The Process and Challenges of Implementation of a Situational-based Science Curriculum within a Competency-Based Approach in North-Kivu Educational Province, DRC

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Abstract:- The shift from knowledge-based curriculum to Competency-based curriculum is mandatory for African countries to boost their economy. Many countries in Africa including the Democratic Republic of Congo are on the way to meet this requirement. The board of curriculum of the Democratic Republic of Congo "DIPROMADI", adopted a transitional approach to competency-based education, the situation-based approach. The essence of the present study, lies in the evaluation of the implementation of the CBC l. Specifically, the study focused on the preparedness of teachers, their attitude, the supervisory support, and the support from the parents. To reach the purpose of the study, a sample of teachers, students, coordinators and inspectors was chosen in three subdivisions selected using the cluster sample technique. The instruments used to collect data were the questionnaire survey, the interview guide, the focus group discussion guide and the documentary analysis. The Cronbach alpha reliability coefficient of 0.73 was judged good to yield reliable and valid results. The data collected was analyzed statistically using the descriptive statistics, the regression analysis and the analysis of variance (ANOVA). The findings revealed the lack of the preparedness of teachers, the lack of supervisory support from the school management, the lack of instructional materials, the insufficient supervisory practices mainly from inspection and the lack of the support of parents in competency-based curriculum implementation. The creativity, the critical thinking to the side of teacher; the needed support from all stakeholders are considered to be the best ways to overcome the challenges and implement effectively the new program.

Keywords:- Process, Challenges, Implementation. Competency-based, Curriculum.

I. INTRODUCTION

The shift from knowledge-based curriculum to competency-based curriculum is mandatory for African countries to boost their economy. Supporting this point of view Ngeng'ere (2014) mentions that curriculum planning emphasizes that education should serve to enable society to achieve its needs and aspirations. Miranda (2016) thinks that conditional cash transfer programs and long-term improvements in job markets are the gateways towards sustainable development. One of the major curriculum changes in African countries is the introduction for last two decades of competency-based curriculum in their educational systems.

In the Democratic Republic of Congo, since 1990, the government tried to introduce the competency-based approach into its system of education for three major reasons: The subjects taught are not linked with the real life of the learners, the teaching learning process is theory based, and lack of integration among the subjects(MunangiMpung, 2009). In addition, this curriculum reform should promote the socioeconomic status of the country (Cyr et al.,2016).

To reconstruct the country, and to boost its social economic development, the Democratic Republic of Congo is implementing a curriculum of basic education rooted in the social-economic realities of the country and that takes into consideration the international context. (Ekanga, Mbatika cited in Jonnaert et al., 2017). This vision is embedded in a holistic curriculum centered on competency-based approach and concretized by the approach by situation. This approach facilitates all young people to access the basic education, because the curriculum is promoting the realities of the local environment and propose the learning experiences from the environment of the learner, where he participate actively in the teaching-learning process. (Jonnaert et al.,2017). The implementation of the new curriculum has stated in 2018 with the science area.

A study conducted by Jonnaert et al. (2017), on the process of pre-validating the new programs of study within the science area for the final cycle of basic education, in the Democratic Republic of Congo, found a high rate of acceptance of this new program. Moreover, the study indicated the importance of involving teachers and other stakeholders in the process of pre-validation of the new program before its implementation. (Jonnaert et al. 2017). It is assumed that, the recommendation of Jonnarertet al. who were members of the team of pre-validating process is relevant. However, there is little information from the literature whether the team of the National Curriculum Board included the teachers and other stakeholders in the process before the implementation of the science curriculum

according to the recommendation. On the same note, Bibana (2017), advised that for the effective implementation of the new curriculum, the curriculum Board should emphasize the training of teachers, the instructional resources, the role students, parents and other stakeholders. However, literature points that teachers to not possess initial competences to bring about the new program of basic education. A pilot study aiming to assess the competencies of primary school teachers to implement the competency-based curriculum, reported a mean score of 46% in mathematics, and worse, in some geometric areas the score was too low (23% in time measurements, 26% in geometric designs, and 26% in linear measures), showing that primary school teachers were not prepared to implement the new curriculum-based approach. (Cyr et al.,2016). This study therefore, seeks to investigate the preparedness of teachers of the new program, how they understand it, and their attitudes on its implementation in the Democratic Republic of Congo, particularly in the Noth-Kivu1 educational province. The present study evaluates the effectiveness of the implementation on the new curriculum.In the line of what is stated above the following questions based on effective implementation of competency-based curriculum have to be answered:

1) What are the required qualifications to teach in the secondary school lower level in North Kivu1 educational Province?
2) How qualified and competent are teachers of lower level secondary school in North Kivu Province? How do they understand the new curriculum and how do they integrate the competences in their teaching in North-Kivu1 educational province?
3) Is there any relationship between the preparedness and the effective implementation of competency-based curriculum in lower secondary school in North-Kivu1educational Province?
4) What is the attitude of lower secondary school teachers regarding the implementation of competency-based curriculum in North Kivu1 educational Province?
5) Is there any significant difference on the implementation of the new curriculum among subdivisions in the lower secondary school in North-Kivu educational province?
6) What are the leaning resources available to implement the new science curriculum in lower secondary schools in North Kivu1 Province? Are they adequate to implement the CBC in the lower secondary school of North Kivu Province?
7) Does the school management and the supervisory staff bring needed support to implement the new science curriculum in lower secondary school in North1 educational Province?
8) What are the ways proposed by participants to improve the implementation of the new science curriculum in lower secondary school in North-Kivu1 educational Province?

➤ *Hypotheses*
1. There is a positive relationship between the preparedness of teachers and effective implementation of the CBC in lower secondary schools in Nord-Kivu

2. There is no significant difference based on the implementation of competency-based curriculum among subdivisions

II. MATERIALS AND METHODS

The design of the study is a descriptive survey. According to Vyhmeister (2014), descriptive design describes usually one or more characteristics of a group or people technically called population. Golderon and Gonzales (n.d), distinguish three techniques under the descriptive method of research namely the survey, the case study and the content analysis. Therefore, the present study is a survey design.

Applied to the competency-based curriculum, in North Kivu province, descriptive research design will be used 1) to collect factual information that describe the situational approach that leads to the competences used in the implementation of science curriculum, 2° identify the problems associated with the implementation of science curriculum in North Kivu province, 3° Collect opinions about readiness and attitudes of teachers when implementing the new science curriculum using situational approach.

The study was conducted in North Kivu1 educational province. Geographically, this province includes two territories (Rutshuru and Nyiragongo) and Goma town. It is divided in five educational subdivisions: Goma, Karisimbi, Nyiragongo, Rutshuru I, RutshuruII. For the sake of time and financial constraints only three subdivisions were surveyed (Goma, Karisimbi and Nyiragongo).It is important to note that the Noth-Kivu political province comprises three educational provinces: North kivu 1, Nothkivu 2 and North kivu 3.

The study population was composed of t school coordinators, inspectors, head teachers, teachers, and students.Teachers are included in the study because there are important stakeholders who implement every new program.The effectiveness of implementation of new program depends on the readiness, preparedness and positive attitude of the teachers, hence the new science curriculum. Head teachers, coordinators and inspectors were included in the study because of their supervisory tasks of program implementation. Students were involved in the study because they are the subjects of the implementation, they readiness and their will are the key factors of the implementation of each new program.

➤ *Sample size*
According to Mason, Lind and Marshall (1999), in general there are two types of samples: The probability sample and non-probability sample. A probability sample is a sample selected in such way that each item or person in the population has a known like hood chance of being included in the sample. The sample was chosen from the population of schools in the North-Kivu educational annual report. To determine the sample size, the researcher used cluster sampling.

Cluster	description	Number
Cluster 1	educational province	1
Cluster 2	Subdivisions	3
Cluster 3	Schools	7

Table1 . Cluster sampling

The educational province selected is North-Kivu1 educational Province, the 3 subdivisions are Goma, Nyiragongo and Karisimbi. Seven schools are numbered as School A, School B, School C, School D, School E, School F, School H and School G. All science teachers and basic education learners were taken to constitute the sample size as it is shown in table 7. Therefore, the sample was constituted by 7 head teachers, 32 teachers, two school coordinators and 49 students of basic education and 1 inspector. The total sample was composed of 91 subjects.

➤ *Research instrument*

The instruments that were used to collect data are questionnaire, interview and focus group discussion. Also, the documentary technique was used to collect data from different literatures. The questionnaire is most used in research because it collects more data and quickly. In addition, the data it collects is easily analyzed. The construction of the questionnaire followed the point 5 Likert scale. Respondent rated his opinion by stating the level of his agreement on the provided options. The reliability coefficient of 0.73 from the plot study was judged suitable to yield valid results (Intire, 2000). The interview and the focus group techniques were also used in the needs of triangulation.

The process of data analysis includes the analysis of qualitative data and quantitative data. Cohen (2007) suggests that, there is no one single way to analyzing qualitative data, the analysis is heavily based on the researcher's interpretation. In qualitative analysis, the researcher can set out to describe, to summarize, to interpret, to generalize themes or to explain or seek causality.

After the presentation and interpretation of data of data, the discussion focussed on the question, trying to compare the findings to what the literature says.The analysis of qualitative research depends on the fitness of the purpose (Cohen, 2007). The researcher used the SPSS, which applies statistical formulas or and carry out computations (Cohen, 2007 p.501). For better analysis, data was assigned measures whether nominal or interval scale or ratio scale. The researcher calculated the descriptive statistics such mean and frequency. To test the hypothesis, the researcher used the regression analysis and analysis of Variance (ANOVA).

The nominal scale classifies categories without any numerical meaning. In this scale items are arranged in order, from the highest to the lowest or from the lowest to the highest. (Cohen, 2006 p.503). Applied to this study which used the 5-point rating Likert scale, data was classified and ordered based on the questionnaire on teacher's preparedness(section B), teacher's attitude (section C), supervisory support from the school and the

inspection(section D), adequacy of instructional resources(Section E) and the effectiveness of the implementation of the competency-based curriculum in science (Section F).

III. RESULTS

Number	*Subdivision*	Frequency	Percentage
01	Goma	19	59.4
02	Karisimbi	6	18.8
03	Nyiragongo	7	21.9
Total		**32**	**100**

Table2. Distribution of respondents by subdivision

The table above indicates that teacher respondents come from three subdivisions as follows: 19 or 59.4% from Goma subdivision, 7 or 18.8% from Karisimbi subdivision and 7 or 21.9% from Nyiragongo subdivision.

Mean		Standard	deviation
Do you apply CBC in your teaching		3.90	1.02
Do you receive training on CBC		3.62	1.26
Evaluate your level of training in CBC		3.40	1.54
Evaluate the level of preparedness of teachers to implement CBC		3.87	1.15

Table3. Teacher's preparedness to implement CBC[1]

The tableabove indicates that the more score on each item is scored above average. When asked whether teachers apply CBC, the mean was 3.90 and standard deviation 1.02. the mean of the second item "do you receive training on CBC" is 3.62 and the standard deviation 1.26. Asked to evaluate the level of training received on the CBC the mean is 3.40 and standard deviation 1.54. For the evaluation of the level of teacher's preparedness in the CBC implementation, the meanscore is 3.87 and the standard deviation 1.15. The overall mean is 3.70, meaning that the item asking "Whether teachers apply CBC", was rated very high meaning the agreement was high.

Description	Mean	Standard deviation
What is your attitude on CBC implementation?	**3.9375**	.91361
Your attitude on CBC compared to knowledge-based	4.1875	.73780
What is your attitude on CBC designers?	4.1875	.82060
What is your attitude on the availability of resources?	3.000	1.45912
What is the attitude of students on CBC?	4.0938	.85607
What is the attitude of parents on CBC?	2.8750	1.03954

For the attitude of teachers on the CBC implementation the mean is 3.9375 with the standard deviation of .91361. For the item asking the attitude of teachers on CBC compared to the knowledge-based the mean score is 4.1875 with the standard deviation of .73780. Teachers were asked also their attitude towards the CBC planners and designers, the mean score displayed is 4.1875 with the standard deviation of .82060. The mean score of the item asking the attitude on the availability of instructional resources is 3.000 and the standard deviation of 1.45912.

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[1]CBC stands for Competency-Based Curriculum

The item dealing with attitude of students on CBC yield a mean of 4.0938 and the standard deviation of .85607. The item that asked the attitude of parents on CBC yield the mean of 2.8750 and the standard deviation.

Description	mean	standard deviation
The support of		
The head teacher in CBC implementation	3.2500	1.04727
Head teacher to design learning materials	2.4375	1.04534
The head teacher to find material in the environment	2.2875	1.06066
The parents	1.8437	.84660
The support of inspection on CBC implementation	1.6875	.9979

Table 5. The supervisory support of teachers on CBC implementation

The table above indicates that the mean score of the item asking the support of the head teacher on CBC implementation is 3.2500 and the standard deviation of 1.04727. The mean score of the item seeking to find out if the head teacherssupport their teachers to design the learning materials is 2.4375 and the standard deviation of 1.04534. Asked whether the head teacher support teachers to find material in the environment, the mean score displayed is 2.2875 and the standard deviation of 1.06066.

Teachers were asked whether they receive support from parents to implement effectively the CBC, the mean score is 1.8437 and the standard deviation of .84660. The mean score of 1.6875 and the standard deviation of .9979 justify that the teachers did not receive enough support from the inspection in their effort to implement CBC.

Description	Mean	Standard deviation
Time allocated to the preparation of lessons	2.7813	1.28852
Time allocated to prepare instructional materials	2.7813	.94132
Text books	3.0625	.87759
Time for creativity and imagination on CBC	2.7500	1.01600
Syllabus	3.5625	1.01401
School and classroom environment	2.7812	1.18415
Methodology of student evaluation	3.4063	.94560

Table6. Availability of resources for CBC implementation

The table above gives the mean scores for different items. The mean score of 2.7813 and the standard deviation of 1.28852 of the time allocated to teachers to prepare their lessons indicate that this time is not sufficient. Consequently, this can hinder the effective implementation of CBC. Also, the time allocated to prepare the instructional materials is not sufficient because the mean score is 2.7813 and the standard deviation of .94132 on point five Likert scale.

The mean score of the item asking whether the school has resources to implement CBC is 3.0625 with the standard deviation of .87759. It seems that the teacher does not have time to think big in order to be creative, because the mean score is 2.7500 with the standard deviation of 1.01600. The mean score of the item asking whether the school and the inspection provide to teachers the syllabus is 3.5625 with the

standard deviation of 1.01401. The mean score of the item asking whether the configuration of the school and classroom environment is appropriate for the CBC implementation is 2.7812 with the standard deviation of 1.18415. The mean value of the item asking wheat her the methodology used is appropriate to CBC implementation is 3.4063 and the standard deviation of .94560.

Description	Mean	Standard deviation
Your judgement on CBC Implementation	2.8438	1.29787
Performance of students based on CBC	2.8125	.93109
Effort of school and inspection to implement CBC	3.0625	.87759
Collaboration among teachers	2.6875	.99798
Utilization of local resources in CBC	3.5625	1.01401

Table 7. Effectiveness of CBC Implementation

The table 7 above indicate the mean values of the items. The mean value of the item dealing with the judgement of the CBC implementation is 2.8438 with a standard deviation of 1.29787. the mean score of the performance of students based on CBC is 2.8125 with the standard deviation of .93109. Teachers were asked to judge the effort of the school and inspection to implement CBC, the mean score is 3.0625 and the standard deviation .87759. the mean score of the item dealing with collaboration among teachers is 2.6875 and the standard deviation.99798. Teachers were also asked to judge the utilization of local resources in CBC implementation, the mean score is 3.5625 and the standard deviation 1.01401.

Item				
Teacher preparedness	R	R^2	R^2	adjusted Sig. F
Teacher's judgement	.591	.349	.252	.017
Student performance	.575	.330	.231	.024
Effort of the school And inspection	.598	.357	.262	.015
Teacher's collaboration	.248	.062	.078	.777
Utilization of resources	.589	.347	.250	.018

Table 8. Relationship between preparedness and CBC implementation

From the table above the R^2 adjusted is 2.52 giving the coefficient of determination of 25.2%. This R^2 adjusted indicate that only 25.2% of CBC implementation is explained by the teacher preparedness. But the relationship is significance because the p=. 017. The comparison of the preparedness of teachers and the student performance yield the R^2 adjusted of .231. The coefficient of determination is 23.1% meaning that only 23.1% of CBC implementation is accounted for the teacher preparedness. The relationship is also significant because the p=0.024. The relationship between teacher's preparedness and CBC implementation in terms of effort made by the head teacher and the inspection to implement CBC, give a R^2 adjusted of .262, the coefficient of determination is therefore 26.2% meaning that only 26.2 % of CBC implementation is accounted for the teacher preparedness. The researcher wanted to know whether the preparedness of teachers affects the effective implementation of CBC in terms of the collaboration among

teachers. The R² adjusted displayed is 0.078 giving a coefficient of determination of 7.8%. This relationship is not significant because the p=0.777. The collaboration among teachers is important in CBC implementation. The researcher wanted to know whether the preparedness of teacher can affect the CBC implementation in terms of the utilization of the available resources. The R² displayed is 0.250 making the coefficient of determination of 25%. This mean indicates that only 25% of CBC implementation is accounted for the preparedness of teacher. The relationship is significant because the p=0.018.

Profiles	R	R²	R adjusted	Sig. F
Teacher's judgement	.560	.313	.181	.067
Student performance	.657	.432	.323	.008
Effort of the school And inspection	.680	.462	.359	.005
Teacher's collaboration	.264	.070	-.109	.851
Utilization of resources	.546	.298	.164	.083

Table 9. Relationship between Teacher's Profiles (Gender, age, qualification, status, working experience) and CBC implementation

The table above gives the relationship between the profiles of teachers and the effective implementation of CBC. Teachers profiles (gender, age, qualification, status working experience) are related to the effective implementation of CBC. The R² of teacher profiles, and teacher's judgement on the implementation of CBC is 0.313 and it mean that the R² adjusted is 0.181 meaning that only 18.1% of the implementation of CBC is accounted for the profiles od head teachers. The relationship is not significant because p= 0.067. A significant relationship(p=0.008) is reported on the profiles of teachers and student performance. The R² of 323 means that 32.3% of the implementation of CBC in terms of student performance is explained by the profiles of teachers. A significant relationship (0.005) is also reported between the profiles of head teachers and the implementation of CBC in terms of the effort of the school management and the inspection in helping teachers to implement effectively the CBC. The adjusted R² of 359 indicating that 35.9% of the way teachers implement the CBC in terms of school management and the inspection is accounted for the profiles of teachers. A weak relationship and not significant (R= 264 and sig is 0.851) is reported between the profiles of teachers and the implementation of CBC in terms of teacher's collaboration. The adjusted R² of -106 indicate that -10.9% of the implementation of CBC in terms of teacher's collaboration is accounted for the profiles of teachers. A moderate relationship but not significant (R= 546, sig. 0.083), is reported between the profiles of teachers and the implementation of CBC in terms of the utilization of available resources. The adjusted R² of 0.164 indicate that 16.4 % of the CBC implementation in terms of resources utilization is accounted for the profiles of the teachers.

Description	Goma	Karisimbi	Nyiragongo	overall Mean	between gro	Sig.F
Judgement Students	3.1579	3.000	1.8571	2.8438	.32351	.068
Performance Effort of school	3.2632	2.000	2.2887	2.8125	.47513	.001
And inspection	3.0521	2.000	2.8471	2.6875	.47001	.001
Teachers collabo	2.8421	2.000	2.8571	2.6875	.08575	.176
Use of local resource	3.5789	3.000	4.000	3.5625	.07025	.211

Table 10. Comparison of effectiveness of implementation in subdivision (One-way ANOVA)
Note. Data analysis, significance at 0.05

The table above gives the comparison of the effectiveness of CBC implementation among subdivisions. The issue is to find out if there is a significant difference between sub division. The findings indicate the mean score in Goma subdivision (3.1579) on the judgement of the effectiveness of CBC implementation is higher on point five Likert scale. The mean score of Karisimbi subdivision is (3.000) and for Nyiragongo subdivision is (1.8571). However, the test of significance (.068) indicate that the difference between the groups is not significant.

Asking teachers how students perform based on CBC, the mean scores were as follows: Goma (3.2632), Karisimbi subdivision (2.000) and Nyiragongo subdivision (2.2887). The variance between components is (.47513) and the difference is significant (001). Asked to judge the effort of the school and the inspection to implement effectively the CBC, the findings indicate that no significant difference exists between subdivisions. However, the mean scores in Goma subdivision (3.0521) is higher than Karisimbi (2.000) and Nyiragongo (2.8471). Asked whether the teachers collaboration affect the effectiveness of CBC implementation the difference is significant (.001). The mean scores in Nyiragongo subdivision (2.8571) is higher than Karisimbi subdivision (2.000) and Goma (2.8421) subdivisions. The variance among components is (.08575). The findings indicate that there is no significant difference based on the use of resource in the local environment (Sig. .171). However, the mean scores indicate that in Nyiragongo the score is higher (4.000) than Karisimbi (3.000) and Goma (3.5789)

Description	frequency	percentage
The situation-based approach is the situation where		
The student recites the lesson leaned	15	30.6
The student uses the knowledge acquired to solve the problem of life	28	57.1
The student calculates easily	6	12.2
Total	49	100

Table 11. Students' opinion on the situational approach

From the table above, it is concluded that the majority of students (57.1%) knows what is the approach by situations, 30.6% think that the situational approach is the approach where the students recites the lesson leaned and only 6 students said that the situational approach is an approach where student calculate easily.

Description	frequency	percentage
In science like zoology, when you have a lesson on domestic animals		
The draw teacher the animal on the black board	15	22.4
The teacher brings you where the animal is	18	36.7
The teacher explains orally the parts of the animal	20	40.8
TOTAL	49	100

Table12. Students opinion on teacher's application of CBC

The table above indicate that students are able to judge whether teachers master the competency-based approach. The majority of students (40.8%) said that when teaching a lesson on the animals teachers explain or ally the parts of the animal, 36.7% of students confess that teachers bring leaners where is the real animal, and 22.4% of students accept that teachers draw the animal on the black board.

Description	frequency	percentage
In any science lesson, do you get a chance to manipulate the instructional material		
Never	13	26.5
Sometimes	23	46.9
Always	13	26.5
TOTAL	49	100

Table 13. Students opinion on the manipulation of instructional materials.

The above table indicates the way students appreciate the manipulation of instructional materials. The majority of students (46.9%) state that sometimes they manipulate the instructional materials, 26.5% declare that they never manipulate the instructional material and 26.5% accept that always they manipulate the instructional materials.

Description	frequency	percentage
Instructional materials in your school are		
Very sufficient	6	12.2
Sufficient	23	46.9
Not sufficient	20	40.8
TOTAL	49	100

Table14. Students opinion on the availability of the instructional materials

The table above indicates that the majority of students realize that in their schools, the instructional materials are sufficient, 12.2% think that the instructional materials are very sufficient and 40.8% thins that instructional materials are not sufficient.

Description	frequency	percentage
In technology in a lesson of blocks making		
The teacher explains the process	18	36.7
The teacher leads us where people prepare the blocs	15	30.6
The teacher draws the process on the black board	116	32.7
TOTAL	49	100

Table15. Students opinion on the way teachers implement CBC

The table above indicates that in the lesson of technology for example in a making blocs, the teacher, explains the process (36.7%), the teacher leads students

where people make blocs (30.6%) and the teacher draw the process of making block on the black board (32.7¨%). From these findings of students, it is clear that 69.7%, almost 70% of teachers continue to teach in traditional method, only 30.7% are able to use the new approach by the situation.

Description	frequency	percentage
In science when the teacher begins the lesson		
He narrates a history	20	40.8
He gives a homework	5	10.2
He explains the lesson	24	49
TOTAL	49	100

Table16. Students opinion on the application of CBC

The table above indicate that 40.8% of student's state that before the lesson teachers narrate a short story, 49% see him explaining immediately the lesson and 10.2% state that the teacher gives the homework when he begins the lesson. The findings indicate that 40.8% of teachers who narrate the history when they begin the lesson are applying the approach by the situation a component of the approach of competencies.

Challenges	frequency	percentage
Lack of textbooks	13	28.88
Instructional materials	10	22.22
Time not sufficient	9	20.00
Classroom not adapted	2	4.44
No follow up	5	11.11
Time devoted to practice	2	4.44
Lack of parent support	2	4.44
Crowded classroom	2	4.44
TOTAL	45	99.97

Table 17. Occurrences of Challenges raised by teachers in implementing CBC

The table above indicate that teachers face many challenges in implementing CBC. Lack of textbooks is most pointed by teachers. 13 occurrences over 45 making 28.88%. Instructional materials constitute another barrier to implement CBC. It occurred 22 times over 45 making 22.22%. The time to prepare lessons in CBC occurred 9 times over 45 making 20%. Teachers recognized also that the classroom space is not convenient to the implementation of CBC. This occurred 4 times over 45 or 4.44%. Teachers also pointed the challenges related to supervision. This issue occurred five times making 11.11%; teachers also realized that the time table did not allocate proper time for practice (two occurrences over 45 or 4.44%); the support of parents was judges also important in CBC implementation by teachers it occurred two times over 45 occurrences making 4.44%. Finally, teachers observed that classrooms are overcrowded and this can hinder the effective implementation of CBC (two occurrences over 45 making 4.44%).

IV. DISCUSSION

The findings from the table 2 indicate that teachers are prepared to implement CBC. The mean score of 3.70 or 74% support this statement. For most teachers, (mean score 3.71 or 74.2%), the attitude is positive towards the CBC. However, from the sight of headteachers the attitude is not positive. According to the head teacher E, B and C the attitude is not positive. They said "there are no kits to make the teachers prepare the practice"[2]. For the head teacher A, the attitude is positive but CBC is too demanding, some materials are not available in the guide. This requires teacher to going back to the former text books or they are findings material in daily life.

Head teachers A, B. C and D and E remarked that the attitude of students on CBC is positive because students are active and participate in the lessons. The head teacher E said "the attitude of students is positive because leaners are actively involved in their learning"[3]. However, the head teacher F, believe that the attitude is negative, because the CBC program has something new compared to the former program. He stressed that "new content has been added such as statistics, content in technology such as the making of blocks"[4].

According to cross, (2011), experienced teachers are not applying CBC, only novice teachers are applying it. This points on the attitude that teachers display on CBC. Literature supports these findings. A study focusing on the challenges that face teachers when they implement the competency-based curriculum in community secondary schools in Morogoro, Tanzania identified the barriers hindering the implementation of competency-based education: Lack of In-service Training, insufficient teaching and learning resources, overcrowded classroom, low ability of students joining secondary education, students' readiness to accept learner-centered approach(Mukunja,2016).

Head teacher D and E said that the attitude of parents is positive, because parents are seeing the progress in the learning of their children. "some educated parents are happy because they that their children are learning something new different to what they learnt when they were students"[5]. They added "some parents are coming to school for help when they encounter some problems when helping their children in performing their homework's."[6] Head teachers A, B and C think that the attitude of parents is negative. The head teacher A stated "some parents are indifferent on CBC, because of their level of education"[7]. The head teacher B

added "parents are considered to be disturbed when their children ask money to buy some tools of practice"[8].

All head teachers confirmed the lack of the follow- up by inspectors. The head teacher A declared "Inspectors are not passing to oversee the implementation of CBC, but to ask if teachers have been trained and have guide, so that the school can buy some from them". They complain that the guides are too expensive because one module cost fifteen dollars.

The claim of head teachers is denied by inspectors. Inspector A interviewed clarified "almost all teachers have been trained, but unfortunately, they are not implementing CBC"[9]. He added "When teachers realize that the inspector have come to supervise instruction, they make an effort to apply CBC, but once he left, they go back to the former knowledge-competency approach". Nevertheless, the inspector A, agreed with the head teachers and teachers on the shortage of textbooks and instructional materials. He pointed the lack of laboratory for science such biology, zoology, physics. He recommended the development of a resource center with all instructional facilities where three to five schools can be resourced. Inspectors and coordinators have the same thing to share, the lack of tests books and instructional materials. The coordinator A, had this to say "the competency based approach meet the needs of the students, because they are active in treating situations"[10]

The schools of my resort implement CBC. However, this implementation faces some challenges "textbooks, training not properly done, some new teachers has to be retrained at school level". He showed that the training is done by peer coaching in what he called "SERNAFOR"[11]. He believes that the attitude of head teachers, teachers, students and parents is positive. The effort is made to convince all the partners of education to support the vision of the ministry of education which put the emphasis on science.

V. CONCLUSION AND RECOMMENDATIONS

Based on the findings above the following conclusions were drawn
1) Teachers were qualified but not properly prepared to implement CBC in lower secondary schools in North-Kivu1 educational Province
2) There is a positive relationship between the preparedness of head teachers and the effective implementation of CBC. The adjusted R^2 indicate how the little training received help teachers to implement CBC. The more teachers receive training and seminars, the more they implement effectively the CBC.
3) Most of teachers, students, parents and supervisory staff have a positive attitude on the CBC implementation despite the challenges of its implementation.

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[2]Interview with Head TeachersE, B and C on October 10, 2020

[3] Interview with Head Teachers E on October 10,2020

[4]Interview with Head Teacher F October 11, 2020

[5]Interview with Head Teachers D and E on October 11, 2020

[6]Interview with head teacher D and E

[7]Interview with Head Teacher A on October 11, 2020

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[8]Interview with Head Teacher B on October 13, 2020

[9]Interview with inspector A on October 12, 2020

[10]Interview with the coordinator A, on October 22,2020

[11]SERNAFOR " Service National de Formation"

4) There is a significant difference among subdivisions related to the implementation of CBC on the aspects related to the student performance and the effort of the school management and the inspection to implement CBC. However, no significant relationship is reported for the aspects related to teacher judgement, teacher collaboration and the use of local resources to implement CBC.

5) The school management and the supervisory staff did not bring needed support to implement CBC in North-Kivu1 educational province.

6) Teachers face many challenges in implementing CBC including the lack of textbooks, lack of instructional materials, not sufficient time to prepare lessons and instructional materials, not enough follow up and support by school management, parents and inspection to implement CBC, no time for practice, overcrowded classroom and classroom not adapted for CBC implementation.

From the findings above, the following conclusions were made:Teachers should use creativity and imagination to find instructional materials, textbooks for example from internet, by collaborating with peer and colleagues, school management and inspection in order to implement effectively CBC. Also, they have to prepare the leaners on the implementation of the CBC.

Parents should be prepared to be ready to provide to their children instructional materials necessary to implement effectively a new program, and provide needed support for the effective implementation of CBC.

The school management should provide to teachers the textbooks and instructional materials, head teacher should make an effort to follow up, to allocate enough time in the time table for lessons and instructional materials preparation, and for leaners practice. The time should be flexible to adjust to these demands. The emphasis should be but on the in-service training, seminars and workshops for teachers. Head teachers should entertain a good climate with parents by asking them to support the school by giving to their children needed materials.

The board of inspection should organize regularly seminars and workshops towards teachers and the boards of schools including parents. The training should take into account the expertise of the trainers so that teachers be trained according to their subjects that they are teaching. Teachers while in training or seminars should be given incentives such as transports, lunches, and textbooks. Follow up in schools and classrooms should be done regularly, to see how the new program is implemented.

The curriculum board should design text books together with the syllabus and the instructional materials. When designing the new program teachers and other stakeholders should be consulted.

REFERENCES

[1]. Bibana,J.C.(2017). *L'approche par compétences et son impact sur l'amélioration de la qualité de l'éducation dans les écoles primaires publiques Gabonaises : Points de vue des enseignants du primaire des circonscriptions scolaires de Libreville*. Mémoire inédit, Université LAVAL

[2]. Calderon, J.F & Expectation. (n.d) *Methods of Research and Thesis Writing*. Saint Mandakiyiong City: National Bookstore GaudelphaCentrumblg 125 pionners

[3]. Cohen et al.(2007). *Research methods in Education*. 6th ed. Routledge 1033.DOI: 10.6007/IJARBSS/v8-i6/4299.

[4]. Cros, F (2010). *Les reformes curriculaires par l'Approche par Compétences en Afrique. Actes des Assises sur les reformes curriculaires du 6 au 9 Juillet 2010* à Brazzaville.pp 45-52

[5]. Cyr,s., Savard,A., and Braham,E.(2016). Analysis of a pilot investigation project of a situational based approach in primary schools of the Democratic Republic of Congo. *In comparative and international education*, vol 45(3). Retrieved from https://ir.lib.uwo.ca/cgi/viewcontent.cgi?article=1423&context=cie-eci

[6]. Mason, D.R et al.(1999). *Statistical Techniques in Business and Economics*. Boston: Irwin Mac grawhill

[7]. [8]Jonnaert, P.(2017). *Une démarche de pré validation de nouveaux programmes éducatifs de domaine d'apprentissage des sciences pour le cycle terminal de l' éducation de base en République Démocratique du Congo*. Research Gate.

[8]. Lawley, J.R&Swerdlik. E.M.(1999). *Psychological Testing and Assessment*. 4th Ed. Montain View, Calfornia: Mayfield Publishing Company

[9]. McIntire& Miller A. L. (2000). *Foundation of Educational Psychology. Boston*: Mac Grawhill

[10]. Miranda, E.K. (2016). *An analysis of education reform in Sub-Saharan Africa*. Clermont, Mckenna College.

[11]. Mukunja,G. (2016). Challenges Facing teachers in implementing the competency-based curriculum in Tanzania:The case of community secondary schools in Morogoro municipality. *International Journal of Education and Social Science*. Vol3(5),30-37. www.ijessnet.com

[12]. Munangi, D.M., Assumani, I.Z; and Lolekanda, K.R., (20090). Enseignement, Apprentissage et Evaluation selon l'Approche par compétence. *Research Gates.* Retrieved from https://www.researchgate.net/publication/284498838

[13]. Njeng're,D.(2014). The role of curriculum in national Cohesion and integration: Opportunities and challenges. UNESCO, *International Bureau of Education*, Geneva

[14]. Vymester, N (2014). *Your guide to writing research papers for students of Religion and Theology*. Zondervan: Terry Dwain Robert