International Journal of Humanities and Social Science Invention
ISSN (Online): 2319 – 7722, ISSN (Print): 2319 – 7714
www.ijhssi.org ||Volume 6 Issue 3||March. 2017 || PP.20-30

Competency-Based Approach: the Problematical of Assessment of Learning in Physical, Chemistry and Technology Science in BENIN Republic

Hilaire Adjibi, Chèrif Abdoulaye Moussiliou, Phillipe Briaud, Kossivi Attikleme

[1]*Institute of Mathematics and Physical Sciences, University of Abomey-Calavi (Benin)*
[2]*Institute of Mathematics and Physical Sciences, University of Abomey-Calavi (Benin)*
[3]*CREN University of Nantes Universities lecturer*
[4]*National Institute of Youth, Physical Education and Sports, University of Abomey-Calavi (Bénin)*

ABSTRACT*: For year, the educational systems in many countries everywhere in the world have been urging teachers to coach their students to foster competences basing on complex problem solving. As lot of country, Benin has not kept away that move. Unfortunately the adequate implementation of the competency based approach in Bénin has been running their education policy smoothly. The evaluations have kept on being designed similarly to the ones in the objective based programs. In this context that this study aims to evaluate the problematical of assessment of learning in physical, chemistry and technology science in our secondary schools under the guidance of the competency-based-approach. This has brought us to raise the following question: haven't the incoherencies noticed in the implementation of the Competency-based Approach impacted the evaluation process negatively? To answer that question we have: carried out investigations to get the opinion of two hundred teachers including inspectors, subject advisors, subject supervisors posted in Benin; analysed the content of some summative tests designed ; proposed two evaluation cases as models. Therefore, we can answer the previously raised question by stating that the incoherencies noticed in the implementation of the Competency-based Approach have impacted the evaluation process in SPCT negatively.*

Keywords: *evaluation, competence, concept, pedagogy, integration.*

I. INTRODUCTION

Some education systems have been moving towards skills development in recent years. Nowadays everyone agrees that being competent in a given field means mobilizing an integrated set of resources to solve problem situations in the field under consideration. Here we mean by resources, knowledge, know-how and know-how.While the competency-based approach has found its own way in the academic world, it is not uninteresting to see that it joins the fundamental elements of competence as it is approached in the professional world. We can no longer afford to evaluate by asking to restore knowledge and/or to apply isolated know-how, but we must confront learners with problem situations and ask them to solve them by mobilizing what they have learned. In order to achieve this competence objective, the Beninese school chose, after the experience of programs by content and objective, to follow the path of the competency-based approach. The teaching/learning/evaluation process, based on the principles of this paradigm, is underpinned by the need to acquire, by the learner, lasting skills that can help him develop more and more complex learning And significant. It is assumed that through this approach the learner will not only acquire knowledge but also use it in a meaningful way in various situations of life, work, family, social and even professional situations.

This reform has brought about profound changes both in teaching practices and in the way in which learning is assessed. These changes are profound in the sense that the teacher becomes a true mediator between the learner and the knowledge. These fields are deep as the learner is no longer an empty box to fill but the main actor in building his own knowledge in the direction of skills development. Finally, these changes are profound because the preferred evaluation of this reform is formative evaluation, an evaluation that is not detached from the teaching/learning process.

II. PROBLEMATIC

The results of the evaluative and summative evaluations in our high schools and colleges bring teachers and parents to criticism of the curricula of skills training in physical sciences chemistry and technology. This reason seemed to us to be important and wise to ask us the main question: do not the inconsistencies in the implementation of the Competency-based approach have a negative impact on the evaluation process?

Indeed, many teachers of the physical sciences, chemistry and technology of the secondary course complain, among other things, that despite all the efforts they provide, they are incapable of progressing adequately in the And evaluate learners in accordance with the principles of the new approaches. Many of them also complain about the poor performance of their learners despite their willingness to implement the strategies recommended by the pedagogical staff. On the other hand, almost all those we were able to contact and who had carried out the programs by objective stated that they were relatively more comfortable, and in the preparation of the class, and in the management of the class. It is to elucidate a little more this situation with regard to general secondary education that we have chosen the **«** Problematic of the evaluation of learning in physical sciences chemistry and technology in secondary course in Benin in the era of the Competency-based Approach»

III. OBJECTIVES OF THE RESEARCH

In the context of this study, we would like to contribute to the improvement of the quality of the assessment of learning in secondary school in Benin in the age of the Competency-based approach. For that we go after the review of the literature, try to take the following steps: Presenting what is our view, can be regarded as misunderstandings, by the actors of the educational system, in the context of the design of assessment situations in physical science chemical and technology in the age of Competency-based approach.

Make some recommendations and suggestions, in the face of constraints and other considerations, in an attempt to help resolve the various concerns that are on the horizon.

Objectives of the evaluation of learning

The objectives of the evaluation of learning are:

- ✓ Improve the quality of learning.
- ✓ Explain the values, principles and guidelines leading to quality assessment practices.
- ✓ Confirm the need for consistency between the evaluation of learning and curriculum.
- ✓ Reaffirm the place and role of evaluation in the teaching process and the learning process.
- ✓ Offer a framework of reference for the educational stakeholders concerned by the evaluation.

We see that these objectives are often not met, neither during the formative or summative evaluations in our colleges and high school, nor during the evaluative evaluations. In principle, teachers should evaluate learner's learning in relation to the objectives.

IV. METHODOLOGY

In order to answer our question, we have:

- ✓ 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;
- ✓ analyzed the substance of some summative tests produced by some teachers, and others by the examinations and examinations department (D.E.C.);
- ✓ gave some tips for designing a good assessment test.

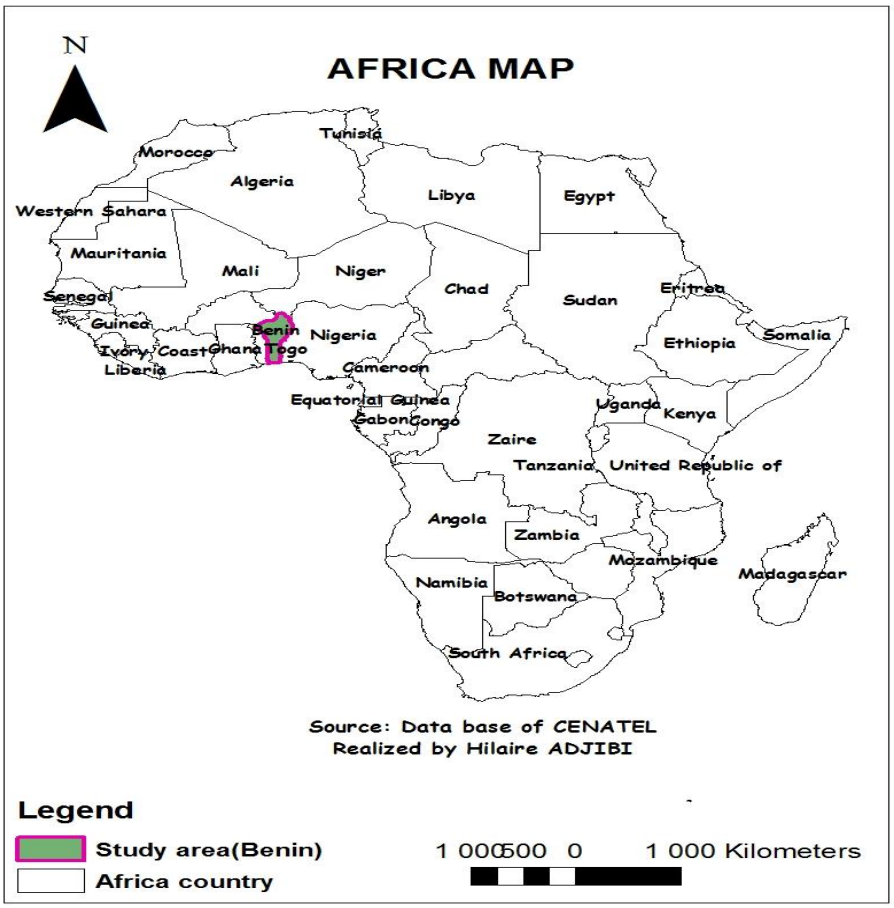


Figure: Study area

Types of evaluations

The field of education recognizes three types of assessment according to time and intention. **The diagnostic assessment**, which essentially identifies learners' learning difficulties, thus acting as a bridge between the teaching that precedes it and that which succeeds it. This is less
about achievement than skill.

The formative evaluation according to SCALLON (2000), has as essential function the regulation of the learning during a course or a learning sequence. It is aimed at specific learning and refers to one or more pedagogical interventions. Whether formative evaluation is formal or informal, it always involves two things: the learner in his progression and the pedagogy envisaged in a context of teaching and learning. We can affirm that formative evaluation is part of a constructivist approach to learning and is a process of accompaniment. It is beneficial both to the learner and to the teacher and is more interested in learner approaches and / or product realization rather than learner performance criteria and/or of product success.

The summative evaluation has as a function the attestation or the social recognition of the apprenticeships. It occurs at the end of a teaching and learning process and serves to sanction or certify the degree of mastery of the learning outcomes of the curriculum. It is important not to include the results of formative evaluations for summative purposes, as the end result is often unfair. Therefore, we assert that when the pedagogue makes an evaluation, which permits by continuous control, by examination, or by a mixed system, to attribute diplomas, to certify a competence, when it puts a note which counts on average, it does summative evaluation. The evaluation is therefore part of the summative evaluation.

Some implications:

Learner involvement in competency assessment Skills are not taught. They are being built. The learner is necessarily the first actor in the construction of his skills. It is also through the participation of the subject in the evaluation of his or her learning that the learner develops his /her autonomy; it is truly at the heart of construction expertise.This active involvement of the learner in the evaluation process is well described and documented, among others, by Allal (1999); an increasingly used tool in this perspective is the portfolio (see

Chapter 7). Most authors acknowledge the need for self-assessment and various forms of co-evaluation; but the problem of imposing such approaches remains as we have stated elsewhere (Paquay, 1999 and Chapter 7).

In terms of teaching, according to Philippe PERRENOUD, if we want to develop skills rather than knowledge, we must obviously create situations that we will call "problem situations". Here the role of the teacher is no longer the one in which he is the absolute holder of knowledge, but he is a mediator, a facilitator between knowledge and the learner.

In terms of learning in a Competency-Based Approach, the learner is the main actor in his/her own knowledge. Here we see that two summits (the teacher and the learner) of the pedagogical triangle have changed their role. The teacher is no longer the one who must transmit knowledge to the learner and the learner is no longer an empty box that the teacher must fill. The learner in the learning process constructs his knowledge with the help of the teacher who, here, plays only the role of guide, mediator, facilitator.

In terms of evaluation, evaluation is an integral part of the process Teaching/learning. We must evaluate what we have taught; it is not easy to assess the competences of the learners because it is not clear what complex situations are involved or the subject matter to be dealt with in the learner's outputs in these situations in order to estimate their level of mastery of Skills.

Reality in teaching/learning

A statistical study carried out in some colleges and high school based on textbooks revealed that teachers do not create problem situations to develop skills in the teaching/learning process. They are satisfied with the starting situations found in the pedagogical guide and some workbooks. Out of 148 books of 6th and 130 of 4th consulted, there is no innovation in the starting situation. Of the 135 notebooks of 5th consulted, we observed only 2 departure situations different from those in the pedagogical guide. In addition, we had 4 new starting situations in the 107 booklets of texts of 3rd consulted, or about 3.74%. The main problem at this level is that teachers are not trained in the initial situation design. The other observation is that the conditions for implementing the Competency-based approach are not uniform throughout the national territory because some localities are electrified while others are not. In electrified localities access to photocopying is relatively easy, which would facilitate the implementation of this approach compared to non-electrified rural areas, while all learners in the exam class undergo the same type of certification assessments in third or in terminals.

Reality in Evaluation

Each approach (by content, objective, competency) has its own way of assessing learning. As far as Competency-based approach are concerned, evaluations begin with a baseline situation and after the questions are crumbled and have nothing different from the questions asked in the tests designed according to the Approach by Objectives. The problems that man lives are not crumbled, they are global. So the questions to ask in evaluation situations must be global and not crumbled and it is up to the learner itself to crumble them in order to achieve his objective. It is therefore necessary to consider the way we conceive evaluation situations in the physical sciences, chemistry and technology.

The implementation of these new approaches is in effect at the primary and secondary levels. The 2/3 rule is in effect on the Primary Education Certificate (PEC) but not on the first-cycle certificate (BEPC)). It is true that our study concerns secondary education, but the problem is that learners are confused upon their arrival in secondary school because they are used to this rule applied to the primary course. The 2/3 rule consists of constructing the assessment test in such a way that the learner has three opportunities to show his or her mastery of each criterion. It is considered that a criterion is mastered by the learner when he demonstrates his mastery of the criterion on at least two occasions out of three. This threshold is referred to as the minimal control of the criterion. The mastery corresponds to the success of all the opportunities to show his mastery of a criterion. All three opportunities must be real opportunities, it is necessary to ensure that criterion 2 can be positively assessed if the learner is mistaken in criterion 1. If, for example, criterion 1 Is criterion 2 if the learner has erred in criterion 1. If for example criterion 1 is the criterion "choice of the right mathematical tool" and criterion 2 is the criterion "correct use of the mathematical tools in situation", it is necessary to be able to pronounce on the correct use of the mathematical tools by the learner (criterion2), even if he has mistaken tool (criterion1). Otherwise, we have a criterion that is absorbing (in the case of criterion 1).

The list of problems raised by the evaluation of learning is not exhaustive; we are all challenged to find appropriate solutions.

Some evaluation situations

A/ **1st Evaluation Series of 2nd Semester** Examination: SPCT Class: Terminal C & D Duration: 4 hours

Disciplined competencies

CD1: *To elaborate an explanation of a fact or a phenomenon of its natural or constructed environment by implementing the reasoning modes specific to the physical, chemical and technological sciences.*

CD2*: To exploit the physical, chemical and technological sciences in the production, use and repair of technological objects.*
CD3*: Appreciate the contribution of the physical, chemical and technological sciences to the life of man.*
Perfecting Criteria: Communicate accurately and appropriately while avoiding erasures and overloads

Chemistry And Technology
Context: Under the supervision of their TPSC professor, a group of learners performs the following manipulations:
- ✓ Verification of the acidity of the vinegar
- ✓ The kinetic study of the hydrolysis of sucrose

One of the members of the group questions some theoretical aspects and some of the results of these experiments.
Support:
- The degree of acidity expresses the mass in grams of pure acetic acid CH_3COOHcontained in $100\ g$vinegar. This aid is the main acid present in vinegar whose density is $\rho = 1{,}2\ g/cm^3$. For handling, a solution is prepared by diluting one hundred times a volume $V_0 = 5\ mL$of the commercial solution. A volume$V = 10\ mL$ of calcium dihydroxide solution is sampled and dosed with a concentration $C_b = 0{,}01\ mol/L$of calcium dihydroxide solution. The evolution of the pH is monitored by means of a previously calibrated pH meter. The curve obtained after exploitation of the data resulting from the manipulation has two particular points: I(Vb = 13.4 mL, pH = 4.8) and J (Vb = 26.8 mL, pH = 9)
- The group subsequently prepares a sucrose solution by dissolving $m = 6{,}84\ g$ of this sugar in$V_s = 50\ mL$of distilled water.C_s is the molar concentration of the sucrose which remains at a date*t*. Hydrolysis of this sugar gives two isomers: glucose and fructose of the same crude formula $C_6H_{12}O_6$.. After careful monitoring of the evolution of this reaction, the table of values below, in which is the molar concentration of the fructose formed, is obtained.

$t(min)$	0	100	200	300	400	500	1000
$C_s\ (10^{-2}mol/L)$		200	100	50	25	12,5	6,24
$C_f\ (10^{-2}mol/L)$							

The atomic molar masses are : $H:1,\ C:12\ et\ O:16$;
$pKa(CH_3COOH/CH_3COO^-) = 4.8$;
Scales $Abscissa: 1cm\ for\ 100\ min$
$Ordinate: 1cm\ for\ 40{,}10^{-3}mol/L$
Task: Respond to the following instructions.
Instructions
1- /
1.1. Describe the procedure :
- Of preparation of the solution S.
- Of the pH-metric dosage achieved by the group of learners.

1.2. Write the overall equation of the assay reaction, calculate the volume molar concentration $C$of the solution S and determine the degree x of vinegar analyzed.
1.3. Calculate the pH solution S as well as the limit pH of this assay and then represent the hape of the curve of the acid-base assay performed.
2.1. Describe the procedure for preparing the solution S_o and calculate its molarity C_{So}.
2.2. Write the equation of the sucrose hydrolysis and complete the filling of the table of values.
2.3. Draw the curve $C_f = f(t)$ and comment on its pace 3-
3.1. Define the rate of formation of fructose at an instant t and give its graphic meaning.
3.2. Calculate its value on dates t_1 = 0 min, t_2 = 300min and t_3 = 800min and deduce at these dates the rates of disappearance of sucrose.
3.3 Determine the date at which the instantaneous fructose formation velocity is equal to its mean velocity between dates $t_1 and\ t_2$.
B / **Second School Production Of First Semester**
Spct Test
Class of 3rd

Disciplinary competence evaluated n ° 1: To elaborate an explanation of a fact or a phenomenon of its natural environment or constructed by implementing the modes of reasoning specific to the SPCT

Development criterion: legibility and originality of production.

Context

On returning from the end of year leave, two pupils in a 3rd class tell their classmates what follows. "I attended a practical session with my uncle, Professor of SPCT, on the preparation of an aqueous solution of sodium hydroxide by dissolving soda (NaOH) pellets" Jemuel recounts "I, on the way back from a trip, our car broke down. My father solicits the help of a road user to pull our car along the ABC path to the garage located in C. During the repair of the car, the mechanic used a key that allowed him to quickly tighten the nuts. Next to it, an apprentice mechanic used a winch to draw water to clean the car. Why all this, ask the two learners? They get closer to their teacher to have explanations on each fact. The latter offers them activity cards 1 and 2 of the support.

Support

Sheet 1

- Preparation of the sodium hydroxide solution (s).
- Molecular concentration of the solution (s): C = 0.2 mol / l
- Volume of solution (s): V = 500 ml
  In g/mol: M (Na) = 23 M (O) = 16 and M (H) = 1

Sheet 2

Document A

- The track ABC consists of a horizontal portion AB and a slope BC of height h = 10 m.
- Mass of the car: M = 2400 kg
- Speed of the whole of the car of the user and the car of Jemuel's father : V = 20 m / s
- The intensity of the force deployed by the engine of the user's car: F = 500N
- Motor vehicle power consumption of the user: r = 80%
- Data: AB = 100m g = 10 N.Kg-1 $\pi = \frac{22}{7}$

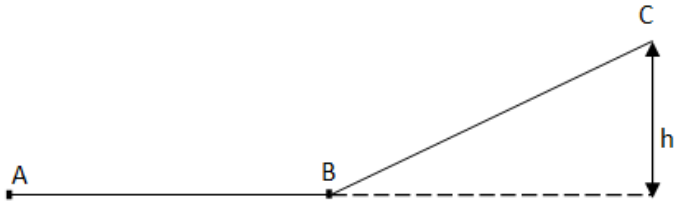


Diagram of a portion of the track

The mechanic for tightening a nut exerts on the key a couple of forces ($\vec{F}_1$, $\vec{F}_2$) such that
$F_1 = F_2 = 60$ N
The work done by the mechanic to tighten a nut is W = 3768 J.
The length of the key arm is AB = L = 60 cm

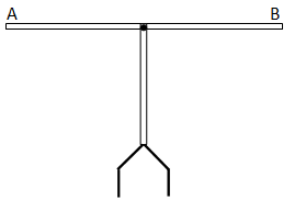
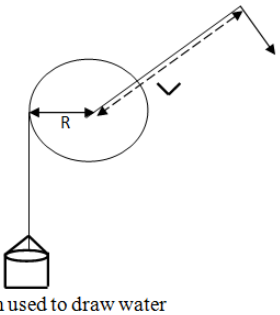


Diagram of key



A winch used to draw water

Document B

- **Radius of the cylinder R = 10 cm**
- Length of the crank L = 60 cm
- Mass of bucket filled with water: m = 15kg
- The number of revolutions made by the crank To bring the bucket of water out of the well nt = 32tours

- Yield of the operation r = 80%g = 10 N / kg; $\pi = \frac{22}{7}$
- Temperature change = 75 ° C
- Thermal capacity of the water is Ce = 4180J / kg ° c

Task: Explains the facts

1.1. Cites the materials to be used to prepare the solution (S)

1.2. Calculates the mass of soda pellet to be used to prepare this solution.

1.3. Describe the procedure for preparing the sodium hydroxide solution.

2-1 Determines the number of turns made by the key so that the mechanic completely tightens a nut

2-2- Calculate the work of the weight P of the car of the father of Jemuel on the portions AB and BC along the path then the work of the force $\vec{F}$ on the portion AB.

2-3- Determines the power developed by the motor of the user's car.

3-1- Calculate the intensity F of the force applied to the crank by the apprentice mechanic to bring the bucket of water out at constant speed and then determine the depth (height) h of the well.

3-2- Calculate the work Wr of the weight of the bucket and then deduce the work Wm performed by the apprentice knowing that the return of the operation is r.

3-3- Calculates the mass of water that can be heated with the energy lost during this operation.

C/ **Document: Subject (Excerpt from the subject of the BEPC normal session of June 2016)**

Context

For the preparation of the cultural day organized by a college, a fun device based on the horizontal balance of a board resting on a tree trunk was provided.

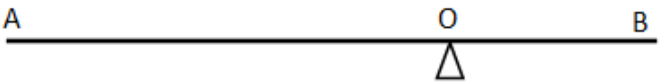
Support

The plate, supposed to be homogeneous, of constant section, of negligible mass, has a length L = AB = 1.20 m

- The trunk of a tree is assimilated to the edge O of a knife that serves as the axis of rotation for the board.
- Intensity of gravity: g = 10 N.kg-1.

-The two players considered are named Ali and Bio: Mass of Ali: m = 40 kg; Mass of Bio: M = 60 kg.

- Simplified diagram of the play device



Task: Explains the balance of the board

1. Write the two relations involving the forces and explain the horizontal equilibrium of the board when Ali and Bio sit there in A and B
2. Determines the distance OA
3. Calculates the intensity of the reaction of the tree trunk.

These various summative evaluations and even the certification that the learners and candidates are subjected to in Benin in the age of the Competency-based approachare characterized mainly by the fact that one finds oneself in full in the Pedagogy by Objectives.

V. SOME RULES FOR A GOOD EVALUATION SITUATION

In principle, the teacher of the physical sciences who has one of the disciplinary competences: the disciplinary competence n ° x for example, to prepare his class, must observe the following steps:

First stage

It chooses the notional contents of the stage where it is based on the knowledge and techniques associated with the disciplinary competence n ° x

Second step

It develops a starting situation or a situation-problem by immersing the selected notional contents in a text of the socio-cultural environment of the learners (the starting situation is not obligatory).

Third step

The teacher must make sure that the problem to be solved is global, complex.

Indeed the problems of life are not crumbled. It is for this reason that the learner must be equipped for. It is for the learner himself to know that he needs such and such intermediate questions to solve the problem he has faced.We would like to point out that the notions of the physical sciences are not all adaptable to everyday life.

The evaluation process itself must be a complex process that can be disastrous when it comes to assessing learners' learning if it is not fully controlled. The evaluation must be perfectly controlled. Throughout its course, many choices must be made: what do we choose to evaluate? Why? How? According to what criteria? With what information? How does one translate the information gathered into assessments, into notes?

VI. CONDITIONS FOR THE IMPLEMENTATION OF THE COMPETENCY-BASED APPROACH

We will focus here on interdisciplinarity, on the need to implement a multidisciplinary program and on the modification of teachers' schedules as sine qua non conditions for the implementation of the multidisciplinary approach.Skills.

11-1 Interdisciplinarity: one of the founding principles of the Competency-based approach

The Larousse dictionary defines interdisciplinarity as the character of what establishes relations between several sciences or disciplines.

According to Alain MAINGAIN and Barbara DUFOUR, "the interconnection of disciplines according to a particular context and a specific project: this is the most specific feature of an interdisciplinary approach." Disciplines are solicited and integrated in view to build an original model in response to a particular problem.

According to Blaise Coovi DJIHOUESSI "Interdisciplinarity derives from the need for a global, non-disciplinary, even fragmentary view of notional approaches or the problems common to two or more disciplines. It is, in fact, the integration of this disciplinary knowledge within a common, unified approach. It is important to identify at the outset a discipline that would be the cornerstone through which all selected teachers could be made possible. It is a question of identifying and developing activities that actually involve the student in a learning process by following the stages of questioning, problem formulation, investigation (experimentation, research), synthesis of knowledge, Linking and perspective.

We see once again that the Larousse dictionary approach is less precise than the last two. We deduce from these latter approaches that interdisciplinarity mobilizes knowledge and skills structured according to a specific situation and purpose. The interdisciplinary approach aims to develop the ability of learners to represent a problematic by using, from different points of view, interdisciplinarity finds its place perfectly in primary education where it is only one teacher who dispenses all subjects in its class. It can also be applied at most in the first four classes of secondary education in our country.

From all these explanations we can conclude that it is useless to speak of Competency-based approach without interdisciplinarity.

11-2-A multidisciplinary program: under-base of the Competency-based approach

To emphasize the importance of the multidisciplinary program, we refer to DJIHOUESSI, C., B., who writes: "The implementation of this program is a very important element of the Competency-based approach. It is essentially made up of themes common to well-defined disciplines and the schedule of meetings. Its advantage is that it offers teachers of the disciplines concerned a formal framework of encounter and exchange. At these sessions, each disciplinary group, retaining the specificity of its representations in relation to the subjects tackled, helps the other to better perceive the limits of his, to surpass them and to qualify them henceforth. "The multidisciplinary program allows a mutual contribution of the disciplines and helps to perceive the disciplinary specificities to avoid confusions. This program predisposes the search for an interdisciplinary approach. In the implementation of this multidisciplinary program, the learner feels more reassured because of a theme, a reference can be made to a scientific discipline, by the French teacher, to provide some necessary clarifications on the same theme which has already been the subject of a study in science.

On the basis of the above, we can conclude that it is useless to speak of Competency-based approach without a multidisciplinary program.

11-3-Changing Timetables: Need for Implementation of the Competency Approach

It is clear that the introduction of less busy or more flexible time jobs would facilitate the implementation of curricula designed according to the Competency-based approach. This, of course, necessitates a break with the excessive atomisation of knowledge by too many disciplines. The number of disciplines could be reduced and groupings should be allocated with hourly quotas. In France, for example, groupings have been operated with the aim of introducing flexibility and introducing flexibility into the organization of education. A decree

is adopted in this sense : "The decree of 1 August 1990 fixes the schedules of nursery and elementary schools. Teachers and teaching teams have two thresholds of flexibility:

"The schedule can be adjusted by group of disciplines;

"Within each group of disciplines, the schedule can be adjusted between disciplines.

In addition, teachers and teaching staff can define the timetable either for the duration of the school year or for intermediate periods corresponding to the school calendar according to the

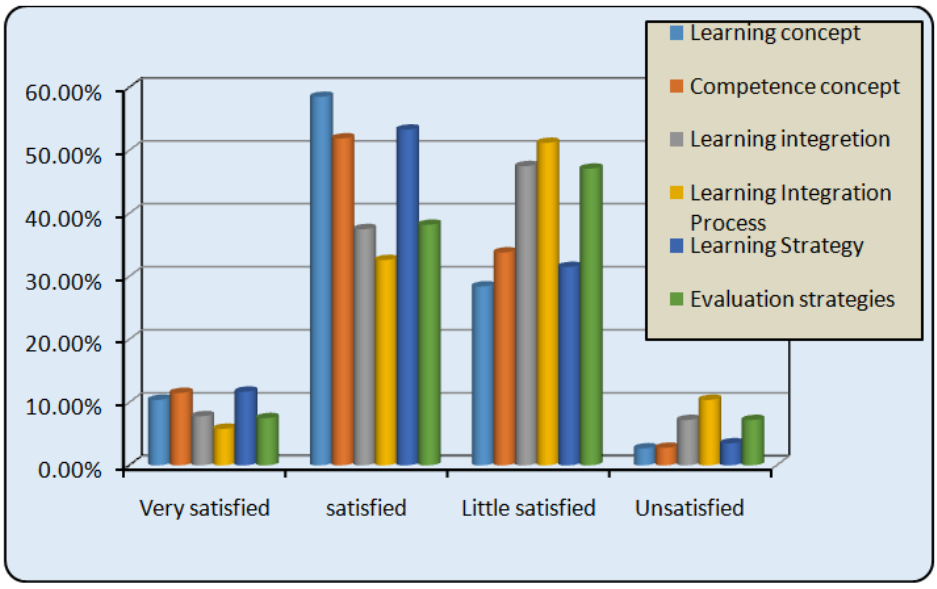
needs of the pupils.

"Indeed, the objective of the time group recommended is to allow flexible answers depending on the particular situations of the class or the needs of the children"
The complexity of situations, both in everyday life and in the workplace, is often such that the adoption of an interdisciplinary approach at certain points of learning seems inevitable. According to Xavier ROEGIERS, we can distinguish three main families of modes of integration between disciplines.
"Mode of integration n ° 1: at certain stages of learning, the learner is offered problem situations, or other integration activities, mobilizing the achievements of several disciplines. Learning remains separate and interacts only at certain points in the learning process.
Mode of integration n ° 2: we group the learning related to several disciplines into integrating themes. In this case, several disciplines are approached in constant interaction, but each retains its own objectives.
Method of integration n ° 3: the aim is to create a new discipline based on a common objective for several disciplines. "As we can imagine, the advantages of the integrated themes approach are many: it avoids problems related to the compartmentalization of subjects, the lack of link between the disciplines; It is an economical and effective approach because the contents are arranged so as to avoid the repetition of certain contents and, if they are well thought out, the activities allow to achieve the objectives in each subject, while respecting the procedures and the " Specific contribution of each discipline. So when the choice of a mode is made, the timetables must be elaborated accordingly.

Moreover, for a modification of the schedules we start with a concrete example to illustrate it. Consider a French description course. Before the French description course, the teacher of mathematics must already see with the learner the description of the figures of the space which in reality is of the role of the mathematics. Before teaching / learning about the description of space figures the mathematics teacher must already see with them the different materials and colors, impact of colors on the body when it is hot. Thus, when the French teacher tells the learner to describe a schoolbag for example, the latter will be comfortable talking about colors, shapes. The censors must be trained in the realization of time schedules according to the Competency-based Approach. In view of the foregoing, we find that the schedules must then provide a niche of meetings between professors holding the same classes so that they harmonize their points of view on the planning of the different chapters to be carried out in their common classes.

12-Status of mastery of methodology by teachers of SPCT
12-1-Mastery of some concepts and pedagogical concepts

The answers of some teachers to the question "their competences related to the mastery of concepts and pedagogical concepts" enabled us to realize the following diagrams. It highlights the perception of the SPCT professors encountered about their mastery of certain pedagogical
concepts and notions.



Diagrams: Mastery of concepts and pedagogical concepts

The majority of professors surveyed believe that they have an acceptable grasp of the concept of learning. It is encouraging to note that less than 3% of the workforce report poorly cultivated. As for the notion of the integration of learning, more than half of the teachers admit to having insufficient

mastery. We must emphasize that the integration of learning is the cornerstone of innovative teaching methods. The integration of learning is neither a superimposition nor an accumulation that the new acquis articulates with the old knowledge and possibly redesign it. The statistics relating to the process of integration of learning are consistent with those of the integration of learning. Indeed one can not apprehend the process of a phenomenon that one does not master.

The figures that reflect the strategies of learning suggest that mastery is good in this regard. Our fear is that professors will confuse knowing and using.

On the subject of evaluation strategies, the balance is on the side of insufficient control. It is a handicap to the implementation of innovative methods. Indeed, for the latter, evaluation is the third dimension of the teaching / learning / evaluation trilogy.

12-2-The reasons for the scrupulous disregard of official methods

They are mentioned by the teachers through their answers to the question "in the practice of your profession, do you scrupulously respect the methodology prescribed by the official programs? "They quote:

- Lack of understanding of methodological concepts;
- Poor control of the methodology;
- Insufficient practical training;
- Over-crowding in classrooms;
- The time constraint and the insufficient hourly quota
- Under study, all these reasons amount to two: training in the appropriation of new strategies and the problem of manpower. Our belief is that a well-trained teacher:
- A of the resource to understand the methodological concepts;
- Acquired an acceptable command of the methodology;
- Has learned to properly formulate its instructions and is therefore no longer faced with a lack of production on the part of the learners;
- Has learned to manage time.

VII. CONCLUSION

Educational systems in many countries of the world have been prescribing for years to their teachers to develop learners to develop skills based on complex problem solving. This is the case of Belgium, Canada, Morocco, Tunisia, ... Benin does not remain on the sidelines of this event. Unfortunately, many problems arise in the correct application of this prescription, but that does not mean that everything is rosy in other countries. The presence of transdisciplinary and cross-curricular competencies in the curricula of mathematics in Benin is difficult to explain, Disciplinary skills, numbering three in distinction of series, classes; Evaluations continue to be designed as in objective pedagogy, etc.

Throughout this study, we have attempted to focus our attention on the problem of the evaluation of learning in the physical sciences during the secondary course in Benin in the era of the Competency-based approach. In order to do this, we asked ourselves the following main question: do the inconsistencies in the implementation of the competency-based approach have no negative impact on the evaluation process?

In the light of all the above, the answer to our main question is therefore unequivocal: inconsistencies in the implementation of the Competency-based approach have a negative impact on the evaluation process.

What to do? Should the pedagogy of the Competency-based approachin secondary education in Benin be discontinued? Does the educational authorities have to choose another pedagogy?

As it is not enough to decide to change so that things change in the desired direction, the authorities of the Beninese education system must rectify what must be. These include:

- ✓ taking account of our solutions approaches
- ✓ taking into account a number of forms of implementation of the principles of the Competency-Based Approach through curricula in other countries such as Belgium, Canada, Tunisia, Morocco....;
- ✓ Comprehensive reformulation of competencies in science-physical chemistry and technology curricula;
- ✓ the new consideration of the SPCT study programs;

In this study, we 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 according to the Competency-based approachin secondary course in Benin.

It seems to us that the Beninese school will be able to restore its blazon already sufficiently tarnished. To play the role of the main lever of development devolved to him.

REFERENCES BIBIOGRAPHICS

[1]. **Alain MAINGAIN, Barbara DUFOUR (2002).** Didactic approach to interdisciplinarity.**Allal, L.(1999).** Acquisition and assessment of competencies in school situations.In J. Dolz & E. Ollagnier (Eds).

[2]. **From KETELE, J. - M. (1989)** Evaluation of the productivity of educational institutions, Notebooks of the University Foundation: University and society, the performance of university education.
[3]. **From KETELE, J.M. (1996)**. Assessment of learning outcomes: What? Why? For who? Tunisian Journal of Education, Vol. 23, p. 17-36.
[4]. **GERARD F.-M. (2008).** Assessing skills. Boeck practical guide.
[5]. **GERARD F.-M, and ROEGIERS, X. (1993)** Design and evaluation of textbooks. Brussels: De Boeck University.
[6]. **Boeck** (Revue "Educational Reasons", 2, 1999 / 1-2, pp.77-94). The enigma of competence in education. Brussels.
[7]. **Paquay, L. & Roegiers, X. (1999),** characterizing skills assessment practices. Louvain-la-Neuve: UCL, Faculty of Psychology and Educational Sciences (Working paper, 31 p.).
[8]. **PERRENOUD, P**. Building skills, a whole program! Collection of texts 4th Inter-African Seminar on the Harmonization of French Programs (Yaoudé, 26-30 April 2004).
[9]. **ROEGIERS, X. 2000**. A pedagogy of integration. Brussels: De Boeck University.
[10]. **ROEGIERS, X.2003**. Situations for integrating learning outcomes. Brussels: De Boeck University.
[11]. **ROEGIERS, X.2004**. School and evaluation. Brussels: De Boeck University.
[12]. **SCALLON, G. (2007**) Evaluation of learning in a competency-based approach. **http://www.gnb. ca/000/francophone-f.asp** Provincial Policy on the Evaluation of Learning.