that the principles of a CBA assessment are not respected by most language teachers in Cameroon during their classroom practices because of lack of knowledge and the difficulty in material designing and development. The challenge in assessment design is to select the assessment types that yield the appropriate evidence of students' competence, skills or knowledge. A competence assessment, for example, can consist of a portfolio assessment, that provides a measure of individual growth with respect to individual

goals, in combination with a multiple-choice exam that provides a measure of knowledge acquisition. Both assessment measures are important providers of information of student traits and both can be used in a competence assessment (Desiree Joosten et al ; n.d). Depending on the kind of assessment, a candidate must provide responses, or demonstrate or present something to an assessor.

Some teachers find it difficult to grade the learners' performance without using marks. Biggs (2009) explains why grading should be done using marks or not. To him, using marks seems to be the logical way to assess in certain courses ; it is logically easy and many people are used to it. On the other hand, he argues against marks saying that they define quality in terms of accumulating small quantities. Also, measurement error also accumulates, thus invalidating fine discriminations. E.g. there is no valid difference between 74 and 75, yet to the student it can make a BIG difference -an A or a B, or worse, a pass or fail. It sends undesirable messages to students (backwash). He goes furter to explain that if intended learning outcomes (ILOs) are to reflect workplace or 'real world' standards it is not appropriate to state and assess them in terms of marks obtained. Assessment tasks should likewise reflect the 'real world' ILOs (p.26).

A look at the question papers, reveals poor statement of problem situations that do not really reflect real life problem. Agbor tabe further adds that the way teachers evaluate learners does not reflect literature on CBA assessment and thus will not help them to function in society.

The French seemed to have fewer challenges than the English sub system as showed by the results from the t test on table 30. This is in line with the findings of Wesselink (2010) who observed that implementation problems are encountered because the new way of providing competence-based education has to be developed and tested alongside the predominant, traditional system wherein teachers have to provide students with lectures. Kim and Care (2020) reported that as a general observation, there are not yet assessments designed explicitly to capture 21CS in any of the nine countries they worked with, despite plans to develop assessments aligned with the learning goals identified in their education policies. However, it is clear that there is currently a divergence between assessment concepts on a theoretical level and real practice in the classroom (Miguel, 2018). This divergence is due to the fact that there seem to be significant challenges in the implementation of such an assessment model. These challenges are attributed to different factors such as the mentality change elicited by them, pressure from the social model (capitalist and competitive) or the need for other structural and organizational changes in the education system.

An additional concern expressed with integrating oral examinations is the time-consuming nature of this type of assessment. In many situations, the time constraint might make oral examinations prohibitive, because rather than all students taking the examination simultaneously during a predetermined period, each student is generally tested alone and sequentially (Kang et al, 2018)..

Cheptoo (2019) enumerates several factors that can restrict curriculum reform which relate to both the academic and the context in which the innovation is practicing place. They involve issues of time, parental expectations, public reviews, unavailability of required instructional materials, lack of clarity about curriculum reform, teachers' lack of skills and knowledge, and the initial mismatch between the teacher's "residual philosophies" and the policies underlying the curriculum modification.

To conclude, I concur with Wesselink (2010) who expresses his worry concerning the implementation of CBA. He says although competence-based education is a major innovation in various countries, several questions need to be answered before conclusions can be drawn as to whether or not competence-based education can live up to the expectations. As it is not enough to decide to change so that things change in the desired direction, the authorities of (basic) education, must rectify what must be (Adjibi et al, 2017). Much still needs to be done especially as designing CBA is concerned in Cameroon.

5.3 LIMITATION OF THE STUDY

This section gives highlights of what the researcher went through in the course of the study. The realization of this project should have been very perfect but for some circumstances beyond control, some lapses were encountered. The most important problem was that of finances because much money was needed for transportation to the different divisions for data collection and for paying from Bertoua to Yaounde to work with my supervisor all the time. Searching for materials online and printing the copies too; was demanding.

Much information could have been gotten from online books but many websites requested payment for which I couldn't cope.

There was also the problem of unwillingness and reluctance of some teachers to answer the questionnaire and return on time . This made the return rate to drop. Finally 22 copies did not come back, making the return rate not to be 100 percent. Some of the respondents did not answer the open ended question because of their busy schedule.

Equally, having appointment with the inspectors was not an easy task because of their busy

schedule. They were either attending seminars or preparing reports to transmit to the hierarchy or some travelled out of town for duty calls.

Another problem was the congested program of the researcher. Being a mother of many, and the sole bread winner, couple with the researcher's teaching job; it has really been challenging.

Translating the questionnaire into french was also problematic as the sense of the item seem to be distorted at times.

5.4 RECOMMENDATIONS FOR THE STUDY

The following recommendations were made to the ministry of basic education, the policy makers, test developpers, inspectors and to the teachers of the primary schools.

5.4.1 The Ministry of Basic Education

At the national level, it is advisable to borrow approaches from countries that proof to be beneficial to the educational system, but like Cheptoo (2020), Africans are supposed to look at these approaches through the African lens, meaning that to implement these approaches , our country has to see to it that the context of our country suits well. CBAp started in the western world where teaching is highly learner-centred: the teacher-pupil ratio is 1:25 which is different from what happens in our country with overcrowded classes at times 1:80 teacher-pupil ratio. CBA is suitable for developed countries that have most of the materials needed by learners to develop their competencies, but in the African countries, the cry of didactic materials is heard all over. With the western world, the individual needs of the learners are taken into consideration, where as with our African countries and in Cameroon in particular talking about inclusive education, CBA does not fully take care of the individual needs of the learners.

Secondly there is a divide between the different conceptions of CBE , each sub system trying to maintain its status quo. This makes it difficult for a harmonized program to be implemented, the main reason why a model of evaluation of competencies is not yet presented to the teachers. The two subsystems are to study and select common elements of the approach to be used for evaluation. That is why the researcher had to propose a model for evaluation as we shall see below.

The ministry of basic education should include intensed professional training for all inspector coordinators and assessment developers in the aspect of evaluation. Some writers feel that talking about a curriculum, means talking about the assessment because it is the latter that determines the successful implementation of the former. Following the backward model of McTiggins, assessment strategies have to be carved out first before the implementation of any program begins.

5.4.2 To the policy makers

Following the approaches to curriculum implementation, the top down approach doesn't work well for new interventions because most people at the top are placed in such positions due to the qualification obtained in the higher teacher training colleges but who have not had the experience of teaching those children in their classrooms. There is a difference between theory and practice, as such teachers who are the main implementers of the curriculum should be involved at all the planning levels in order to share the daily experiences of their classrooms so that ways should be looked into to make the new approaches fit well with the classroom realities. Viennet and Pont observed that the way a policy is debated and framed, would determine the actors' willingness to effectively implement. Therefore for competency-based assessment to be fully implemented, especially as summative evaluation, both the top and bottom level stakeholders in education need to come together and share the knowledge and experiences. Research has proven that policies passed down from top to bottom, are sometimes misinterpreted because they are borrowed policies more often, and those mediating may not be competent enough in guiding the main implementers- the teacher (Cheptoo, 2019; Agbo Eta & Vuban , 2018).

To switch from teaching methods that used to be used (or traditional assessment methods) to a competency- based approach requires a strategic policy and the specific allocation to the project of significant funds in order to successfully complete the change and keep it from remaining merely skin-deep , which he termed 'cosmetic change' (Sanchez and Ruiz, 2008, p.35).

5.4.3 To the test developers

I wish to make the following recommendations:

The evaluation should be a blend of the objective approach using the old format and the integration approach that deals with problem situations. The old format, though much emphasis is on knowledge acquisition, helps to maintain the content of the different subject areas. Learners need to first of all acquire the knowledge before using it to solve real life problems.

There should be a separate paper now dealing with competency statements and problem situations so that learners should try to integrate knowledge, skills and attitudes from different subject areas.

The problem situations should be complex , three in number, grouped under subjects that involve more of oral or communication competency, those involving the sciences and another one for practical activities. By this, I mean subjects like English; French, social studies etc should be under the oral-written paper; while maths, environmental and health sciences plus ICTS should be under

sciences and vocational studies, sports, arts go with the practical domain.

Another suggestion is to set complex problem situations according to the four broad based competencies, that is, intellectual; methodological; personal and interpersonal competence and communication competencies. Three of four problem situations, not just one for all the subjects to be integrated. This will serve as a basis for orientation to the type of secondary school; grammer or technical, and may be high school sciences or arts though learners' competencies may not be fully developed at this time.

The evaluation should maintain the three forms as proposed on the curriculum: oral, written and practicals.

There should be an alignment between the instructional methods and evaluation. The learners can be given a problem situation from where they form groups to carry out a project to solve the daily life problem.

5.4.4 To the inspectors

I wish to suggest that they always come to a compromise on what information to give the teachers during the seminars. Changing information all the time, with controversial information , disturbs the understanding of the teachers, making them to develop negative perceptions towards CBE, hence may lead to its early termination.

More seminars on the CBAp should focus more on assessment as well.

5.4.5 To the teachers

I wish to suggest that teachers develop a positive attitude towards innovations in the teaching fields as perception has a role to play in the implementation of CBA. Mulenga and Kabombwe (2019) opine that 'the success of a competency-based curriculum will very much depend on how teachers go about assessing learners and how they use the assessment results to improve learning'. It also depends on how this innovation is perceived by the teachers. Ornstein and Hunkins (2009, p.264) gulp that 'to accept an innovation, people need to perceive its quality, worth and practicality'.

Teachers should search for more knowledge on any innovations and do not rely so much on the inspectors as they are merely facilitators. Some teachers are adamant to change and so choose to avoid any information that is contrary to their views. Loewenstein and Golman (2017), termed this behavior as 'information avoidance theory' which states that people tend to avoid information that might challenge existing beliefs; even if it is available.

5.5 THE PROPOSED MODEL OF ASSESSMENT FOR SUMMATIVE EVALUATION

5.5.1. Introduction

Competency-based Assessment, according to Idrissi and Benani (2016 ; p.3) is an important research topic which might be divided into two open problems:

- Assessment design, which includes competency modelling by test designers. It is about formulating a competency structure to assess and clearly link each competency to an appropriate situation, problem and material.
- Assessment implementation by test developers: it includes means and tools used to capture measurable attributes of competency. However, assessing competencies involves a complex range of learners' characteristics such as: knowledge level, style, abilities, cognitive skills, background, etc.

It is against this backdrop that the researcher taught of delving into the research on assessment design**.** To help contribute to knowledge in the assessment of learners' competencies, she came up with the following model for summative evaluation such as FSLC examination, as shown below. This model falls under the area of assessment design, that tries to bring up a structure of the process for summative evaluation of competencies of the learners.

5.5.2: Description of the four step summative holistic assessment model (FIPO model)

The four step holistic assessment model or the FIPO model is a model designed to help teachers of the primary school to better assess learners competencies during summative evaluation, especially the level 3 (classes 5 and 6) pupils in preparation for the FSLC examination. FIPO is an acronym representing the type of content that is assessed at each stage, as follows:

F-Factual test

I-Integration test

P-Performance test

O-Oral communication test

The FIPO model is brought up to solve some of the challenges related to competency based assessment from the research carried out. Challenges of which approach of competency to follow (evaluating based on single subjects-analytic; or evaluating using integration of many subjects approach). Another major challenge was lack of an assessment model to guide teachers on how to assess learners' competencies. This model therefore proposes a structure that could be used

to design summative assessments. It tries to bring in the new way of evaluation using complex problem situations while at the same time maintain the status quo which is the old way of evaluating learners in the end of course examination.

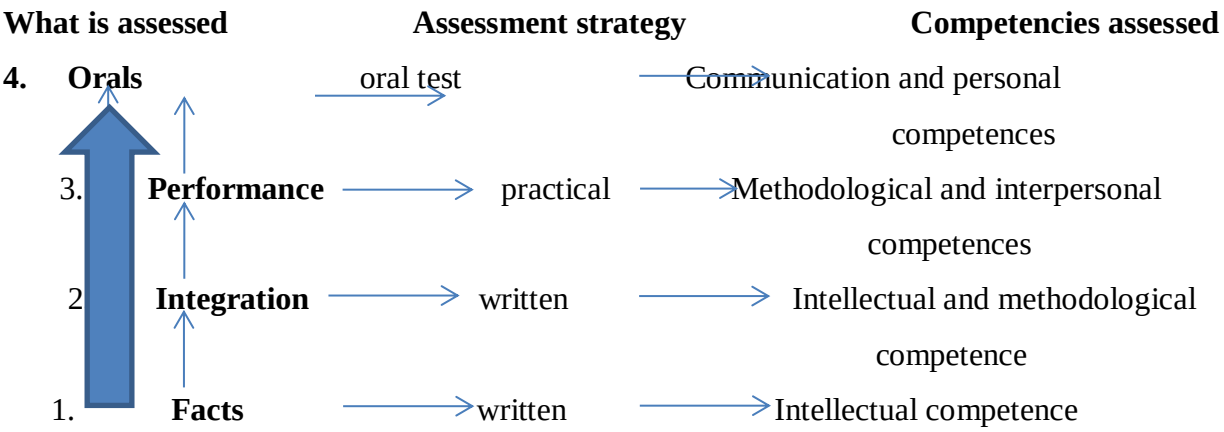
As a holistic assessment model, it means that the FIPO model takes into consideration all the different approaches to CBAp which are : the behaviourist, constructivist and learning areas approaches as presented in the new curriculum for primary schools in Cameroon for 2018. Holistic, also means that it makes use of learner diversity, trying to ensure learners needs are met during the assessment by considering the cognitive, affective and psychomotor domains. The model makes use of both the old format used to set end-of-course examinations as well as integration of many disciplines to solve a given complex real life situation, through an analytic-holistic continuum.

Holistic assessment, as stated by Rochmawati (2015) is used when learning objectives are inter-related and complex. It is relevant because it assesses several units that represenst a 'whole of job' role rather than assessing a single unit and element as specific tasks or parts of a work activity. This model takes care of the challenges teachers in Cameroon are facing with the assessment of learners' competencies through the practicality of the model.

- **DEVELOPMENT OF THE FIPO MODEL**

The researcher was motivated by the works of Munoz and Araya (2017) who proposed that competence evaluation requires an evaluative model centered on the processes and procedures, basically on the ability of knowing how to do, but integrating the conjunction of the complex and integral learning. Moreover, it must show step by step results and not only oriented towards the final result of a product of learning, hence the notion of integration and steps; thus making the FIPO model a step-wise approach. The proposed assessment model for competence assessment is built on the works of Rotthoff et al. (2021) on the analytic-holistic continuum approach and the model of competence proposed by Miller (1990) as seen on page 104 above. Therefore it has some elements of the above mentioned models. It has two components-cognitive and behavioural; as well as beginning with simple tasks that can be tested using traditional methods of assessment such as MCQs, structural items and short essay type items ; and proceeds gradually to the next level where the items involve complex tasks or problem situations that require learners to mobilise the resources acquired from different subject areas to solve real life situations. These involve simulated environments which can offer the possibility of representative, authentic, fair and comprehensive assessments.

The FIPO holistic evaluation model tries to incorporate the four broad-based competencies such intellectual, methodological, personal and interpersonal, and communication competencies. Also the different teaching strategies such as cooperative learning, project pedagogy, flip classroom and learning themes are included, in a bid to align the learning outcomes, with the teaching and assessment methods, as indicated in the new curriculum. It is hoped that this approach will facilitate a holistic development and judgment of competencies in the learners since the CBAp is a learner centred pedagogy.



Our discussion of the FIPO model will be presented following the sub titles below:

- Components or elements of the model and how it is used
- Psychological backing
- Examples of setting following the model
- Practical issues
- Conclusion

5.5.4 : COMPONENTS OF THE FOUR STEP MODEL

From the many definitions of the concept of competency, two things are remarkable which are: the cognitive and the behavioural aspects. Being competent does not end at knowing how to do something, but ‘doing what you know how to do’. Knowing how to do, limits us to the cognitive aspect while doing what you know how to do, causes others to see, making it behavioural. From what is seen, you can be judged as competent or not. The history of competence, is said to have begun with the linguist Noam Chomsky. Chomsky realised that some people can write and read

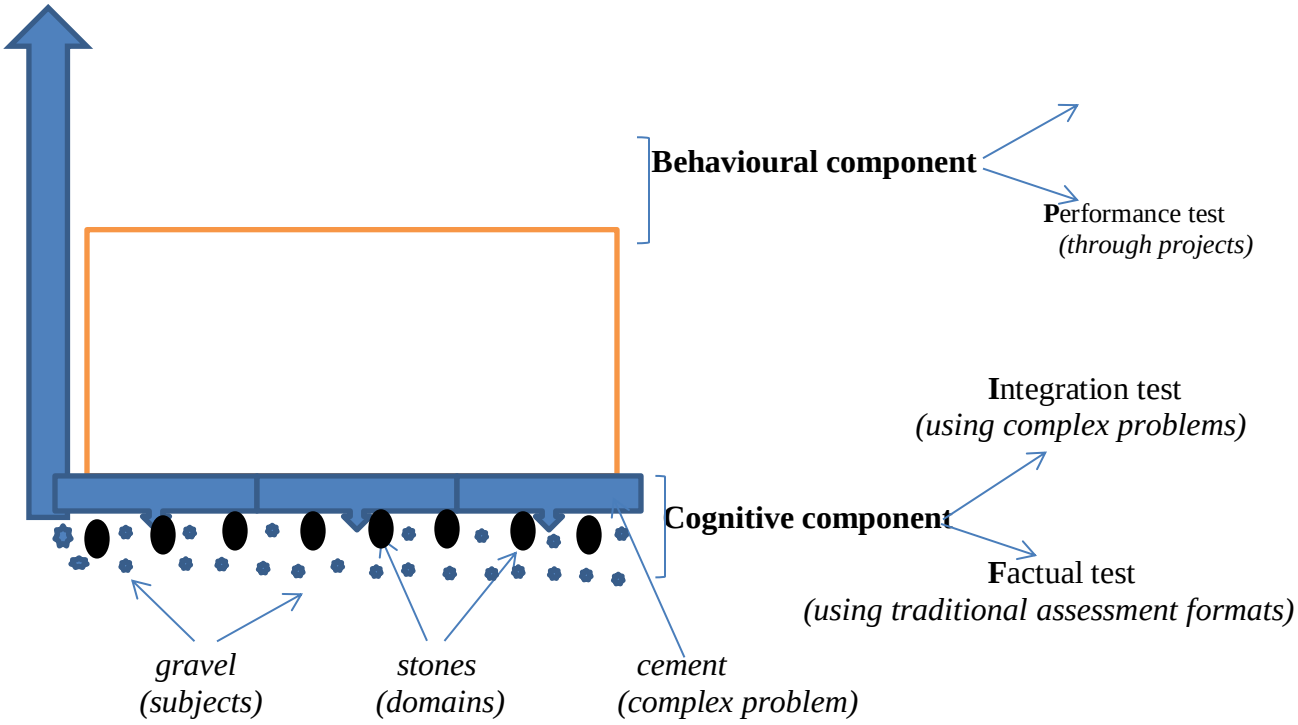
another language so well, especially the second language e:g French, but when it comes to using the language for communication on a day-to-day basis, they are found wanting. Therefore competency has two components that are mutually related. The behavioural aspect builds on the cognitive aspect for someone to be competent in a specific context. The cognitive dispositions are acquired by learning and needed to successfully cope with certain situations or tasks in specific domains.

The FIPO model is built taking into consideration the two main components, the cognitive and the behavioural or pragmatic components. CBA assesses and identifies the intellectual level at which individual students are capable of working, and also *aims to uncover their critical thinking skills so that they can better understand their environment and take decisions that will make it a better place to live. To do this, Bloom's taxonomy that helps teachers set questions that target different thinking skills, cannot be underrated.* It is therefore imperative for students to be asked questions as well as create instructions that are aimed at improving the critical thinking skills of students in order to enable them reach the top three levels of analysis, synthesis and evaluation as presented by Bloom's taxonomy. This is the cognitive component. Applying these skills in an authentic manner, to solve real life problems, constitute the behavioural component.
The first two levels of the FIPO model (factual and integration tests) fall under the cognitive component while the next two (performance and oral tests) are under the behavioural component.

The structure of the FIPO model

The FIPO assessment model is made up of four phases or steps as shown below. The steps correspond to the different types of tests to be administered to fully judge the level of learners' competencies in a holistic manner. They represent the different test papers that should be presented to the learners in a summative evaluation exercise.

Figure 26: The structure of the FIPO model for summative assessment



➢ ***The researcher's design (2022)***

The model is made up of two basic components, cognitive and behavioural components. The cognitive component comprise of the first two levels-factual test and the integration test, whereas the behavioural component is made up of the performance test which is done practically, and the oral phases. The cognitive component tests the intellectual competences while the behavioural component tests the methodological or procedural and interpersonal components, with the oral phase assessing the communication about the project and transversal competencies.

The cognitive component is like the foundation made up of stones, gravels and cement. The stones represent factual knowledge gotten from the domains, and gravel represents knowledge from the subjects that make up the domains. Above this layer, is the cement (integration situations) that comes in to bind the knowledge in the different subject areas and domains. This is done through complex problems. On the diagram above, it can be seen that each layer of cement binds more than two stones and gravel; meaning at this stage of evaluation, the number of integration situations or complex problems are less than the test items set for factual information.

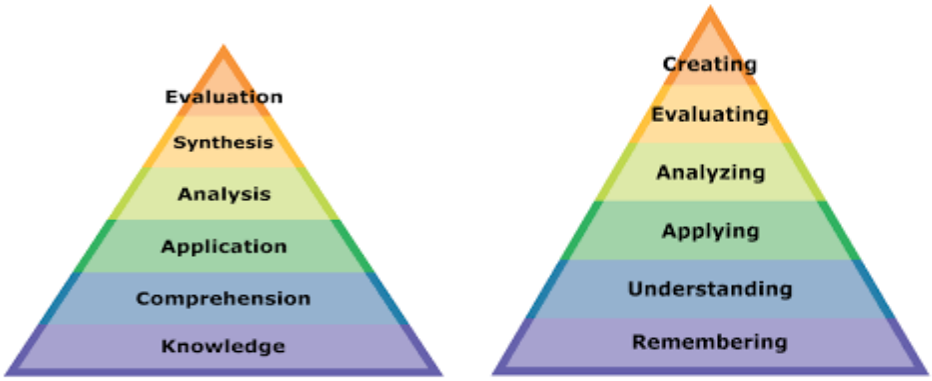
The behavioural component is the body of the house and the roof. This section needs the cognitive component to serve as an anchor or a support. With the knowledge gathered from different subject areas, the learners can use to build up or carry out projects to solve real life situations and when this is done, the learner can now talk with confidence, as the adage says 'what I do, I know'. We

are going to examine the components in detail.

- **The cognitive component**

The cognitive component focuses on assessing the knowledge and skills acquired, and this is done with the help of Bloom's taxonomy. Bloom in 1956, proposed that knowing is composed of six successive steps arranged in a hierarchical manner. *Bloom's taxonomy is a hierarchical system that categorizes the thinking skills of students, ranging from recalling information which is the most basic skill to evaluation, which involves judging and stating an opinion about information.* Bloom and his team identified and classified six levels of cognitive performance, that is: knowledge, comprehension, application, analysis, synthesis and evaluation. *The revised version is made up of recall, understanding, application, analysis, synthesis and creation. Creation is the point where the learner can produce something new, which can be an art work, a written text, a project etc.*

Figure 27: Bloom's taxonomy



Bloom's Categorization 1965 Revised Categorization 2001

Source : Bloom's Categorizations, taken from Bloom's Taxonomy pdf

A critical assessment of the various levels identifies that at the knowledge level, the student needs to know some basic facts, concepts and principles. Questions here, are asked merely to test whether a student has gained specific information from the lessons using the *WH*-questions.

The comprehension level allows the student to interpret the facts and concepts. The students go above the level of simply recalling facts, to having an understanding of the information. With this level, they will be able to interpret the facts. You are probably recognising comprehension questions when you use words like describe, contrast, discuss, predict, or paraphrase.

Furthermore, the application stage is where the learner must be able to to actually apply, or use, the knowledge they have learned. They might be asked to solve a problem with the information they have gained in class being necessary to create a practical solution.

At the analysis stage, the learners break down complex information into smaller components. The learner will be required to go beyond knowledge and application and actually see patterns that they can use to analyse a problem.

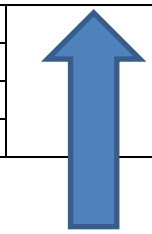
Synthesis is identified as the learner's ability to reorganize the information into a whole. The learners are required to use the given facts to create new theories or make predictions. They might have to pull in knowledge from multiple subjects and synthesize this information before coming to a conclusion. For example, if a student is asked to invent a new product or game they are being asked to synthesize.

A final step which is evaluation, requires the students to evaluate the extent of fairness and make value judgment. Here learners are expected to assess information and come to a conclusion such as its value or the bias behind it.

> *An assessment of the findings of Bloom and his team indicated that more than 95% of test questions encountered by students require them to think only at the lowest level. As such, the taxonomy was designed to encourage teachers to design instructions that ask students to think in rather increasingly complex ways (LSME, 2019).*

Following Blooms taxonomy, step 1 of the model constitute the knowledge, comprehension and application stages (lower thinking skills), while step 2 to step 4 makes use of the higher thinking skills (analysis, synthesis and evaluation). The lower thinking skills serve as a springboard for the development of the higher thinking levels.

Table 39: Higher order thinking skills

Create	
Evaluate	
Analyze	
Apply	

Understand	
Remember	

Lower order thinking skills

Blooms taxonomy (revised) : Adapted from Anderson, by Callahan and Meixner (n.d, p.1)

- **The behavioural component**

This involves carrying out performance tasks. Performance task, in this type of performance assessment, students have days, weeks, or months to prepare a response. The resultant work may be lengthy and comprise multiple parts, involving multiple responses of different types to multiple prompts. Embedded in the task may be written-response items, presentations, papers, student self-reflections, performances, and so forth. It thus covers the second phase (performance in written form), the third phase (performance through practical activities) and fourth or oral phase (performance through presentations).

- **Why performance assessment is useful**

Performance assessment is useful because it helps educators see what students are actually able to do – not just what they may know. Well-crafted performance assessments will help teachers gauge the level of attainment of competence; correct any student misunderstandings, and provide instruction needed to move thinking and learning along.

In addition, this type of assessment can provide interesting and informative learning opportunities in themselves to students, especially if students are asked to create a response to a prompt that is not highly structured. The assessment process can promote deeper student learning about the assessment topic, which is one reason why using performance assessment can help drive improved student learning and higher student achievement. These assessments can also have the advantage of improving student engagement in their learning since loosely-defined performance assessment may present so many different and interesting ways for students to respond.

We shall examine the steps in detail in the section that follows.

STEP ONE – FACTUAL TEST

The first step, the factual test, is designed to test what the learner knows, that is subject area competencies or learning content. This is to ensure mastery of the content, because the learners need the knowledge form subject areas to be able to integrate and solve complex problem situations. This is assessed through the traditional testing methods. This is in line with what Sanchez and Ruz (2008, p.44) hold, that, ‘to develop competences, one needs knowledge , since

competences cannot be developed in a vacuum'. Competences have an essential cognitive component. At this stage, the old format of testing as used in the FSLC should be used. Subjects can be assessed as single subjects or they may be grouped according to domains. This paper consists of objective test items. An objective test is a test that is constructed in such a way that different teachers or markers, marking independently, will assign the same mark to an even answer. Since there is no judgment involved, a pupil will obtain the same mark, irrespective of who marks his or her paper.

There are two main types of objective tests: the supply type which requires the pupils to supply words, phrases, short answers, numbers or symbols. The selection type allows the pupils to choose the correct answer from information or suggestions provided. Examples here are the multiple choice test, true or false and matching test. The advantages of the multiple choice test type are more than their disadvantages. MCQs can be used for all subjects and at all levels. It can be used to test pupils ability to recall specific pieces of information, as well as their ability to apply important principles, laws and theories in novel situation, or in solving practical problems.

When composing test questions, it is important to be direct and use language that is straightforward and familiar to the students. In addition, the answer choices provided on the test should be challenging enough that students aren't able to guess the correct answer simply by comparing how all of the options are written. Tasks here require a single correct solution, among other alternatives, known as the key.

The use of factual tests, aid in the retrieval practice during tests and can greatly enhance retention of the retrieved information. Retrieval of some information on a test can also lead to easier retrieval of related information, at least on delayed tests. Experiments have demonstrated that one basic testing effect is the fact that information retrieved from memory leads to better performance on a later test. Testing improves transfer of knowledge to new contexts. Testing one's memory allows one to evaluate whether the information is really learned and accessible.

The analytic approach of Rotthoff et al. (2021), suggests objective and reliable measurements of constituents of competence with a variety of specific, mostly quantitative methods, e.g., MCQ tests, standardized structured oral assessments and clearly defined and uniquely measurable criteria. Student content knowledge can be readily assessed using selected-response (multiple-choice) and short-constructed-response items. These assessments are easy to administer and can provide considerable information on student content knowledge in a relatively short period of time.

Table 40: Advantages and Disadvantages of Commonly Used Types of Achievement Test Items

Type of Item	Advantages	Disadvantages
True-False	Many items can be administered in a relatively short time. Moderately easy to write and easily scored.	Limited primarily to testing knowledge of information. Easy to guess correctly on many items, even if material has not been mastered.
Multiple Choice	Can be used to assess a broad range of content in a brief period. Skillfully written items can be measure higher order cognitive skills. Can be scored quickly.	Difficult and time consuming to write good items. Possible to assess higher order cognitive skills, but most items assess only knowledge. Some correct answers can be guesses.
Matching	Items can be written quickly. A broad range of content can be assessed. Scoring can be done efficiently	Higher order cognitive skills difficult to assess.
Short Answer or Completion	Many can be administered in a brief amount of time. Relatively efficient to score. Moderately easy to write items.	Difficult to identify defensible criteria for correct answers. Limited to questions that can be answered or completed in a few words.
Essay	Can be used to measure higher order cognitive skills. Easy to write questions. Difficult for respondent to get correct answer by guessing.	Time consuming to administer and score. Difficult to identify reliable criteria for scoring. Only a limited range of content can be sampled during any one testing period.

Source: Table II of Callahan and Meixner., (n.d, p. 3).

From the table above, we see that the true or false, multiple choice, matching and short answer or completion test items can cover a broad range of content but yet, they cannot assess higher order thinking skills like the essay type. However, we often wish to learn more about students' levels of understanding than just what they know. This includes learning more about what students understand of concepts they have learned, and having students use what they know to solve novel problems.

One way to accomplish this is by using performance assessments. These are assessments designed to measure what students are able to do in relationship to the content standards developed at the state and local levels. Rather than requiring students to select a response from two or more options, performance assessment asks students to apply their knowledge and skills in creating some form of product, presentation, or demonstration focused on key aspects of academic learning. In the

context of competency-based learning, it is necessary that teachers use assessment methods which are capable of fostering the development of reflection and critical thinking skills and of creating spaces where students can simultaneously acquire and demonstrate the development of higher-order cognitive skills.

According to Kahl and Hofman (2013), performance assessment commonly refers to substantive activities — either short-term, on-demand tasks or curriculum-embedded, project-based tasks that yield reliable and valid scores. Products can be extended writing, research reports, presentations, works of art, performances, and more."

STEP 2 : INTEGRATION TEST

Next is the integration of knowledge phase. Here, the learners are presented tasks or problem situations for them to apply their knowledge to solve real life problems, still in written form. Students are required to craft their own responses rather than merely selecting multiple-choice answers. They need to apply common sense and critical reasoning to arrive at solutions to the problems presented. The integration of knowledge can be done using domains such as the domains of reading literacy, mathematical and scientific reasoning. Each domain is described in terms of three dimensions according to OECD (1999). These correspond roughly to:

– the *content* or *structure* of knowledge that students need to acquire in each domain;

– a range of *processes* that need to be performed, which require various cognitive skills; and

– the *situation* or *context* in which knowledge and skills are applied or drawn on.

Assessments at this level, does not primarily examine how well students have mastered the specific curriculum content; rather, they aim at assessing the extent to which learners have acquired the wider knowledge and skills in these domains that they will need in later years.

The reasons for this approach to assessment are as follows, (OECD, 1999).

- First, knowledge acquisition is important in school learning, but the application of that knowledge in adult life depends crucially on the individual's acquisition of broader concepts and skills. In reading, the capacity to develop interpretations of written material and to reflect on the content and qualities of text are central skills; and in mathematics, being able to reason quantitatively and to represent relationships or dependencies is more important than the ability to answer familiar textbook questions when it comes to deploying mathematical skills in everyday life

– Second, a focus on curriculum content would, restrict attention to curriculum elements common to all, or most, countries. This would force many compromises and result in an assessment that

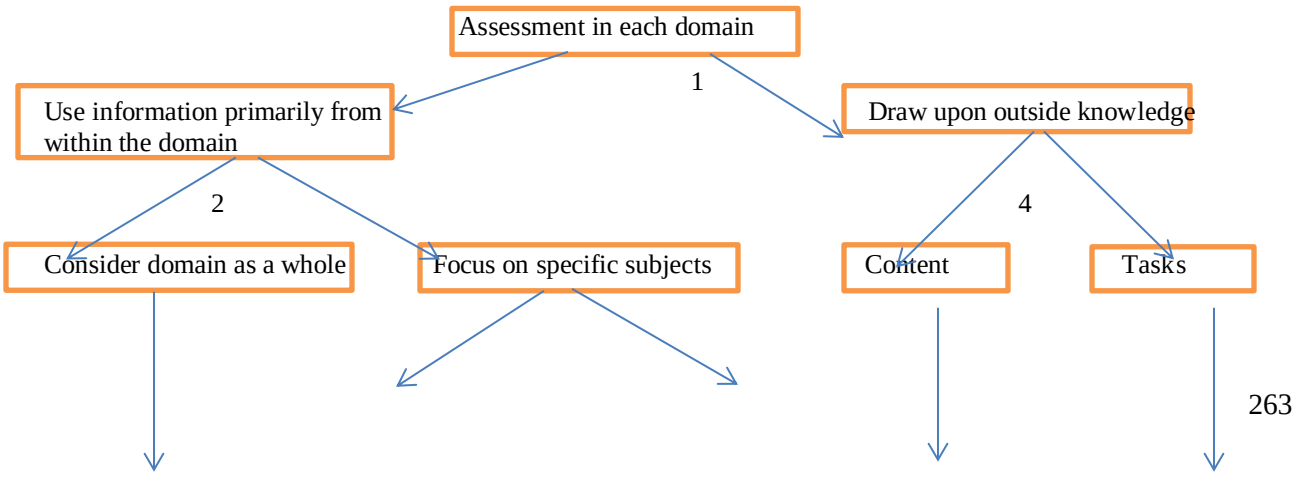
was too narrow.

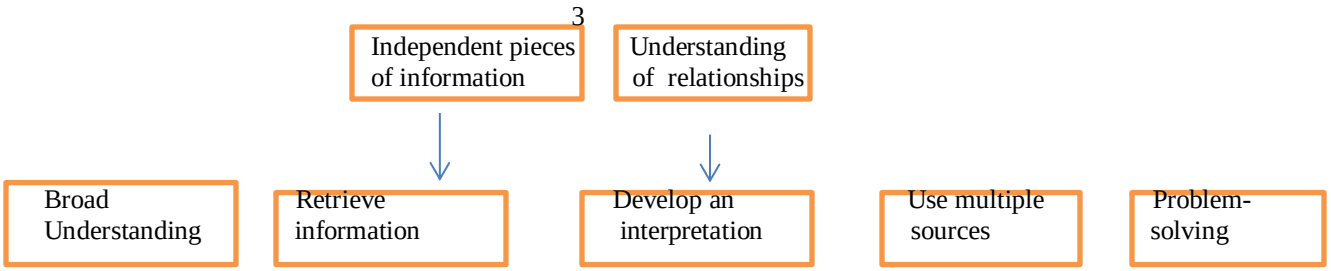
– Third, there are broad, general skills that are essential for students to develop. These include communication, adaptability, flexibility, problem solving and the use of information technologies. These skills are developed across the curriculum and an assessment of them requires a cross-curricular focus.

For lifelong learning, new knowledge and skills necessary for successful adaptation to changing circumstances are continuously acquired over the life cycle. Students cannot learn in school everything they will need to know in adult life. What they must acquire is the prerequisites for successful learning in future life. Moreover, further learning and the acquisition of additional knowledge will increasingly occur in situations in which people work together and are dependent on one another.

The first two stages are summarised in the diagram below :

Figure 28: Nature of the written tests





Adapted from OECD (1999, p .29)

The nature of the written tests can be distinguished in terms of four characteristics:

– The first deals with the extent to which the learner is expected to use information primarily from within the subject as in step 1 (facts) or to draw more heavily upon outside knowledge to solve complex problem situations as in step 2 (integration).

– A second distinguishing characteristic involves the extent to which the learner is asked to consider the domain as a whole or to focus on specific pieces of information contained within the different subjects. Sometimes learners are expected to retrieve specific or independent pieces of information as in step 1 ; while at other times they are directed to demonstrate their understanding of the relationships between different subject areas.

-Focusing on isolated or independent pieces instead of relationships between subject areas in the domain is the third distinguishing characteristic.

– The fourth characteristic marks whether the learner is directed to deal with the content or complex tasks by mobilising resources (KSAs) from multiple sources to solve the given problem situation .

Researchers argue that, by tapping into students' advanced thinking skills and abilities to explain their thinking, performance assessments yield a more complete picture of students' strengths and weaknesses. The items at this level involve the competency statements or complex tasks for subject areas (languages, sciences and vocational activities) and also integrating competencies following the integrated learning themes. Students should be made to select from multiple simple projects that assess one competency at a time or a single complex project that assesses multiple competencies.

In order to make learning relevant to daily life, eight integrated learning themes have been

identified to develop skills necessary for the harmonious integration of learners in the society. The ILTs for the primary school cycle are presented in table below.Any theme can be chosen for evaluation in each subject area.

Table 41: Integrated Learning Themes

SN	LEVEL I	LEVEL II	LEVEL III
1	The home	The home	Nature
2	- The village/town	- The village/town	- The village/town
3	- The school	- The school	- The school
4	- Occupations	- Occupations	- Occupations
5	- Travelling	- Travelling	- Travelling
6	- Health	- Health	- Health
7	- Games	- Games	- Sports and leisure
8	- Communication	- Communication	- The universe and space

Source: Cameroon primary school curriculum, (2018, p.16)

These competency statements are better explained in the primary school curriculum for the francophones (2018). During evaluation of competences, the pupil will be presented with a complex problem situation, which is novel to him. He is required to accomplish task by choosing and combining a number of significant procedures from the knowledge acquired. These competency statements test higher other thinking skills. One or two questions are asked in each paper (languages, sciences and vocational domains), requiring learners to apply the KSAs acquired to solve the real life problem. The curriculum for French primary schools (2008, p.21) explains clearly that how these integration situations should be, a follows:

> *Chaque épreuve porte sur une situation-problème associée à une compétence. Il s'agira d'une situation d'intégration dans laquelle l'élève se sent impliqué, une situation pouvant être résolue dans un cadre non scolaire, ou une situation problématique. La situation doit comporter un contexte, une tâche et des consignes. La tâche doit être pluridisciplinaire, c'est-à-dire qu'elle doit exiger l'intervention de procédures et d'éléments de savoirs, savoir-faire et savoir-être relevant de plusieurs disciplines.*

In competency-based assessment system, students can also be assessed using such contents which may or may not be found in their textbooks. On the other hand, the content-based system allows

such items that are found only in the textbooks.

It is worth noting that the curriculum for the English section does not explain in detail how the assessment of competences should be done. The French version talks of competence assessment using a problem situation that is interdisciplinary, or that cuts across many subjects, for learners to be able to integrate the knowledge acquired in these different subject areas to solve the given problem.

More complicated tasks that require different steps to reach a single correct solution. Task complexity arises from the interaction between task features and the competence of the individual. Very complex tasks can become easy with sufficient practice, and pretty easy tasks can be complex for a novice. Task complexity is not merely an inherent characteristic of a task, and any assessment approach should take at least the stage of training of the individual into account. The complexity of a task should determine the selection of the assessment and suggest to use this approach to reorganize and adapt competence assessment. in order to prepare students to show competent behaviour.

When there is alignment between what teachers want to teach, how they teach, and how they assess, teaching is likely to be more effective than when it is not. To pursue the theory of constructive alignment, it is worthwhile to invest in the design of performance assessments, because performance assessment provides multidimensional feedback for fostering learning.

Performance-based assessments share the key characteristic of accurately measuring one or more specific course standards. They are also complex, authentic, process/product-oriented, open-ended, and time-bound. Performance-based assessments are a valid alternative to traditional multiple-choice tests. The definition of performance-based assessments varies greatly depending on author, discipline, publication, and intended audience. In general, a performance-based assessment measures students' ability to apply the skills and knowledge learned from a unit or units of study. Typically, the task challenges students to use their higher-order thinking skills to create a product or complete a process. Tasks can range from a simple constructed response (e.g., short answer) to a complex design proposal of a sustainable neighborhood.

- **General guidelines to design performance assessments**

To guide teachers in the design of performance assessment, Slujsmans et al (2006, p.6) presents four general guidelines to design performance assessments formulated by Stiggins in 1987.

First, the *purpose* of the performance assessment has to be defined. Several important questions have to be asked such as : What important cognitive skills or attributes do students have to develop? What social and affective skills or attributes do students have to develop? What metacognitive skills do students have to develop? What types of problems do they have to be able to solve? What concepts and principles do students have to be able to apply.

Next, *define the performance task*. This first step results in a skill decomposition in which the relevant skills are hierarchically ordered defines the performance task. The performance assessment task can be a product, behaviour or extended written response to a question that requires the student to apply critical thinking skills. Some examples of performance assessment tasks include written compositions, speeches, and research projects.

After the assessment task is determined, the elements of the task that determine the quality of the student's performance , or *the lists of criteria* , are defined. Most of the time, teachers develop their own criteria. A teacher has to analyse skills or products to identify performance criteria upon which to judge achievement. Criteria should be significant, specifying important performance components, and represent standards that would apply naturally to determine the quality of performance when it typically occurs. The criteria must be clear and understandable for all persons involved.

The final step is the creation of *performance scoring rubrics* that are used for formative and summative purposes. The performance is evaluated in a way that allows informative scoring on multiple criteria. In a performance scoring rubric, the different levels of proficiency for each criterion should be defined. A criterion-referenced qualitative approach is desirable, whereby the assessment will be carried out against the previously specified performance criteria.

The steps are summarised in the table below.

Table 42: Steps in designing performance tasks

SN	STEP	WHAT TO DO?
1	Define the purpose of the assessment	List the skills and knowledge that you wish to have students learn as a result of completing a task.
2	Define performance	Design a performance task which requires the students to demonstrate these skills and knowledge.

	assessment tasks	
3	Define performance criteria	Develop explicit performance criteria which measure the extent to which students have mastered the skills and knowledge.
4	Create performance scoring rubrics	Use one scoring system or performance rubric for each performance task. The performance criteria consist of a set of score points which define in explicit terms the range of student performance.

When competencies are assessed through a task that requires the learners to integrate them, 'holistic' or 'integrated' assessment is required. This form of assessment relates to the whole unit or grouping of units, and requires observation of performance, or other forms of evidence. It is assumed that the attained score reflects the performance level that the learner would achieve in a real working situation.

An important aspect in this second or integration phase, is that, the problem situations or questions are designed in such a way that students can pick out projects to carry out practically as a way of solving the problem. When the project is identified at the end of the paper, the candidates will be grouped and assigned a task to be carried out the next day. This is to allow them to make findings back home from their parents and other siblings , thereby utilising the flip classroom technique and group work for projects. The concept of flipped classroom means what is done at home as a traditional learning is done during the classroom period, and what is done during the classroom period as a traditional learning, is done at home. In a traditional teaching environment, learning of new knowledge occurs in classroom. Then, the student returns to his or her home and completes home assignments. However, implementing flipped classroom method enables students to learn new information ahead of time at home through several technology tools. A reason for bringing in the flip classroom technique is that it enhances the critical thinking, self- learning, building experiences, communication skills, and cooperation among students, and also provides a technique to evaluate the students' understanding.

STEP THREE: PERFORMANCE TEST

The third step, requires the learner to demonstrate the competencies acquired through practical activity done individually or in groups. This requires a performance test using observations on the

job or simulations. Simulations are used when it is not possible or desirable to observe students' performance in a real life situation. Tasks here should be designed in such a way that obstacles are placed at individual level when they are divided among members. This is to ensure that learners seek help from others or must collaborate with others to succeed. The competences assessed at this level are methodological and interpersonal, and are measured using an observation checklist. The paper can be introduced on the second day of writing so that the learners identify a project to be carried out in groups, go home and look for the necessary materials and more information from their parents before coming the following day to execute the task (flip classroom technique and project pedagogy).

- **Incorporating group work and flip classroom technique in performance assessment**

Burdet (2017, p.51), talking about curriculum alignment, says an examination not properly aligned to the national curriculum will be working at cross purposes to stated policy intent. This is because students in the primary school spend years traveling down one learning progression, and so, may find themselves preparing in their final two years for an examination that tracks something different. Therefore it is important to align the assessment with the teaching methods : to do this, the researcher has brought in performance assessment using group work and the flip classroom technique ; as shall be discussed below.

- **Incorporating the flip classroom technique**

This is done as a transition from phase 2 to phase 3. Teaching using flipped classroom strategy increases the motivation to learn as being internal source of excitement, on contrary to the traditional method in which excitement is depending on teacher's notes, comments, questions, answers and forms of enhancement that student receives, thus the source of excitement is external. By using flipped classroom strategy, enhancement is raised from the practical activity itself, from the excitement that the learner feels during presenting information and the practical application he does. Chipp (2013) indicated that the classroom in which strategy of flipped learning are used, achieve higher results in tests than the classroom in which strategy of traditional method is used.

- **Incorporating group work**

This assessment model incorporates group work in carrying out tasks for performance assessment or practicals. As stated by Forsell, Forslund and Hammar (2019), combining and integrating group work and classroom assessment opens up the field of group work assessment. Group work

assessment is defined as a comprehensive concept, including all the types of feedback, evaluation, and assessment that are carried out in connection with students' working in groups. Thus, group work assessment includes formative assessment and summative assessment at both individual and group levels.

A diary is used as a tool to monitor group members' behavior and should focus on the assignment, problems, and achievements level. The evaluation of the learning outcome is done by comparing it against a set of assessment criteria with the purpose of giving grades (summative assessment). Students will be given individual grades by deriving them from several assessments or from content knowledge within a group project. In the group project, group members cooperated to create a product or carryout a task and afterwards the group is allocated grades by following specific criteria. The purpose of giving the same grade to a group of students, even if the members may have contributed with different amounts of effort, is that it emulates situations in real life where group members are often rewarded as a group (e.g., groups in a workplace or a sports team). Working in groups trains and prepares students with important skills for future group work in professional life. Group work assessment is seen as necessary for getting students to focus on group work skills, such as the ability to work in groups. The method for assessing a group as whole is to let the group take a test together

- **The criteria of judgment in group work assessment**

Group work encompasses the knowledge and skills that are evaluated and measured by the assessment procedure. Three subthemes , taken from Forsell et al (2019), constitute the criteria: (a) *contribution*, (b)*knowledge*, and (c) *product*

Contribution : The first subtheme concerns the assessment of group members' contributions to group work. *Contribution* comprises three aspects: (a) group interaction (b) intellectual, and (c) workload.

Group interaction includes the different ways in which group members can contribute by interacting with other members during group work: (a) cooperation, (b) positive behaviour, and (c) communication. Cooperation and working together are described by means of several criteria in the reviewed literature, such as cooperative abilities. Group members shall be graded based on contributing with positive behavior; for example, by showing a positive attitude ; being adaptable ; showing enthusiasm ; getting along with team mates ; being sociable or taking responsibility : their

ability to communicate with teammates, by discussing and formulating opinions, negotiating with the group; accepting constructive criticism and being a good listener as well as seeking and sharing information

Intellectual contributions, the second aspect, entail different kinds of contribution, such as generating ideas or suggestions solving problems thinking critically and creatively understanding what is required It can also be about contributing technical skills

The third aspect concerns the *workload* each group member puts into group work such as getting the job done by: Pulling a fair share ; making an effort or just participating in the group work.

There are various possibilities for group members to contribute to the group's process in different ways. All the criteria found are examples of what in focus in the assessment of contribution. One conclusion that can be drawn from subtheme contribution is that it is not really the process that is assessed but instead different forms of contribution to the process of group work.

Knowledge : The second subtheme of the criteria, constitute the knowledge that springs from group work. Knowledge is described as an outcome that can be assessed by teachers at both a group and an individual level as well as both quantitatively and qualitatively in relation to the group's product. Theoretical knowledge and cooperative abilities are two aspects of knowledge. The skills observed when students orally present group work are other examples of what is assessed.

Product : The third criteria subtheme regarding what is assessed in group work is product, which is also an outcome that springs from group work. Product, along with participation and contribution, are the typical components when grading group work.

The effects of group work

On the individual : The performance assessment at the individual level entails three aspects: (a) *learning*, (b) *grades*, and (c) *psycho-social effects*. Group work assessment also supports high achievement when using cooperative tests. Research on group grades has revealed that high-achieving students get lower grades in groups than they normally would have received when working alone, and lower-achieving students received higher grades in groups than they normally would have received individually.

Group work assessment can also have a positive effect on students' motivation. Giving individual

feedback in group work assessment can increase students' achievement and motivation for learning group work assessment can reduce students' levels of anxiety and stress.

Psycho-social effects concern the influence that group work assessment can have on a personal level (i.e., the individual's attitude, motivation, stress, and anxiety). If teachers assess individual performance within the group, it can help students to develop a more positive attitude towards group work. Students prefer to receive individual grades for their own contribution, and this means that individual assessment and/or structured peer assessment can ease their concerns about grade equity. A majority of students also prefer individual assessment over group assessment.

Effects on the group. The second subtheme concerns the effects of group work assessment at the group level. The analysis reveals three aspects connected to group processes and sheds light on whether group work assessment facilitates or hampers the processes of: (a) *cooperation*, (b) *contribution*, and (c) *relations*.

Cooperation among group members increases when group grading is used group work assessment can actually help building positive relationships among group members by providing individual feedback and build friendships between students by using cooperative tests.

- **How teachers can create performance-based assessments for their students during formative assessment.**
- **. Identify goals of the performance-based assessment.**

The purpose may be to challenge the students to use critical thinking and problem-solving skills. The teacher should not make students to rely on his or her direction about how to complete each step of the assessment. This will foster critical and creative thinking in the learners.

- **. Select the appropriate course standards.**

Once the goals are identified, select the Common Core standards or competences to be addressed with this performance assessment e.g procedural competence, interpersonal and intellectual competences.

- **. Review assessments and identify learning gaps.**

This is a very important step. Look at the current work that students are completing for the units and consider the integration theme for te month. Note that there should be a relevant real-world application. Create a performance-based assessment that is also reality-based.

- **. Design the scenario.**

After brainstorming a few different scenarios, settle on a situation where the students would actually be confronted with a problem that requires him or her to solve individually or to require the assistance of group members. These scenarios may include some key components depending on the competency envisaged. The tasks should typically be performed in a real or simulated task environment and provide 'whole-task practice'. Ideally, they should confront the learners with all constituent skills that make up the whole competency.

Since competence-based learning relies upon practical tasks and practical assessment, here are some practical assessment methods proposed by Esenina, et al (2019, p.47)

- Simulated Work Exercises : when learners complete an exercise that closely resembles a work-place function. For example - select appropriate ingredients from the range available and make a loaf of bread;

- Structured Practical Exercises : where learners carry out l practical tasks based on workshop, laboratory, classroom or field activities. Exercises tend to be parts of workplace tasks. Learners may proceed through several 'stations' and undertake a variety of practical tasks.

- Fault Finding Exercises : when learners are presented with a piece of equipment a series of test results, a set of accounts, or something similar, and asked to identify an error or problem. For example: *Given an electrical circuit that is not working, identify the fault and correct it.*

- On Job Assessment Method :- direct observation of the learner performing a practical task, technical skill, or interpersonal skill, in a real or simulated setting. For example a nursing stu-dent taking a patient's blood pressure (*Note : This model does not make use of on the job method)*

- **. Gather or create materials.**

Depending on the scenario, this step may or may not be needed. If they have to carry out an authentic performance tasks, the learners should be given time to gather the materials needed as an individual or those assigned them by the group leaders. Authentic task in a simulated task

environment that gives the students the opportunity of whole-task practice, will encourage students to conduct research in a multidisciplinary team with team members

- **. Execute the plan.**

Here the students would carry out the task individually or in groups while the teacher observes each stage and record the observations with a rating scale or checklist following the criteria listed. The students need supportive information that teachers typically call 'the theory' and which is often presented in study books and lectures ; and procedural information to effectively carry out the task.

The above steps can be summarised in three major components as put forward by Chung et al (2006) which are :

. identification of cognitive demands implied by performance objectives, including both cognitive strategies specific to the subject matter domain and those that are relatively domain independent;

. analysis of the subject matter and content to be addressed, including identification of essential or desirable elements of competence, as well as elements that are common to multiple tasks; and

. specification of behavioral demonstrations—the range of symbolic stimuli and response modes for demonstrations of levels of mastery. This is summarised in the table beow.

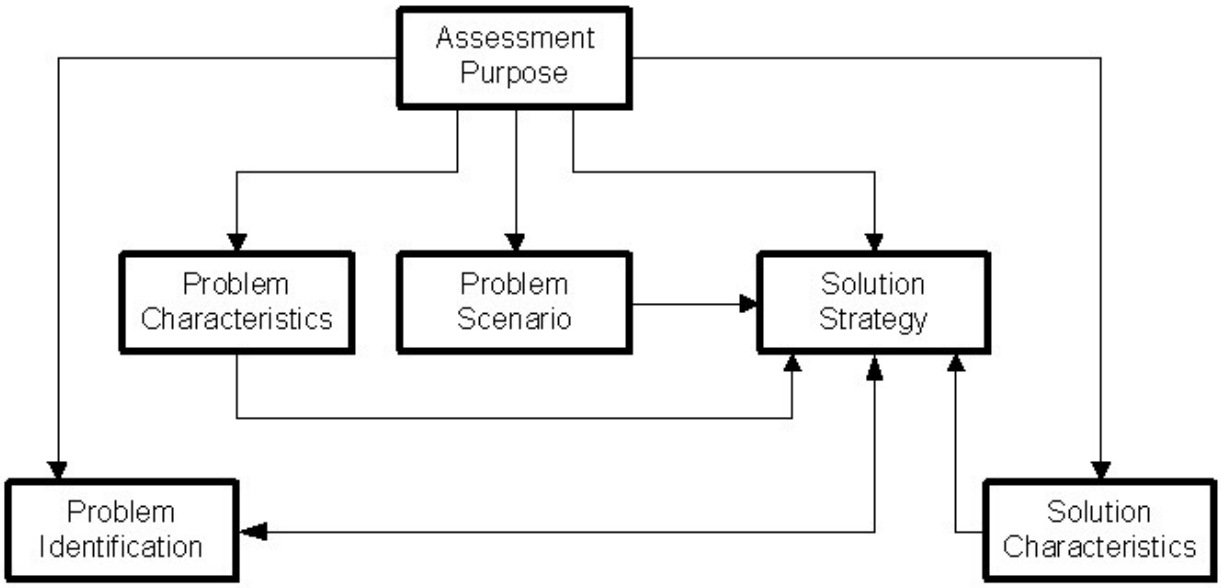


Figure 29: Example of a specific installation of the problem-solving assessment ontology, taken from Chung et al (2006, p .10)

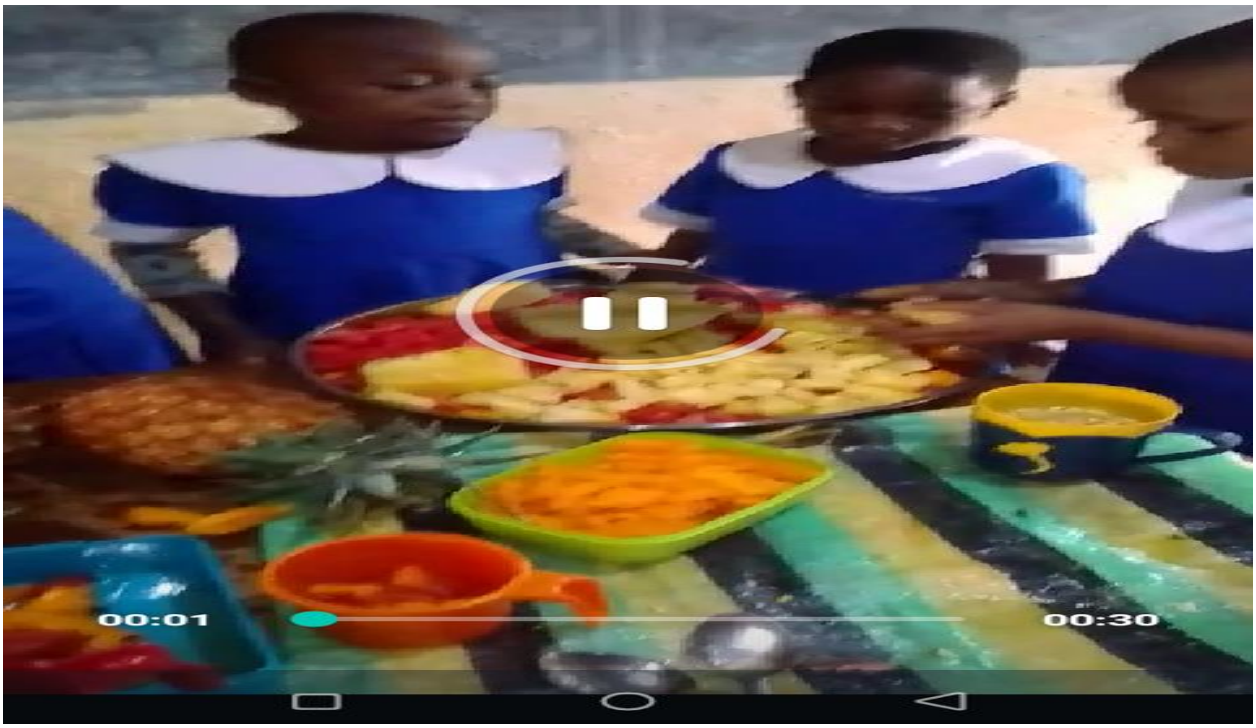
- **Pictures of pupils carrying out projects individually and in groups**

A class 6 pupil, preparing vegetable salad

Class 5 pupils watering the nursery with their watering cans made with empty containers and pen tubes

Class 5 pupils assembling different parts of cut off shapes to make a portrait of a flower vase

Class 4 girls preparing vegetable salad as a group



Class 4 girls preparing fruit salad as a group


A group of class 6 girls decorating slippers . Tasks are shared: the first group to the left is sewing decorations with pieces of cloth; the second group is stitching the cloth designs on the slippers and in the third group, one student is threading beads for the other to stitch onto the slippers.

STEP FOUR: ORAL TEST

The fourth step is the the oral phase, which requires the learner to be able to communicate about

the practical work they have completed; using the two official languages and mother tongue, and integrating knowledge to solve real life problems and how he/she can solve subsequent problems in future. With oral tests, both the question and the answer are spoken rather than written. They are used for the purpose of supplementin written work. By means of oral questionin, Tambo (2003; p.230) says, the teacher can more easily discover how well a pupil can apply what they have learnt to the solution of a problem. Four kinds of oral test, according to the same author, can be used in the classroom viz:

. oral question that call for an oral answer:

. oral questions that call for written answers,

. oral intelligent tests and

. interviews used in evaluating higher learning outcomes.

Each of these tests requires proper planning. Competencies assessed here are communication and personal competences needed for life-long learning. This will be assessed through oral interview and self-assessment.

Oral assessment is a common practice across education and comes in many forms. In oral assessment, students speak to provide evidence of their learning. Oral assessment uses a wide variety of techniques. Students' knowledge and skills are explored through dialogue with examiners.

Oral examination is recommended, because they provide students with the scope to demonstrate their detailed understanding of course knowledge. Good assessment practice gives students the opportunity to demonstrate learning in different ways. Some students find it difficult to write so they do better in oral assessments. Others may find it challenging to present their ideas to a group of people. Oral assessment takes account of diversity and enables students to develop verbal communication skills that will be valuable in their future careers. One noteworthy consideration regarding oral examinations is that students with disabilities prefer oral examinations over written examinations (Waterfield & West, 2005).

Student and teacher experiences of an oral examination are extremely positive. Students are initially more anxious about the oral examinations because they have an unknown format. Students spend about the same amount of time studying for the exam compared to a written one. Oal tests improves their application of concepts and retention.

Marking criteria and guides should be carefully developed so that assessment processes should be quick, simple and transparent. Tasks can range from individual or group talks and presentations to dialogic oral examinations.

- **How to organise oral assessment following the FIPO model**

Below are some tips taken from *Oral assessment -UCL's Education Strategy* (2019).

. Consider the learning objectives or competencies you are aiming to assess

. Inform the students of the criteria:

Discuss the assessment criteria with students, ensuring that you include presentation or speaking skills.Identify activities which encourage the application or analysis of knowledge. You could choose from the options below or devise a task with a practical element adapted to learning in your discipline**.**

. Decide what kind of oral assessment to use: Options for oral assessment can include**:**

Assessment task

- Presentation
- Talk
- Debate
- Role-play
- Interview
- Dialogue
- Question and answer session.

Individual or group

If group, how will you distribute the tasks and the marks?

Combination with other modes of assessment

- Oral presentation of a project report or dissertation.
- Oral presentation of posters, diagrams, or museum objects.
- Commentary on a practical exercise.
- Questions to follow up written tests, examinations, or essays.

Decide on the weighting of the different assessment tasks and clarify how the assessment criteria will be applied to each. Peer or staff assessment or a combination: groups of students can assess other groups or individuals.

Brief your students

When you have decided which options to use, provide students with detailed information. Integrate opportunities to develop the skills needed for oral assessment progressively as students learn. If you can involve students in formulating assessment criteria, they will be motivated and engaged and they will gain insight into what is required, especially if examples are used.

Planning the oral assessment

Plan the oral assessment event meticulously. Stick rigidly to planned timing. Ensure that students practice presentations with time limitations in mind. Allow time between presentations or interviews and keep presentations brief.

Decide how you will evaluate

Decide how you will evaluate presentations or students' responses. It is useful to create an assessment sheet with a grid or table using the relevant assessment criteria. Focus on core learning outcomes, avoiding detail. The criteria that are most frequently used by test takers are: range, accuracy, fluency, interaction, and coherence. According to Luoma (2004), "the decision about which criteria to use, depends on the intended use of the test" (p. 41). Further, "teachers should not necessarily deal with all oral production in the same way.

Two assessors must be present to:

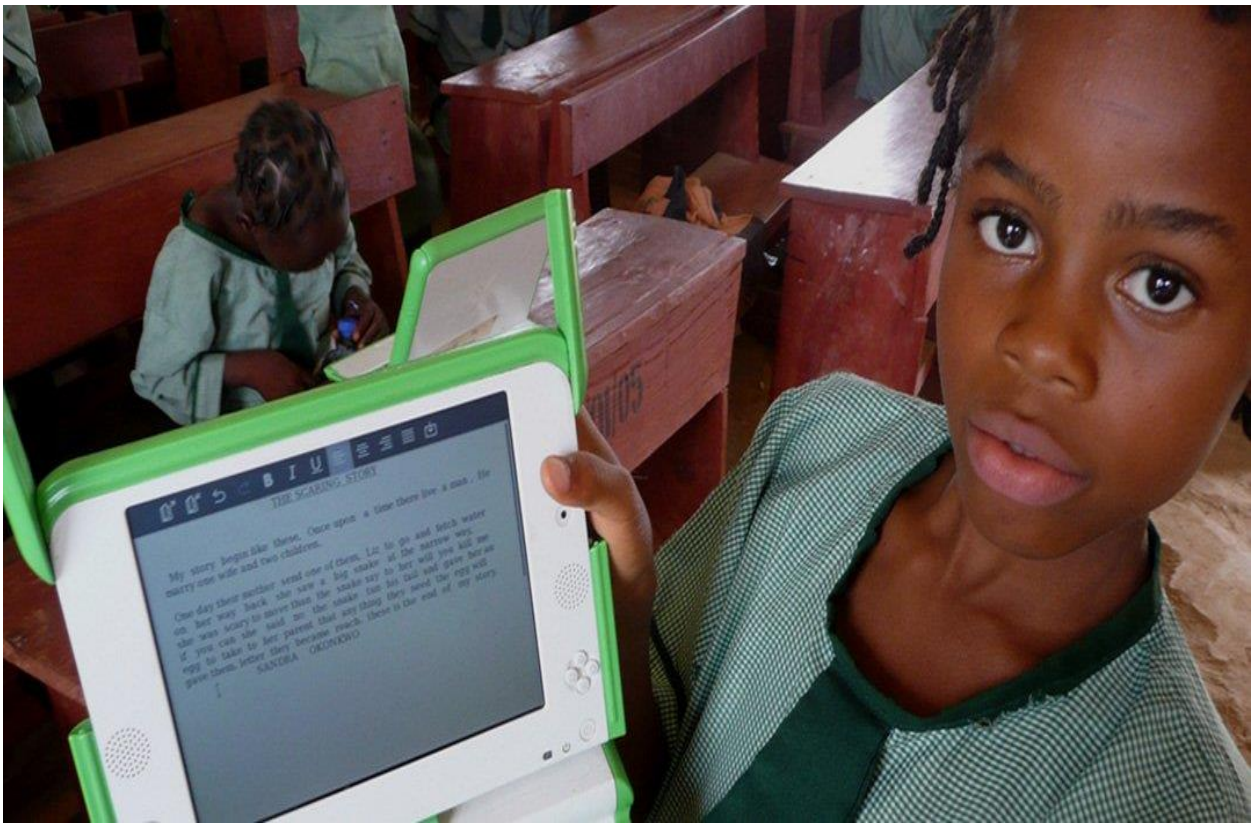
- evaluate against a range of specific core criteria
- focus on forming a holistic judgment.

Leave time to make a final decision on marks perhaps after every four presentations.

According to Alharbi and Radhi (2019) assessing students' oral skill demands using a set of assessment techniques that reach all students with different levels, needs, and interests is very important. Also, it gives more opportunities to get more valid, reliable, and consistent insight of students' progress.

There are different types of tasks that are commonly used to assess learners' oral performances, ranging from interviews to picture descriptions, topic discussions and role plays. Most practical oral assessment methods used by teachers are presentation and oral discussion to assess their students' oral skills.

Below are pictures of some pupils presenting their work, done individualy or as a group.



Oral presentation of a typing exercise (*taken from google)*

Oral presentation of a finished project by a group member, explaining the steps to produce a kerosene lamp.

5. 5 PSYCHOLOGICAL JUSTIFICATION OF THE FIPO MODEL IN LINE WITH

PIAGET'S VIEWS

Piaget a Swiss psychologist, studied cognitive development in children and brought up a theory which purports that cognitive development is a gradual process and occurs in stages. Piaget identified four stages namely: sensori-motor, pre-operational, concrete, and formal opration stage. The concrete operation stage occurs during ages seven through eleven. This is the primary school age. Children at this age continue to grow in their mental abilities, physical abilities, use of language, self control , friendships and social skills. Here, the child is expected to acquire the rudiments of knowledge that are considered essential for successful adjustment to adult life. He/She are also expected to learn certain essential skills.

Since the FIPO model is designed for summtive evaluation of level 3 pupills (9-11 years) , it is good to look at the developmental characteristics of children within this age range

- **Developmental Characteristics of middle Childhood (Age 6- 11 Years)**

Physical Development

The child practices, refines, and masters complex gross and fine motor and perceptual-motor skills. Thus can carry out a project or practical task to demonstrate competence in the psychomotor domain.

- ***Cognitive Development***

Concrete operational thinking replaces egocentric cognition, that is 'decentration'. The child's thinking becomes more logical and rational. Logical thought is the major goal at this stage of develpoment. They can reason inductively and deductively. This makes them able to understand and solve complex problems based on real life experiences. They get better at problem solving skills but need clear, concrete and specific directions , visual cues and objects to help them solve problems. According to Kendra (2021), one of the key characteristics of the concrete-operational stage is the ability to focus on many parts of a problem.

According to Piaget, assimilation and accomodation require an active learner, not a passive one, because problem solving skills cannot be taught , they must be discovered. Therefore at this stage they use reason in logical steps in order to solve problems. This explains the use of problem situations in setting items for the integration test (McLeod, 2022).

Piaget also believed that complex skills can be acquired easily once simpler prerequisite skills

have been learned (Blake and pope , 2008) ; justifying why the model begins with factual tests before moving to integrtion test, that is, assessing from simple to complex tasks. He also pinpoints that individuals must adapt to their environment for better development. This explains the notion of aligning instructional strategies with assessment strategies such as project pedagogy, group work and flip classroom at the level of performance test.

- ***Social Development***

Relationships outside the family increase in importance, including the development of friendships and participation in a peer group. The child develops the ability to understand others' perspectives. Hence they can perform group tasks with the common goal of performing highly. The child imitates, learns, and adopts age appropriate social roles, including those that are gender-specific. The child develops an understanding of rules. Rules are relied upon to dictate proper social behaviour and to govern social relationships and activities (Krema, n.d).

- ***Emotional Development***

The child is industrious, purposeful, and goal directed in her activities. She is confident and self-directed. The child is developing a better sense of herself as an individual, with likes and dislikes and special areas of skill. She is capable of introspection. The child evaluates her worth by her ability to perform. Self-esteem is largely derived from one's perceived abilities. Thus, the learner can perform activities as an individual and also share her view -points orally with much confidence

- **THE OLD WAY AND THE NEW WAY OF SETTING FSLC USING THE FIPO MODEL COMPARED**

The FIPO model is to help structure how the summative evaluatios as FSLC should be, for the learners competencies to be evaluated effectively. The old format of setting will be compared with the new model bsed on the parts involved, the stages, the number and types of items and the grading system, as shown in the table below :

Table 43: comparison of old way of setting FSLC with the setting proposed by FIPO model

SN	AREAS COMPARED	OLD WAY OF SETTING	NEW WAY OF SETTING	REMARK
1	Forms of evaluation	Three- written, practicals and orals	Three- written, practicals and orals	use all learning domains
2	Parts involved	Three- written (paper I and II), -Practicals - orals	Four- written I :factual test -written II :integration test, -Practicals - orals	Same parts with different competences tested
3	Order of evaluation for FSLC	Practicals on day 1 Orals on day1 and 2 Written –paper I and II on day 3 and day 4	Written –paper I on day 1 -Paper II on day 2 Practicals on day 3 Orals on day3 and 4	Competences are built on knowledge and develop progressively
4	Content of the written part	Paper I- speed test for maths Paper II-power test for maths English I and II for day 1 General paper I and II French ICT for day 2 *Factual information	Paper I- speed and power test for maths with reduced number of items 15 speed and 3 power test items Paper I-factual information on all subjects for day 1 Paper II- integration paper with 3 complex problems for day 2	Paper I and II no longer on factual information only but divided into paper I on factual information as in old setting and paper II on integration
5	Item formats	Traditional formats for written part made up of MCQs, matching, true or fase, completion short answer types	Traditional formats and integration formats for the written part	To move from knowing only to application of knowledge in solving real life problems
6	Mode of admiistration	Individual work through out	Individual for written Individual and/or group work for practicals and orals	To align teaching strategy with assessment strategy

EXAMPLES OF SETTING OF EXAMINATION FOLLOWING THE FIPO

ASSESSMENT MODEL

With the FIPO summative evaluation model, the evaluation should be organized as follows :

Part one—Factual Test on different subject areas

Part two—Testing using complex problems or Integration paper

Part three—Practicals done individually or in groups

Part four---Oral presentation and self-assessment

FACTUAL TEST : forms the base or the foundation for building assessing competences

Examples : The old setting of FSLC examinations using traditional methods of assessing content per subject area.

INTEGRATION TEST : requires learners to use knowledge acquired in different subject areas to solve real ife problems. Teachers will have to set at least 3 to 5 questions using complex problem situations for which learners will integrate content from different subject areas or domains, representing the different core competences, while including the different integrated learning themes. The problem situation should be such that one solution should be to carry out a task practically.

Example : On his way back from school, Victor a primary 1 pupil misses his way and is picked up by a good samaritan. Unfortunately victor cannot say where he lives, who his parents or teacher are. As a class 6 pupil, you are asked to do the following :

a. write down three things you would do if you met this child on the way
b. if you are to take Victor to take head teacer, what will you tell him. Explain in two sentences
c. how can you help Victor not to get missing again. Suggest three ways

PERFORMANCE TEST: requires the learner to demonstrate the integration of knowledge and skills into successful authentic performance.

Examples: From the problem situation in part 2, one of the solutions to (c) may be to stitch the parents number on Victors uniform, or to draw a road map showing the location of the childs ouse and school with important places around the school environment.

The student who selects this or a group of students with common proposals will be grouped to go look for materials and do research for a day, before coming back to demonstrate the solution.

ORAL TEST: focuses on oral presentation. On the day of the exam, one student would enter the exam room at a time and instead of selecting a slip of paper containing one question from an envelope, he will be presented by the different complex tasks of step two, where he will be expected to talk on how to solve the probblem and what he actually did at the level of step 3. Then other questions may follow. This is to ensure a follow up of the solution of the problem task.

Examples : Oral presentation of the prolem, solution and finished project in the two official languages and at least one mother tongue. The learner should be ale to explain how it is going to help him or her in future and talk about lfe long skills.

PRACTICAL ISSUES WITH THE FIPO HOLISTIC MODEL

The researcher is aware of some practical issues or challenges that may arise from this mode, as such proposes the follow:

First, in order not to loss the content taught as different subjects in the curriculum, the old format of setting the FSLC should be maintained and would be written for one day, before the new one.

The competency paper involving complex problem situations will be written on the third day. At least three competency statements or real life problem situations will be set depending on literacy and social sciences, sciences and vocational domain. The complex tasks will be solved in written form and must have options for practical activities. It should also be noted that when assessment is limited purely to an examination paper, it may not be possible to assess all the learning outcomes or competencies in such a short space of time. Hence sampling of learning outcomes is done and even if all the learning outcomes are assessed on an examination paper, due to choice of questions, a student may not be assessed on all of them

The practical and oral forms of the evaluation would be organized to days after the written part , unlike in the former format, these two came before the written part. The reversal of steps is because the demonstration of competences in authentic manner is built directly from the written or cognitive mobilization of KSAs. Two days are allowed for students to do research (flip classroom technique), and gather materials for work. This phase will be done in groups to assess the methodological, personal and interpersonal competences. Accompanying the performance task is

a list of performance criteria (*rating instruction)* for the report and the interview. Sporting activities are not left out but are treated separately.

Lastly the oral phase which is time consuming, may be done individually or in groups depending on the class size or student population. It shall be done as a follow up process of demonstration of competences in written and practical form. This is to give room for learners to excel based on their learning needs and abilities.
The model does not specify modalities for special cases like the blind, deaf and dumb but can be applied by those in charge.

CONCLUSION

Students perceive assessment as a powerful motivator able to guide their learning, which means that the assessment experience may have an impact on their approach to it. Thus, assessment may persuade students to focus on cognitive skills during the learning process in such a manner that, through metacognitive processes boosted by assessment itself, students come closer to deep learning approaches, in line with the holistic vision of competency (Miguel 2018, p.3).
There are many authors who agree that there is need for an assessment that is also part of the curriculum and that helps improve all kinds of learning. It is necessary that teachers use assessment methods which are capable of fostering the development of reflection and critical thinking skills and of creating spaces where students can simultaneously acquire and demonstrate the development of higher-order cognitive skills. Thus an assessment model, of this magnitude,, can help facilitate the teachers task of assessing learners competencies.

This reflection might help examination committees and teachers to identify the type of assessment design with respect to CBE. It should be noted that the complexity of a task should determine the selection of the assessment method and suggest to use this approach to reorganize and adapt competence assessment. In order to prepare students to show competent behavior in the future, it will be critical to assess and monitor them continuously using complex performance based assessments rather than separately assessing knowledge, skills and attitudes.

I am aware that this work can only provide a brief synthesis or the 'tip of the iceberg' of competence based assessment. I therefore propose the perspective of a continuum extending from

an analytic approach to assessment to a holistic one , and recommend using a combination of both. The analytic approach pursues objective and reliable measurements of constituents of competence with a variety of specific, mostly quantitative methods, e.g., MCQ tests, standardized structured oral assessments and clearly defined and uniquely measurable criteria ; while complex tasks approach holistic settings.

5.6. SUGGESTIONS FOR FURTHER RESEARCH

The study revealed that assessment model is a correlate to effective implementation of CBA in the primary schools n the East Region. The researcher used a mixed method research design using instruments such as questionnaire, interview and checklist.

- Similar studies can be carried out in other regions of the country
- Also the same study can be carried out in the secondary schools
- Another research can be carried out on designing instruments to measure learners attitude as part of what competency entails
- Since the researcher ended by proposing a model of assessment, another researcher could test the model to see how it works
- Further study could be done to help understand how much poorly designed and implemented assessments act as a barrier to good education
- Another topic may be the impact on poorly designed assessments on implementing curricula.
- A longitudinal study and be carried out to see how the learners competencies are developing across the years.
- Another study an focus on the psychometric properties of the different assessment formats used for CBA.

GENERAL CONCLUSION

The main job of a teacher is not only to teach but he or she are responsible to teach and do the assessment part. It is impossible for a teacher go to classroom without doing any assessment; as

well as it is impossible for one teacher teaching and the others do the assessment. Thus, teachers need to be schooled on how to assess their learners. Effective assessment is the driving force behind strong CBE Programs, according to Pearson Education paper (2015, p.5). This means that for competency based education to be successful in our country, CBA should be given paaramount attention. Assessment and testing have a strong effect on the lives and careers of young people. Since decisions taken within and by schools influence the prospects and opportunities of their pupils especially their results of national tests and examinations, the results of tests and examinations used to pass judgments on teachers and schools, also affect the ways in which pupils are taught. Therefore , it is essential that results of summative assessment should reflect and influence school learning in the best possible way. Assessing by competences , according to Sanchez and Ruiz (2008, p:44), means, first, knowing what we wish to evaluate; second, explicitly defining how it is going to be evaluated ; and third, specifying the level of achievement that is going to be assessed. Focusing on competency requires learners to demonstrate mastery on al essential knowledge and skills rather than merely attain lower leves of understanding; yet, little practical guidance is currently available for those designing assessment associated with competency based pathway systems (*Assessment to support competency based pathway* document).

The different stakeholders, that is teachers , inspectors and the researchers believe that a good assessment model will enhance the effective implementation of competency based assessment in the primary schools. Due to differences in the conception of the competency based approach in MINEDUB by those who conceived the program, a lot of challenges have accrued making it difficult for an assessment model; given the fact that the certificate examinations in two years time will be written following the CBAp. Teachers are left to conceive the evaluations and with little knowledge on assessment methods and tools, formulating assessment items that will test both lower and higher other thinking skills, creating problem situations for learners to apply their knowledge and skills acquire; the job seems problematic. The inspectors who are still struggling to master the approach, these teachers feel that the CBAp will soon pass away like others. Hence, they need a guide, a model or a sample of the assessment to facilitate their task.

The researcher, in carrying out this study, used different instruments to ascertain the degree of relationship of assessment model and effective implementation of CBA. The questionnaire was designed to answer the research questions, the interview guide to serve as a support to the

responses of the questionaire and a checklist to observe the structure of the evaluations given: the findings proved that the manner in which CBA is conceived , especially in the two sub systems play a vital role on how CBA will be implemented. The type of assessment; assessment methods, item formats used for CBA , and the criteria for judgment of level of competency; all show a positive correlation with the implementation of CBA. This means for effective implementation, the teachers should be schooled more on these aspects of an assessment model. Recommendations were made to the stakeholders of education, beginning with the policy makers, test developers, inspector coordinators and teachers. To contribute also in the process of developing the assessment model, the researcher proposed a four step holistic model that takes into consideration the old and new format of evaluating learning at the primary school level, while trying to incorporate the different forms of evaluation (oral, written and practicals), together with the broad based or transversal competencies competencies. The model makes use of the theory of alignment of learning outcomes, teaching methods and assessment strategies by trying to incorporate project pedagogy done using group work with some elements of the flip classroom technique.

5.8. SUMMARY

This chapter of the study has discussed the research findings according to the research hypotheses, limitations, recommendations, the proposed assessment model suggestions for further research and general conclusion. The next section will focus on references and appendix..

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APPENDIX

QUESTIONNAIRE FOR TEACHERS

Dear respondent

I am Yoh Edelquin Nabi a PhD student in the Department of Curriculum and Evaluation, University of Yaounde 1 carrying out a study on 'Assessment models and effective implementation of Competency-based assessment in the primary schools in the East Region of Cameroon: towards developing a holistic evaluation model'. Kindly help me by answering the questions below. My findings are totally dependent on your answers and I will be grateful if you could be as honest as possible. Your responses shall be treated confidentially and used for academic purposes only.

PART I: DEMOGRAPHIC INFORMATION

REGION ----------DIVISION----------

Sex: male ☐ female ☐

Trained ☐ untrained ☐

Teaching experience ☐ below 5yrs ☐ between 5-10 yrs ☐ above 10yrs ☐

Level taught ☐ one ☐ two ☐ three

Type of school ☐ Public ☐ private

sub system ☐ English ☐ French

PART II : THE ITEMS

Please tick only one option in the table that best suits your practice for each item.

SD= Strongly Disagreed, D= Disagreed U= Undecided, A= Agreed, and SA= Strongly Agreed

The effect of conception of competency on implementation of Competence Base Assessment

SN	Item	SD	D	U	A	SA
1	CBA is better done following the learning outcomes per subject					
2	CBA is better done following the integrated learning themes					
3	CBA is better done using the overall competency statements that cut across different subjects					
4	CBA is better done following the holistic competences involving cognitive, psychomotor and affective domains					

5	Much emphasis should be laid on knowledge and skills acquired and must not necessary involve performance in a real life setting in the primary school					
6	Terminal competencies should be on solving problems situations in the subject area					
7	Much emphasis should be on integrating knowledge from different subject areas to solve real life problems					
8	Learners' competencies are better assessed beginning from specific subject areas competencies to integration of knowledge from different subject areas					
9	Classroom assessments should be subject centered while terminal evaluation should involve integration of knowledge with many subjects					

Which of the approaches (subject specific, problem solving per subject area, integration of subjects approach, holistic approach) do you think can lead to effective implementation of CBA in Cameroon? Justify

_____

_____

The type of assessment that gives deeper understanding of competencies acquired

SN	Item	SD	D	U	A	SA
1	Formative assessment of competencies yields good judgment of competency acquired					
2	Summative assessment of competencies yields good judgment of competency acquired					
3	Assessing learners weekly or monthly gives a good picture of the competencies acquired					
4	The integration week or 4^{th} week for evaluation yields good judgment of competencies					

5	Competencies require time to be developed , as such are better assessed at the end of the term or course of study					
6	Evaluation of competencies done for each week is a good way to assess competencies					
7	The problem situations per lesson can be used to assess learners' competences					
8	Many formative assessment results should be summed up to summative assessment					
9	Learners' competencies can be judged from a single set of scores					

Among formative and summative assessment of learners' competences, which one do you think can make good judgment of the competences acquired?. Explain

_____

_____

The choice of assessment methods/strategies and the implementation of CBA

SN	**Item**	**SD**	**D**	**U**	**A**	**SA**
1	Traditional testing methods as used in past questions involving MCQ, can successfully measure learners' competences					
2	Authentic methods or non-traditional methods of assessment can better measure learners' competences					
3	Performance based assessment can successfully measure learners' competences					
4	A combination of traditional and performance assessment will better assess learners' competencies					
5	Learners in the primary school must not do something practically before being judged competent					
6	Students take fewer tests under a competency-based grading system					
7	Portfolio or a collection of pupils' work, projects and homework are considered when assigning end of year grades in CBA.					
8	Learners' competencies should be judged using many methods					

9	Classroom behavior should be incorporated in the calculation of grades in CBA					

To you, which is the best assessment strategy to use(tests only; practicals and tests,; multiple methods) ?Please explain.

The type of item format used and assessment of competencies in the primary school

SN	**Item**	**SD**	**D**	**U**	**A**	**SA**
1	Assessing learners using the old format of setting items such as MCQ, fill in blanks, matching items etc gives a good judgment of learners' competencies					
2	Essay format or open-ended questions can make teachers assess competences easily					
3	Items should have problem situations for better judgment of competencies					
4	Items involving practical activities will give a good judgment of competencies					
5	Item formats that test higher thinking order (analysis, synthesis and evaluation levels according to Bloom) should not be included in CBA					
6	There is an assessment model guiding how assessment in CBA should be done in the classroom					
7	Only textbook-provided test items should be used for classroom assessment in CBA					
8	Competency statements should not be used in assessing learners' competencies in the primary schools as they cannot read and understand					
9	CBA should assess also higher order tests not just recall of facts in primary schools					

To you, which item format do you often use (old testing format, testing with problem situations, or both) for CBA? Please explain your choice.

Alignment of instructional methods with assessment of competences in the primary school

SN	Item	SD	D	U	A	SA
1	Learners competences should be assessed taking into consideration the projects carried out					
2	Learners should be assessed through their participation in group work done in class					
3	Learners competences should be assessed through written exercises only					
4	Learners competences should be assessed involving marks obtained in homework					
5	Learners competences should be assessed through their ability to solve a real life problem situation or simulations					
6	Oral tests should be for languages only					
7	Practical tests should be for vocational subjects only					
8	The instructional strategies like project pedagogy and group work should be reflected in the assessment of classroom assessment only					
9	The instructional strategies should be reflected in the assessment of classroom assessment as well terminal competencies such as FSLC					

To you, should the teaching methods used for CBAp be reflected in the assessment? Please explain

_____

_____

The soundness of the criteria and grading system for judging the level of competence

SN	Item	SD	D	U	A	SA
1	Written exercises should have the more mark allocation in CBA					
2	Oral exercises should be given more marks in CBA					
3	Practical activity should be given more marks in CBA					
4	Written exercises should have the same mark allocation as for orals and practicals					

5	The assessment must follow the criteria set not how learners have performed					
6	The grading system , CA, CNA, CBA, Expert give a true picture of competences					
7	CBA looks at the individual performance and does not encourage the comparison of learners in a class					
8	The level of the learners should determine the grading criteria in CBA					
9	The score of a single assessment can be used to judge mastery of competences					

To you, which criteria is good for judging the level of competences of learners. Please explain

_____

_____

The assessment models and effectiive CBA implementation

SN	**Item**	**SD**	**D**	**N**	**A**	**SA**
1	The approach used for competency based education (CBE) affects the implementation of CBA					
2	The type of assessment (formative or summative) does affect the depth of understanding of competencies					
3	The choice of the assessment methods/strategies does not affect the level of mastery of competences in CBA					
4	The type of item format used in CBA determines the level of attainment of competencies					
5	The instructional methods in used for competency based approach should be reflected in the assessment practices					
6	The criteria and grading system for judging level of competence does not give a significant measure of learners' competences					
7	There is an assessment model guiding how assessment in CBA should be done in the final examination					

8	I have received adequate training on assessment methods used in CBA					
9	Teachers in my sub section have fewer challenges with the design and implementation of CBA					

Do our primary schools need an assessment model? If yes , propose what should be adopted for the class assessment and FSLC examination

Cite 5 difficulties you encounter with the new form of evaluation-CBA

THANK YOU

INTERVIEW GUIDE FOR TEACHERS AND INSPECTORS

Interview No_____

10_/2_/2022

Dear respondent,

I thank you for accepting to take part in this study through this interview. I am Yoh Edelquin Nabi, a PhD student in the University of Yaounde 1, Faculty of Education, Department of

Curriculum Evaluation. I am carrying out research on "Assessment models and effective implementation of Competency-based assessment (CBA) in the primary schools in the East Region of Cameroon: towards developing a holistic evaluation model". This research is in partial fulfillment for the award of a PhD in Education. This exercise is strictly for academic purpose. I assure you that any information gotten will be treated with maximum confidentiality.

The interview will take about 30 minutes and will include some aspects concerning the approach or orientation of the competency based education, assessment practices, challenges teachers face in assessing learners following the CBA, and your proposals on a better model of evaluating learners in the classroom or at the level of the FSLC. Your responses will provide valuable information for the progress of this study. Your participation in this interview is completely voluntary. I would like , with your permission, to record this interview to enable me to accurately document the information. If at any point in time you wish that I stop recording or you wish to discontinue, you let me know please. Do you have any question before we begin? Can we begin?

Interview questions

1. What is the notion of competency as highlighted in the new curriculum of the primary school?
2. Do you have any idea on the behaviorist or constructivist approaches to competency based education
3. Which approach of competency based education is précised (the behaviorist/constructivist through integration ?
4. What models of Competency-based assessment are to be followed in Cameroon (analytic, integration of many subjects, holistic etc?
5. Is there a model of assessment for the high stakes examination such as FSLC?
6. What are the major challenges are the teachers and you inspectors, facing with CBA implementation?
7. Which types of assessment give a deeper understanding of learners' competencies (formative or summative)
8. According to you, which methods of assessment give a deeper understanding of learners' competencies (tests, authentic, performance)
9. Which test item formats should be used for CBA?
10. Should there be an alignment between the instructional and assessment strategies?
11. Can the teachers really judge the level of learners competencies from their assessment?

12. If you are called up to suggest ways of assessing learners competencies at the level of FSLC examination, what proposals would you make concerning
    -the structure of the examination
    -how many parts,
    -what types of item formats et

Thank you so much for your time

GUIDE D'ENTRETIEN DES INSPECTEURS

Entretienn°_____/2_/2022

Cher répondant

Je vous remercie d'avoir accepté de participer à cette etude à travers cet entretien. Je suisYoh Edelquin Nabi, doctorant à l'Université de Yaoundé 1, Faculté des sciences de l'éducation, Département d'évaluation des programmes. Je mène une recherché sur "Modèles d'évaluation et mise en œuvre effective de l'évaluation base sur les competences (EBC) dans les écoles primaires de la region de l'Est du Cameroun: vers l'élaboration d'un modèle d'évaluation holistique". Cette recherché est en partie concrétisée pour l'obtention d'un doctorat en éducation. Cet exercice est strictement à des fins académiques. Je vous assure que toute information obtenue sera traitée avec un maximum de confidentialité.

L'entretien durera environ 30 minutes et inclura certains aspects concernant l'approche ou l'orientation de l'éducation base sur les compétences, les pratiques d'évaluation, les defies auxquels

les enseignants sont confrontés dans l'évaluation des apprenants suivant l'APC, et vos propositions sur un meilleur modèle d'évaluation des apprenants dans la classe ou au niveau du CEP. Vos réponses fourniront des informations précieuses pour l'avancement de cette étude. Votre participation à cet entretien est entièrement volontaire. Je voudrais, avec votre permission, enregistrer cette interview pour me permettre de documenter avec precision les informations. Si à tout moment vous souhaitez que j'arrête l'enregistrement ou que vous souhaitiez interrompre, faites-le moi savoir s'il vous plaît. Avez-vous des questions avant qu'on commence? Pouvons-nous commencer?

Questions d'entretien

1-Quelle est la notion de competence dans le nouveau programme de l'école primaire?

2-Que connaissez vous par approache comportementaliste ou constructiviste par l'intégration

3-Quelle approche d'éducation par competences, selon vous, est precise dans le nouveau programme (comportementaliste/ constructiviste par l'intégration?

4-Quels modèles d'évaluation par competences est suivi au Cameroun (analytique, integration de plusieurs matières, holistique etc.?

5- Existe-t-il un modèle d'évaluation pour les examens tel que le CEP ?

6-Quels sont les principaux defies auxquels les enseignants ; et vous, inspecteurs, êtes confrontés avec la mise en œuvre de l'EBC ?

7- Quelles types d'évaluation permettent de mieux comprendre les competences des apprenants (formatives ou sommatives)

8-Quels methodes d'évaluation permettent de mieux comprendre les competences des apprenants competences (tests, authentique, performance)

9- Quels types d'items de test doivent être utilizes pour l'EBC; selon vou?

10-Doit-il y avoir un alignement entre les strategies d'enseignement et d'évaluation ?

11- Les enseignants peuvent- ils vraiment juger du niveau de competences des apprenants à partir de leur évaluation ?

12-Si vous etes appelé a suggérer des moyens dévaluant les competences des apprenants au niveau de l'examen CEP, quelles propositions feriez-vous concernant la structure de l'examen

– combine de parties

-,quels types de formats ou d'éléments, etc.

REPUBLIQUE DU CAMEROUN
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Paix – Travail – Patrie
*****
UNIVERSITE DE YAOUNDE I
*****
FACULTE DES SCIENCES DE L'EDUCATION
*****
DEPARTEMENT DE CURRICULA ET EVALUATION

REPUBLIC OF CAMEROON
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Peace – Work – Fatherland
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UNIVERSITY OF YAOUNDE I
*****
FACULTY OF EDUCATION
*****
DEPARTMENT OF CURRICULA AND EVALUATION

Merci beaucoup.

Informed Consent Form for Inspectors of Pedagogy

This informed consent form is for the PHD research in the Department Of Curriculum And Evaluation, University Of Yaounde 1- Cameroon. You are invited to participate in a research on 'Assessment models and effective implementation of Competency Based Assessment (CBA) in the primary schools of Cameroon: towards developing a holistic evaluation model'.

[Name of Principal Investigator: Yoh Edelquin Nabi]

[Name of School: The University of Yaounde 1]

This Informed Consent Form has two parts:

- Information Sheet (to share information about the study with you)
- Certificate of Consent (for signatures if you choose to participate)

You will be given a copy of the full Informed Consent Form

Part I: Information Sheet

Introduction

I am Yoh Edelquin Nabi a PhD student in the Department of Curriculum and Evaluation, University of Yaounde 1 . I am carrying out research on 'Assessment models and effective

implementation of CBA in the primary schools of Cameroon: towards developing a holistic evaluation model'. I wish to invite you to be part of this reseach. You will decide whether or not you will participate in the research. This consent form may contain words that you do not understand. If you have questions, you can ask them to me.

Purpose of the research

Since the introduction of the new curriculum anchored on the competency based approach, there has been a lot of challenges faced at the primary school level that is hampering the smooth integration of competency based assessment (CBA). Many seminars have been held that lay more emphasis on the instructional part with little and sometimes conflicting ideas as to how competencies should be assessed. We want to know about the causes of challenges faced by the teachers, and to ascertain the extent to which an assessment modell will correlate with its effective implementation. . We want to learn about the different approaches, methods, test items and criteria for judging the level of learners' competences. We also want to know more about the challenges you face with these practices because this knowledge might help us to improve on the assessment process in the context of CBA especially how to design the first school leaving certificate examination (F SLC).

Participant Selection

You are being invited to take part in this research because we feel that your experience as a member of the assessors or test developers at MINEDUB, can contribute much to our understanding and knowledge of assessment models used in Cameroon primary school.

Voluntary Participation

Your participation in this research is entirely voluntary. It is your choice whether to participate or not. There is no anticipated risks to your participation. When you feel some discomfort in answering some of my questions, please feel free to tell me you do not want to answer this question.

If it is better for you, the interview can take any where you deem comfortable. If you do not wish to answer any of the questions during the interview, you may say so and I will move on to the next question. The information recorded is confidential, and no one else except my supervisor, Professor Maingari Daouda will have access to the information documented during your interview. The entire interview will be tape-recorded, if you permit; but no one will be identified by name on the tape. The research is purely for academic purpose.

Duration *:* The interview will last for about one hour each maximum.

Risks : There is a risk that you may share some personal or confidential information by chance, or that

you may feel uncomfortable talking about some of the topics. However, we do not wish for this to happen. You do not have to answer any question or take part in the interview/survey if you feel the question(s) are too personal or if talking about them makes you uncomfortable.

Benefits : There will be no direct benefit to you, but your participation is likely to help us find out more about assessment models and their influence on effective implementation of CBA.

Reimbursements: You will not be provided any incentive to take part in the research. However, you will highly be appreciated for your time in the interview.

PART II: Certificate of Consent

I have read the foregoing information and understood. I consent voluntarily to participate as a participant in this research.

Print Name of Participant_____ Signature of Participant _____

Date _____

observation checklist for the teachers' assessment tools

Class	Sub system	Set according to competences	Set according to domains	setitng per subject	Problem situations	Quality of Problem situations	Item formats	Scoring rubrics	Forms on assesenent	Performance assessment

Kregcie and Morgan table for sample size determination

N	*S*	*N*	*S*	*N*	*S*
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Note.—*N* is population size. *S* is sample size.

Source: Krejcie & Morgan, 1970