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The practices of didactic regulation in (T/L) in senior secondary school class 3 physics subject: sciences options with the application of approach by competences CBA (focus on dealing with) electromagnetic induction.

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I. Introduction

This research work is interested in a physic Sciences, chemistry and technology teacher's practices of didactic regulation in physic Sciences. In the particular case of our research, didactic regulations are language communications (speech, demonstration, drawings) operated by a teacher in the presence of one or many learners, while the later are engaged into a given task. Their function is to influence the action's intentions of the learners and make them develop their auto regulation conduct. These auto regulations are part of the learning process.

As mentioned by Nadji (1997) a teacher's external action of regulation aims to positively direct the student, contributing to the auto regulation's enrichment. In this area, the languages (gesture, verbal, symbolic) appear as mighty means of students activities control that help in teaching-learning (T/L) (Vigoski, 1934).

According to us, Dotou's practices that we choose to present reveal the difficulty and the complexity of the didactic regulations gestures, tensions that can rise and develop against him in the course of the professional growth. According to Maulini (2005), the question raised involving teaching and learning between the teacher and the student is located in an interaction. The regulation gesture and its main modality is shown up when the action of both teacher and student is seized in picture by video and secondly as soon as it is set down via the synopsis. A diversity of cognitive abilities would be gathered with the student in accord with the level of questions (taxonomies). Nault (1998) quoted by Crahay (2007) associates the first level abilities "knowing or understanding" to the type of closed or converging questions, in opposition to open questions associated to the higher cognitive level "applying, analyzing, synthesizing, evaluating…"

Our descriptive and comprehensive study of Dotou's practices of didactic regulation testifies to the will to know better the intervention's practices in Physic Sciences, chemistry and Technology, and then dislock their factors.

1- Theorical area and problematic

1.1- Epistemological foundations based on the approach by competences. (CBA)

The advent of approach by competences system and other similar approaches was motivated by the results of many research works in education science during these latter decades. This particular approach means that "a person is competent, when he possesses knowledge of tact, knowledge of good manners and can use them in very different situations from the same kind and gathered under a same title". (Acte de forum sur l'éducation, 2007, p24 au Benin) so, the competence is located to the internal higher level, it helps for the

development of superior psychical capacities. So working over the competence is putting at work the psychical means so that they can be developed with the child.

The training according to CBA system is an integrated pattern of teaching/learning/evaluation set upon the cognitivism, the constructivism and the socio constructivism.. It is an approach based on the cognitive psychology theory. In this case, knowledge acquirement comes not by putting things side-by side but by constructing, either at the individual level. Which is the training according to ABC system is an integrated pattern of teaching / evaluation / set upon the cognitivism, the constructivism and the socio constructivism. It an approach based on the cognitive psychology theory. In this case, knowledge acquirement comes not by putting things side-by-side but by constructivism and or in the course of a social interaction. That is the socio-constructivism. "The learning is there defined as a cognitive, social and affective process that causes a previous knowledge modification and a cognitive structure's reorganization, giving room to new acquirement". (Legendre, 2004, p16)

1.2- The concept of didactic regulation in physic sciences used in the research work.

The notion of regulation often reappears in many areas; either in a market control perspective. Its use bears various forms, as from the use without a previous definition. In these deferent cases, the notion generally carries the idea of control. When it is said that a process is regulated, it is under heard that the process is controlled, organized, even if the "how" is not specified.

As mentioned by Carious (2004); from the regulation of proteins, via that of births, of railroad traffic; to the of proteins, via that of births, of railroad traffic, to the regulation of glycemy, there is no evidence that the same name recovers the same concepts. In the area of teaching/ learning (T/L), the word regulation is used to point out at once the cognitive process involved in the leanings (for the learner) and some steps of the teacher aiming to optimize the students learning. Thus for Allal (2007) "some regulation mechanisms of guidance of control, of adjustment and reorientation of the action are at the centre of every learning theory" (p.7). As emphasized by laveault (2007), Perrenoud (1993, 1997) or Allal (2005,2007), learning activity is characterized by auto regulation process. In our research work, the didactic regulation are defined as the verbal communications and the demonstrations of the teacher, with a didactic character, addressed to one or more learners that are committed to a given task, after a period of observation.

1.3- Problematic

Some didactic researches have proved that it is in the course of interaction that teaching contents are shown up (Marsenach and Merand, 1987) and students knowledge's are constructed (Amade-Escot, 2003, 2007). Many works in didactics, about teachers practices show that teachers' courses, their specialization, their experience even their relation to the knowledge of the subjects and their practical epistemology (Brousseau, 1986; Elandoulsi, 2011; Marlot,2007; Sensevy,2007) have an impact when referring to didactical transposition of official disposition which are manifested through very special applications. Talking about the new approach of studies in Benin, based on competences, this research work suggests to analyse the didactical action in physics in the aim to understand how the teacher and the students interact by (while) applying the CBA system to construct a reference (Knowledge acquirement) that needs to be characterized.

II. Analysis' pattern, research questions and hypothesis

2.1- Analysis pattern.

The theory of didactic' conjoined action TDCA (Sensevy,2007,2009) Helps us to conceive our analysis pattern. Its objective is to give account of socio-historical dimension and locate some teaching and learning practices by giving pattern to the transactions between the different actors who are involved in the course of a particular knowledge's transmission (Ligozat and Schubauer-Leoni, 2009,p.88-91). The threefold of genesis (monogenesis, chronogenesis and topogenesis gives account, in a dynamic way, of the action's context, of its object and the part taken by the different actors. The monogenesis deals with the didactical area. The chronogenesis meaning the genesis of didactical time describes the progress of knowledge resulting from the successive transactions between the actors. Topogenesis that means the genesis of positions in the class, describes the epistemical responsibility's assessment between teacher and student.

The didactical action is organically cooperative. It consists of didactical interactions called didactical transactions giving birth to games. The three "genesis" which are the monogenesis for "WHAT?" question. "How, WHAT?" (to be specific). Helps to identify the specific epistemical content of the didactical transactions. The chronogenesis asks the question "when?" more specifically "how when?" It makes to identify the nature and the reason of the movement at a moment from one epistemical content to another. The topogenesis refers to the question "who?" more specifically "how who?" It helps to identify how the value content of a transaction is effectively sheared among the transactions. The topogenesis category constitutes then a mean analysis of the transactions "conjoined" nature.

2.2- Research questions and hypothesis

- **Research questions:**

-to what extend does Dotou engage into didactical regulation? Why
-Which are the capacities and abilities developed by Dotou in the course of the didactical regulations? How?
-to what extend and how does Dotou deal with the regulations in his daily professional tasks for the sake of efficiency? Why?

- **Hypothesis**

-Dotou engages into didactical regulation as soon as possible
- The capacities and abilities developed by Dotou in the course of the didactical regulations are of a low proportion and scattered.
- Dotou deals with the regulation in a low proportion during his daily professional task, for the sake of efficiency

III. Methodology

Every research work supposes an option of methodology in accord with the theatrical inscription under holding the problematic. So there is no form of research that doesn't hold on any material: "every research deals with a problem, but also necessitates a form of inscription such as to examine, to condense, to treat before interpreting" (Van Der Maren, 1996,p2).

It is necessary to clarify the choice when we analyze the didactical regulations practices of Dotou which are teaching practices related to the particular case of electromagnetic induction in "terminal C and D" classes in some public and private schools. It is based on the description and understanding of didactical events that take place during Teaching/Learning (T/L) situation in physics, with the application of approach by competences system.

3.1- Choice of subject and context of study

Six teachers answered our call positively. This a very large sample, compared to the methodological choices that we later present. These teachers have years experience in the profession and at the post. They have different ages, grades and initial training. Four of them were from public school and two from private secondary schools. We first planed to study six cases. By another side, we wanted to study the regulations specifically; this leads to a heaviness of the treatment and analysis work. After our observations, we finally chose to analyse three cases. The teachers' characteristics, our final choices were made according to these teachers contexts of teaching.

Among the six who were called for collaboration Dotou and two other teacher were selected. He's 33 and has 7 years teaching experience at that time. He has been teaching for four years in that school. Like the other, he has been observed during two consecutive sittings (one in a private school in upper sixth C and one in a public school in upper sixth D). The two contexts help to characterize the practice of DR (Didactical Regulation) in their different contexts. The observations with Dotou were based on the Learning Situation (LS) N°1 tittled "The forces scope and interactions". The developed activity in upper sixth C was section N° 426. How to create an electrical current in a circuit without generator by magneted scope B intensity variation? In upper sixth D, the activity was section N° 428: How to determine the inducted current's direction.
We are holding many documents.
-The video covering one hour and showing a upper sixth D or C class-sitting referring to a section that follows an investigation step, conducted by a teacher who is at the beginning of his career.
-An auto confrontation video: While the teacher is watching his own class setting video, he answers some questions about his actions. We take this for an interview that brings some information about a class setting in action.

3.2- Class setting retanscription, data condensation,analysis in advance

All the interactions between the teacher and the learners and also the gestures and attitudes of actors, that seems to be significant when considering the knowledge, have been transcribed, after identifying the institutional exactions required for to get an idea about every sitting stake and after visioning it for adoption.

The analysis made us structure the data into games. Each game was defined in reference to the rules surrounding it: considering at the same time the stake to satisfy, the rules to follow to get it done, and the space supporting the didactical action. Lastly the auto confrontation interview was also transcribed and its information was structured thematically or in relation with some parts of the sitting. It is recorded with an audio recorder. We chose to apply an interview that take place in two different times. In the first time, a half-directive interview that allows the teacher to give account of his conception about regulation an knowledge and also to deal with regulation in the area of his professionality (felt efficiency, challenges). The collected information will serve as reference for the second part of the interview. The researcher can then point to some contradictions and discuss them.

3.3- Treatment of data

3.3.1- Treatment of data coming from the transcription

The communications addressed to the learners before or after the task are different from the communications addressed to them in the context of the task. This method needs a first work of cutting and denomination. The verbal communications addressed to the learner in the context of the task are retranscribed, wholly; task by task. They are cut into two units: the "episodes" and the "objects". An "episode" starts when a teacher communicates with a learner (or a group of learners) and ends with the departure of the teacher or an other observation by him. An "object" represents a specific content of the communication. Each episode can consist of many objects. That cutting allows us to be informed about the communication structure (a lot of episodes and few objects or the opposite). Each object receives a denomination according to its content. In addition, description elements about the teacher's movements are notified (demonstrations, diagram drawing).

While treating the data, we discover that it was often necessary to group the regulation objects into many categories, to make things clear. The objects of didactical regulation are to be set apart. The didactical communications that result from observation are called by the denominations that result from a learners question are not considered to be didactical regulation. We have four forms of verbal regulations of which some are didactical regulations and others are guideless. There are different styles of didactical regulations.

1- Questioning
2- Validating a student's response and asking for justification
3- Validating a student's answer an asking a new question.

At last, the didactic regulalation are set apart and undergo genuine analysis. These analysis help to invest the abilities and capacities developed by the teacher while building the really taught knowledge's.

3.3.2- Treatment of the data that result from the interviews.

The interviews are faithfully retranscribed. An analysis by category is used for the whole interview. Then, the specific information related to the different contexts is used (this or that class in this or that activity). The whole information that can help in describing and understanding the practices is retained (motives, the teacher's concerns at some specific moments) and in considering the contexts weight (section, learners, etc).

Table 1: general categories used to analyse the interview.

Categories	Needed information related to the category
Teaching /Learning strategies in relation with the didactical regulation	-factors of the teacher's didactical action in the class. -learners' devolution -learner teacher interactions.
Reference to the knowledge and knowledge of the subject	-Way of defining the knowledge's in electromagnetism; -Place of the knowledge's in physics; - knowing the sections and the contents.
Work organization, efficiency inquiry and professional experience in relation with didactical regulation	-Way of conducting activities and efficiency inquiry; -Mode of reasoning in the area of electromagnetism; -Professional experiences in the area of regulations and practices evolution

IV. Presentation Of Results

4.1- Results for the 1st sitting of Dotou: "what is magnetic field and what are its characteristics?"

The game's observation (formulate the question to solve after experience) below helps to understand how the teacher managed the situation. The retranscription examination of this game that is suggested below helps to give a sense to the observed dynamic.

Refer to the extract below.

1- Teacher: ….what is then the name of the zone whese the magnet influences the ball?
2- Students 7: The zone in which the magnet influences the iron ball is called magnetic field.
3- Teacher: Is it true?
4- Students: yes, sir.
5- Teacher: Reporter; write on the board and let get to order 4-16-2 which is also an experience activity.
6-Teacher: Watch me as I'm realising the experience. I place the magneted needle closed to the upright magnet. Write down your remarks. I change the magneted needle's direction, write down your remarks. What do you notice in the two cases?
7-Students: In the first case, when the magneted needle is placed around the upright magnet, it takes a specific direction. When the magneted needle is put away from the upright magnet, it goes back to the former position.
8-Teacher: Let's repeat the experience so that you can see. Armand is going to do the experience again.
9-Teacher: You've watched your mate carefully. Who can now answer the question?
10-Student: When a magneted needle is placed around an upright magnet, it takes a specific position, but when the magneted needle's direction is changed, it comes back to the initial position.
11-Teacher: Do you agree with your mate?

12-Students: Yes, sir.
13-Teacher: Reporter; take note of it. Then, what do we call magnetic scop and what are its characteristics?
Extract "Dotou: 1st section" game 4's interactions (32 mn 57 to 38 mn 20. T: teacher, S: students)

When analyzing that extract, we notice teacher's actions that guide the learners towards the answers. Confer (Teacher Didactic Work "what is the name of the zone where the iron ball is influenced by the magnet?"). its didactical intention try to build a progress in the learning. (Teacher didactic work 5 "Reporter, write on the board and let's get to 4-16-2 which is also an experience activity" (chronogenesis). Truly, the teacher wants the students to go forwards in the building of the knowledge as he repeats the experience by questioning the learners. (Teacher Didactic work 8 "we are going to repeat the experience and you will see. Armand, go and repeat the experience"). The learners are just writing the answers on the board and the teacher stays neutral. In this game, only the learners carry the responsibility to build the knowledge's progress (topogenesis). Through the teacher's neutrality, all the didactical objects introduced into the place have the same statute (mesogenesis).

Another important aspect is that the teacher through his guiding action seams to push the learners to be fast. That chronogenetic acceleration seams to show his didactical intention that as we mention above consists to make progress "to go to the end of the section before the period's end"

4.1.1- Studying the regulations

There are four forms of verbal regulations of which three are didactic regulations and one is a guiding regulation.

Table 2: Examples of demonstrations associated to the regulations "1st sitting of Dotou".

Forms of verbal regulations	Styles of regulations	Episodes	Verbal communications	
Didactic regulations	Questioning	8	When I bring the magnet closed to the clock needle, what happens? Write down your remarks. We are also going to change the magnet's direction and you'll write your remarks	9
		11	Now, I draw the magnet away from the needle. What happens?	
		19	..Why does the pendulum separate from the vertical when the magnet is drown close to the iron ball?	
		21	...now, why does the pendulum return to its initial position when the magnet is put away from the iron ball?	
		23	The question is to know why the pendulum gets separated from the vertical when the magnet is drawn close to the iron ball and gets back to its former position when the magnet is pushed away. Juliane, why?	
		26	But why does the pendulum move aside as the magnet is getting close?	
		42	I place a magneted needle around an upright magnet. Note down your remarks. I change the magneted needle's direction. Write down your remarks. What do you notice in the two cases?	
		49	…so, what do we call magnetic scope and what are its characteristics?	
		53	What is the difference between the two definitions?	
	Validate a student's answer and ask for justification	10	Yes, the pendulum moves aside from the vertical as the magnet is getting close. Why? Write down your remark.	
		13	Yes, the pendulum gets back to its former position when the magnet is pushed aside from the needle. Why? Write down your remarks.	
		37	The same phenomenons are observe in the case of magnet in U-form or any electric circuit crossed by an electric wire. What is then the name of that zone in which the iron ball is influenced by the magnet?	
		73	That's good! That is the only scope detector we can have? Remember your HIST and GEO course in JSS.3. you were told about a detector used by people who get lost in a zone.	
	Validate a student's answer and ask another question	55	That's good! Does the body need to get charged? Or, is our magneted needle carrying a charge?	5
		59	First of all, the upright magnet gets two side. Referring to your course of JSS.3, how do you call them?	
		61	Good! You can notice that the magneted needle has two sides colored with red and black. According to you, what are the two sides indicating?	
		65	Yes. If a magnet has two poles north and south, what are	

			the poles of a magneted needle?	
		75	Very good. So, how can we define a magnetic scope?	
Guiding	Imperative	86	Letts start the experience again: we change the magnet's position, then the needle and visit the characteristics again.	1

Commitment in the didactical Regulation (DR)

For this sitting we have:

- 19 demonstration episodes associated to the regulations of which 18 are DR with 33 DR object set in role.
- The orders' repetition mechanically reduces the available time for the regulation.
- The other communication, without being regulations are of didactical nature (especially orders and answer to learners questions or rarely, non didactic communications (behaviours management).

Didactic regulations' objects summarized.

It can be considered that a lot of knowledge objects are set in role in the course of the sitting.

Table 3: DR objects summarized "Dotou's 1st sitting"

DR. objects	Number of time	Developed capacity	Developed cognitive ability.	Didactical area objects on which they act.
Setting the magnet close to the pendulum needle.	1	Analyzing the situation problem	Setting relations among the different elements	-bringing together -magnet -pendulum needle
Writing remarks.	7	Analyzing the situation-problem	Setting relationship among the different elements	Remarks
Changing the magnet's direction	2	Analyzing the situation.	Verifying a fact's accuracy	-change of magnet direction.
Why does the pendulum move aside from the vertical as the magnet is getting close?	4	Circling the identified need.	Identifying the need	-pendulum -moving aside -moving close -magnet
Setting the magnet away from the needle	1	Analyzing the situation	Verifying a fact accuracy	-moving aside -magnet -spool
What happens when the magnet is moved away from the needle.	1	Analyzing the situation-problem	Setting relationship among the different elements	-moving aside -magnet -spool
Why does the pendulum come back to its initial position as the magnet is moved away from the needle?	3	Circling the identified need	Identifying the need.	pendulum -moving aside -moving close -spool
Observing the same phenomena with a U-form magnet or any electric circuit cross by an electric wire	1	Choosing a solution	Considering the requirement of each solution and the available resources.	-observed phenomenon -magnet in U-form -electric circuit -electric wire
Name of the zone where the iron ball is influenced by the magnet	1	Putting the solution at work.	Determing the steps by which the solution is put at work.	-name -iron ball -magnet
Placing a magneted needle around an upright magnet.	1	Putting the solution at work.	Executing the tasks that is relative to each step	-Magneted needle -upright magnet
Changing direction to the magneted needle	1	Putting the solution at work.	Executing the tasks that is relative to each step	-change of direction -magneted needle
Defining the magnetic scope.	2	Making objective the built knowledge and the steps used.	Gathering the knowledge	-magnetic scope
Giving the characteristics of a magnetic scope.	1	Making objective the built knowledge and the steps used.	Putting together the build knowledge	Characteristics -magnetic scope
Making the difference between two definitions	1	Making objective the built knowledge and the steps used.	Putting together the build knowledge	Difference between two definitions
Does a body need to be charged before being influenced by a magnetic force?	1	Making objective the built knowledge and the steps used.	Setting apart the success and the met success	-charged body -magnetic force
Does a magneted needle carry any charge?	1	Making objective the built knowledge and the steps used.	Setting apart the success and the met success	-magneted needle -charge

		Used	Met	
How do we call the two parts of the magnet in class of troisieme	1	Making objective the built knowledge and the steps used	to show the success	Parts of a magnet
What can the two coloured parts of the needle designate?	1	Making objective the built knowledge and the steps used	To propose improvement possibilities	Coloured parts of the magneted needle.
If the magnet has two poles (north and south) what are the poles of the magneted needle?	1	Making objective the built knowledge and the steps used	To propose improvement possibilities	-poles of the magnet -poles of the magneted needle
Another detector of magnetic field in History and Geography in class of troisieme	1	To reinvest the knowledge in a real life situation	To identify some real life situations according to which the built knowledge is relevant.	Magnetic field detector.

Table four. Cases of demonstrations associated with Dotou's gestures (1st sitting)

Episodes	Verbal regulations	Associated gestured regulations
8	When I bring the magnet nearer a needle of a clock, what happens? You take note of your remarks. We will change the magnet direction and you will mention your remarks	Dotou shows the clock, the magneted needle at the place of the marble. Then, he brings the magnet nearer the clock or the needle.
11	Now, I move the magnet away from the needle. What happens?	Dotou moves the magnet away from the needle.
13	Yes! When we move the magnet away from the needle, the clock takes its initial position. mention your remarks.	Dotou moves the magnet from the needle once again. Then he gives the clock and the needle to a learner.
19	Why when we bring together the magnet and the magneted needle, the clock moves away from the vertical?	Dotou brings the magnet to the magneted needle. Then, he brings the magneted needle to the magnet.
42	I place a magneted needle near a straight magnet. Mention your remarks. I give the needle another direction. Once again, mention your remarks. What do you remark in the two cases.	Dotou places a magneted needle near a straight magnet. Then, he changes the magneted needle's direction.
65	Yes, if the magnet has two poles north and south, what are the poles of the magneted needle?	Dotou takes a straight magnet.he puts it before a magneted needle.
	So?	Then ,he changes the magnet position

41 Dotou second sitting results: How to create an electric current in a circuit without a generator though of the intensity of the B magnetic field?

The analysis of the game (to propose an explanatory solution to the problem raised below) partly helps to understand how the teacher has managed this situation.

The analysis of the proposed game in the extract below helps to give value to the observed dynamic

1-T what do all these remarks reveal?

2 S16 when the needle of the galvanometer moves, a current erupts in the circuit.

3T what is this current?

4- S16 It is an induced current.

5-T How will people call this phenomenon shown during this experience?

6- S16 It is an electromagnetic induction phenomenon.

Extract 2: Dotou's second sitting: interactions of the game (16 min 40 to 17 min 20. T= (Teacher); S= (Student).

The game focused on the solution of the problem raised as it is shown through the declaration 1. The learner S16 introduces in the environment a concrete solution as the analysis in principle would suppose: when the galvanometer's needle moves, there is an eruption of the current in the circuit. A regulation takes place at the teacher's level. ''It is the induced current'' declares S16. This prompts this teacher to review rule of the game he would play with his students. What will we call this phenomenon during this experience? In response to this regulation, S16 introduces response according to which it is the phenomenon of electromagnetic induction. It is in fact the phenomenon of electromagnetic induction. This puts an end to the game.

4-2-1 regulations study.

During this sitting,Dotou sometimes leaves the frame of the stake of the knowledge. The little regulates the students . However he isn't ineffective. He resorts to the pre-requisites of the intermediary classes, being aware that it is a continuous current. But here we are in the framework of a varied current. There is no constituted group because of the size of the class. The students carry out their work individually. He observes, regulates, answers questions, and gives instructions.

Table 5: Examples of demonstrations associated with Dotou's regulation: second setting

Types of verbal regulations	Regulation styles	Episodes	Verbal communications	Frequency
Didactic regulation	To question	6	Now; we will maintain the magnet in a position and move the coin near the magnet. What is your remark?	8
		8	Now, we leave the magnet and the coil. What happens?	
		10	According your remarks, what does each of them reveal?	
		12	What is this current?	
		14	What will we name this phenomenon thought this experience?	
		16	What is at the origin of this phenomenon?	
		26	Who can remind us the production of the current you have seen in class of second.	
		39	How can we create in a closed circuit without a generator an induced current?	
	To validate a student's answer and to ask to justify it	18	Yes, it is good. But what is the physical grandeur that varies during this displacement?	
		22	Yes. How?	
	To validate a student's answer and to ask a new question	4	Yes. After you have realized a circuit; what do you remark?	
		20	What mainly creates this variation of the magnetic flux?	
Guidance	Imperative	24	Yes. It is through the variation of the measurement of the magnetic field B.	
		29	The electric current, as you have seen in ''class of seconde'' is the continuous current. It is worth mentioning that this current is a variable current which is induced in a determined time. We will clearly see in the following sub-activity N°4-27 how to explain the electromagnetic induction phenomenon and what is the induced grandeur?	

Commitment in didactic regulation
-We number for this sitting
-14 demonstrative episodes associated to the regulations.
-The least regulation during this sitting is justified by the fact that Dotou talks too much and doesn't allow his learners to give their initial understanding. This repetitive behavior reduces the available time for this regulation.
-The other communications are didactical communications and are not some regulations. (Mainly instruction, answers to learners' questions, etc).

objects of the summarized didactic regulations
We can consider that a lot of knowledge purposes are highlighted during this sitting

Table 6: Objects of the summarized didactic regulation : Dotou's second sitting.

Objects of the the didactic regulation	Frequency	Developed ability	Cognitive developed ability	Objects of didactic setting on which they act
What you have remarked	3	To analyse the learning activity or the work to accomplish	To identify the components of the activity	Remarks
To maintain the coil and to move the coil near the magnet	1	To analyse the problem-situation	To establish the links between different components	Magnet coil
To let to fix the magnet and the coil	1	To analyses the situation	To verify the accuracy of situation	magnet coil
What does every remark reveal?	1	To analyses the problem-situation	To establish the links between different components	Remarks
The nature of this current	1	To analyse the problem-situation	To identify different components of the problem-situation	Nature t current
What will we call the phenomenon highlighted during this experience?	1	To build personal opinion	To express one's expressions, perceptions, and questions.	Phenomenon highlighted during this experience.
The origin of this phenomenon	1	To state an individual judgment	To express one's opinion	-origin -observed phenomenon

What physical grandeur varies during these displacements	1	To analyses the learning activity or the work to accomplish	To establish the links between components	-physical grandeur that varies -displacements
What does create the variation of the magnetic flux?	1	To analyse the learning activity or the work to accomplish	To express one's representation of the activity	-creation -magnetic flux
How is created the variation of the magnetic flux?	1	Making objective the built knowledge and the step used.	To list the built knowledge	-creation -magnetic flux
The current production as studied in ''class of seconde C or D''	1	Making objective the built knowledge and the step used.	To show the successes et the difficulties	Current studied in class of seconde coil
The induced nature of the varied current	1	Making objective the built knowledge and the step used .	Say how the knowledge's have been built.	-induced nature -varied current
How to create in a closed circuit an induced current without generator	1 Total 15	Making objective the built knowledge and the step used.	Say how the knowledge's have been constructed.	-close circuit without generator -induced current.
Object of the didactic regulation	Frequency	Developed capacity	Cognitive developed skill	Object of the didactic setting on which they act
What do you remark?	3	To analyse the learning activity or the work to accomplish	To identifier the compoments of the activity.	Remarks
To maintain the magnet in a fixed position and to move to coil near the magnet	1	To analyse the problem-situation	To establish the links between different compoments	-magnet -coil
To let to fix the magnet and the coil	1	To analyse the problem-situation	To verify the accuracy of a fact	Magnet coil
What does each remark reveal?	1	To analyse the problem-situation	To establish the links between different compoments of the situation problem	Remarks
The nature of the current	1	To analyse the problem-situation	To identifier the compoments of the problem situation	-nature -current
What will we call the phenomenon highlighted during this experience?	1	To build a personal opinion	To express one's impression, perceptions, questions	Phenomenon raised during this experience
The origine of this phenomenon	1	To express a personal judgment	To express one's opinion	-origine -observed phenomenon
What is the physical grandeur that varies during these displacements	1	To analyse the learning activity or the work to accomplish	To establish the links between different compoments	-physical grandeur that varies -displacements
What does create the variation of the magnetic flux?	1	To analyse the learning activity or the work to accomplish	To express one's representation of the activity	-creation -magnetic flux
How is created the variation of the magnetic flux ?	1	Making objective the built knowledge and the step used.	To name the built knowledge	-creation -magnetic flux
The production of the current studied in class of seconde		Making objective the built knowledge and the step used.	To show successes and difficulties	Current studied in class of seconde C ou D
Induced nature of the varied current	1	Making objective the built knowledge and the step used.	To say how the knowledge is built	-induced nature -varied current
How to create in a closed circuit an induced current without generator	1 Total 15	Making objective the built knowledge and the step used.	To say how the knowledge has been constructed	-Close circuit without generator -induced current.

Table 7: Cases of demonstration associated with Dotou's gestures: sitting 2

Episodes	Verbal regulations	Regulation associated with gestures
6	Now, we will maintain the magnet and we will move the coil near the magnet. What do you remark?	Dotou takes the magnet and maintains it in a fixed position. Then. he takes the coil and gives it to a learner.
8	Now we let fix the magnet and the coil. What do you remark?	Dotou maintains the coil in a fixed position and then he takes the magnet that he gives to a another learner

9	Yes! It is good. But what is the physical grandeur that varies during these displacements?	Dotou shows again all the materials of the experiment (galvanometer, magnet, coil, connexion wire). Then, he takes the magnet and in a going and coming movement, he brings near and moves away the coil.

4-3 results from the interview

Dotou has accepted the collaboration because of two reasons:

- The first because he is interested in his job ''to teach SPCT''
- The second reason to participate to a didactic study so as to increase his knowledge concerning the didactic of the subject and to help some new teachers.

4.3.1- The work organization, the search for effectiveness, the professional experience.

Dotou wishes the support of the activities would be elaborated as real problems-situation followed with a global task. He wants his students to get rid of him when they are engaged in the task. In fact; according to Dotou ''when the task is laid down, the task is represented, redefined before being carried out by the learner. The activities represent what the subject does to realize the task. He continues to say: ''during these activities, the learner must be able to answer some questions he will ask himself in his representation and his redefinition of the problem situation''. He wishes the tasks would not take a lot of time. To sum up, Dotou has the will to reduce the guidance phases, mainly the regulation. The teacher must be accurate and use easy words the students must understand. According to Dotou; the effectiveness of the teacher would consist in regulatory observation. However this observation would be impossible because of the short time given to the tasks he proposes. As such; he seems to observe if the learners are carrying out the given task.

4-3-2-The teaching/learning conceptions

According to Dotou, the learners will not need their teacher's help if they understand the task. The regulator's role is not mentioned by Dotou except when we invite him to give his role during the student's action. He insists on the importance of instructions. For instance he thinks the knowledge must be made explicit after the task because it is easier for the learners to note a posteriori. He associates the regulations with an arbitrary guidance. He also associates regulation with teleguidance.

4.3.3- Knowledge of the subject

- Concerning the sub-activity: How to create an electric current in a circuit without generation by variation of the intensity of the magnetic field B?

Dotou carries out short regulations focusing on successful criteria. He regularly interrupts a regulation episode. We have noted that learners are in difficulty when the criteria of success are insufficient to create quick successes. Dotou often swings and even gives up regulating though he has a lot of time. As such, we note some behavious that look like some escapes or renunciations.

When we invite Dotou to explain the reason why his regulations mainly focuses on the learners' remarks, he feels that his learners are more or less competent when they discover the subject of the knowledge after an experience. This situation makes them have strong learning intentions. He feels to have guided the learners during this session.

Concerning the sub-activity: what do you call magnetic field and what are its characteristics?

Dotou's regulation practices during this sub-activity are associated with some tasks' characteristics and with the learners difficulties. If the learners have a clear understanding of the tasks, they do not need any teacher. It looks as if he is forced to regulate, which is not his habit. It looks as if he fails during sittings. He has difficulties to interpret some problems the students have met. When we ask him to define the knowledge, he expounds the guidance tools used in class (to bring the magnet closer to the needle, to change the magnet direction, to move the magnet away from the magneted needle). Then he seems to hesitate and says: I do not find words. However, he indicates that his approach depends on the sub-activity he tackles.

V. Analysis

5-1- Analysis concerning didactic regulation for the first sitting.

-the object of the didactic regulation associated with the remarks constitute the majority during the didactic regulations.

The technical tools (to change the magnet direction, to move the magnet away from the needle, to change the magneted, which are coherent in regard to the proposed instructions.

-An outstanding result concerns the predominance of thedidactic regulation objects in relation with the reason why the clock moves away from the vertical when we move the magnet closer? And why does the clock takes

again its initial position when we move the magnet away from the needle. The other objects in relation with the strategies are insufficient.

5-2- Analysis concerning the didactic regulation for Dotou's second sitting

- We note a reduced didactic regulation objects. Dotou's concerns have not evolved too much.
- Dotou carries out short regulations focusing on some criteria of success. He regularly interrupts a regulation episode. Many factors can justify it.
- It appears that Dotou is led to regulate in a temporal crisis context Moreover, the learners regularly call him to ask questions or to assess themselves. In this context, Dotou's could not have the appropriate time to implement the knowledge during regulations. He will go faster.

VI. Discussion

In physics, we can find some value patterns underlying to scientific teaching: some giving privilege to inductive approach and other giving value to a hypothetical deductive approach focusing on the statement of problem and the construction of hypothetical theorical models (calmettes, 2012) lhosteet Peterfalvie, 2009; lhoste Peterfalvie et Orange, 2007; Morgeet Boilevin,2007; Marlot 2007; orange,1997). In the framework of these practices analysis, we have pointed out that the teaching materials don't have enough value density.
In fact most of the competences based approach defenders ares accused of a real reduction of the purposes.

It seems that we are facing a teaching practice following Johsua (2000), the teaching concrete working conditions with overcrowded classes explains the force of the invariants hat organize the practices we have observed (Bru, 2001); Altet, Blanchard-Lavileet Bru, 2012). The competences based approach in Benin gives a reduced chance to the acquisition of disciplinary knowledge (Crahay, 2006) and giving priority to the development of general knowledge does not succeed to create conditions of great ambitions. This situation does not favour the conditions of his ambitions. The knowledge is underrated because it won't be of economical utility (Rey, 2012). However the remark is there, persistent. It is illustrated by some types of practice highly cristallised to professional usage.

VII. Conclusion

This current research work in the didactics of physics has been initiated and carried out in a bid to analyse the regulation practices in upper sixth C and D class in the framework of the competences based approach.The descriptive aim that we have chosen are of scientific stake.

- Scientific, because the knowledge of some practices is a stake for educational sciences. It consists to better know the reality of intervention practices, to better understand Teaching/learning process in the school context.
- Professional .because this type of research can serve as support for teachers' trainers. It is a double contribution. Firstly. to lay emphasis the difficulties and the complexity of the professional action. Secondly. to point out the way the professionals act before the resulting problems and phenomenons.

The results disclose that the didactic regulation is a typical gesture of the physics teacher even though all the teachers are not committed with the same intensity whatever the frame, it is the individual who learns and for this reason he implements intellectual regulations. Any educational action in this context must stimulate, the self development, the self-learning; the auto regulation of a subject by changing the environment, by going in interaction with this environment.

One can note that Dotou acts the same way from one sitting to the next. He little guides the and often intervenes when the learners are working. In this context, we note a scattering of didactic regulation objects

The study of Dotou's case contributes to a better knowledge of didactic regulation practice and its factors. This example of Dotou helps to reveal the peculiarities and the kings of genericness as well.
Concerning the descriptive and understanding investigations, two options can be rated.

- The immersion in some cases by conducting some complete study cases.
- The search of comparison between cases as regards the contextual or individual variables.

VIII. Summary

The current research work focuses on the implementation of didactic regulation practices in physics in the framework of the competences based approach. The aim is to describe to what extent and how competences and skills are developed on the part of the learners through Dotou's regulation practices. In fact, Dotou is a physics teacher in many public and private secondary schools. The method crosses some data derived from observations and interviews. This analysis is carried out thanks to the didactic action theory. It discloses not only the teacher's will to carry out this paradigm but it also points out the difficulties the teacher overcomes, being greatly responsible for the knowledge progress. A discussion about the factors of the didactic action (institutional subjugation, critical practical study, personal relationships) has been profitable to extend this study

case by a more global reflection concerning the implementation of this new approach. Results reveal that Dotou deeply commits himself in the investigation in accordance with the contexts. The results are interpreted and debated with a link with those contexts and taking into account Dotou's professional peculiarity.

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