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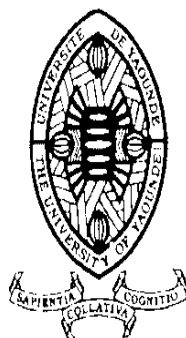**POST GRADUATE SCHOOL FOR THE SOCIAL AND EDUCATIONAL SCIENCES**
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DOCTORAL UNIT OF RESEARCH AND TRAINING IN SCIENCES OF EDUCATION AND EDUCATIONAL ENGINEERING
DEPARTMENT OF DIDACTIC OF DISCIPLINES

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UNITE DE RECHERCHE ET DE FORMAMATION DOCTORALES SCIENCES DE L'EDUCATION ET DE L'INGENIERIE EDUCATIVE
DÉPARTEMENT DE DIDACTIQUE DES DISCIPLINES

TEACHING STRATEGY ON THE PROBLEMATISATION OF KNOWLEDGE AND THE DEVELOPMENT OF SKILLS OF STUDENTS IN FORM FOUR OF GOVERNMENT HIGH SCHOOL NGOA-EKELLE: A CASE STUDY OF A LESSON ON FISHING

A Dissertation presented in requirement for the award of a Master's Degree in Sciences of Education

Option**: Didactics of Geography**

Speciality**: Research**

Presented by

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Bachelor's Degree in Geography
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July 2023

ENDORSEMENT

l here endorse that this work has been done by NJUMBE RICHARD, a student at the Faculty of Sciences of Education, Department of Didactics of Disciplines in the University of Yaounde 1 in partial fulfilment of the requirements for the award of a Master's Degree in Sciences of Education.

l find it fit for presentation before a competent jury.

Supervisor...

Signature..

Date...

DECLARATION

I NJUMBE RICHARD, hereby declare that this work entitled "Teaching strategy on the problematisation of knowledge and the development of skills of students in form four of Government High School Ngoa-ekelle: a case study of a lesson on fishing" is original report of my research, has been written by me and has not been submitted for any previous degree. The experimental work is almost entirely my work; the collaborative contributions have been indicated clearly and acknowledged by their complete references.

SUMMARY

DEDICATION

To my darling wife, LADJINOU POUMENI épouse NJUMBE Virginie

ACKNOWLEDGEMENTS

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LIST OF ABREVIATIONS

CBA	:	Competence Based Approach
COREM	:	Center for Observation and Research on the Teaching of Mathematics
ESD	:	Education for Sustainable Development
GHSNE	:	Government High School Ngoa – Ekelle
GHS	:	Government High School
GSS	:	Government Secondary School
ICT	:	Information and Communication Technologies
IOF	:	International Organization of Francophonie
MINESEC	:	Ministry of Secondary Education
NIYS (INJS)	:	National Institute of Youths and Sports
SDGE	:	Strategic Document for Growth and Employment
SPE	:	Sports and Physical Education
SPSS	:	Statistical Package For Social Sciences
TDS	:	Theory of Didactic Situations
UNESCO	:	United Nations Educational Scientific and Cultural Organization

ABSTRACT

This research aimed to evaluate the contribution of problematisation of Geographical knowledge on the development of the skills of students in form four. The main issue of teaching methods highlights student's participation and reification which is to consider learning as a negotiation. Indeed, the formulation of problem situations in the teaching of Geography allows students to acquire knowledge of Geography and skills according to a socio constructivist conception where the learner is the main actor in his learning process. In practice, this approach takes the form of a series of steps; trigger, the formulation of problem situations, the resolution of situations by carrying out complex tasks, synthesis and institutionalization. The research adopted an experimental approach with an experimental plan of a control group and experimental group which makes a total of 118 students targeting form four classes. The checking of the hypothesis is based on an internal validation paradigm from the comparison of the pretest and post-test scores in the experimental group and the control group. The main results obtained from a test of school knowledge, tests anchoring in the new Geography teaching programmes shows that, the approach of problematisation of knowledge favours the development of geographical skills among students in form four. In fact, the student test $T=9.056$ with a probability of $0.000<0.005$; Anova test $f=86.44$ with a probability of $0.000<0.005$. This result shows that, students develop Geographic skills better when they are immersed in problem situations, allowing them to carry out complex tasks. Thus, the implementation of this approach requires the initial and continuing training of teachers in the integration of the approach by problematisation of knowledge in their teaching practices.

Key words: Problematisation, knowledge, skills, development, problem situation.

RESUME

Cette recherche avait pour objectif d'évaluer l'apport de la démarche de problématisation des savoirs géographique sur le développement des compétences des élèves en classe de quatrième. Le principal enjeu des méthodes d'enseignement mettant en exergue la participation des élèves et la réification est de considérer l'apprentissage en tant que négociation. En effet, la formulation des situations problème dans l'enseignement de la géographie permet aux élèves d'acquérir de construire le savoir géographie et des compétences selon une conception socioconstructiviste où l'apprenant est le principal acteur de son apprentissage. Dans la pratique cette démarche se matérialise par une série d'étapes à savoir l'élément déclencheur, la formalisation des situations problèmes, la résolution des situations par la réalisation des taches complexe, la synthèse et l'institutionnalisation. La recherche a adopté une démarche expérimentale avec un plan d'expérience groupe témoin – groupe expérimental et ayant pour cible les élèves des classes de quatrième qui font un total de 118 élèves. La vérification d'hypothèse repose sur un paradigme de validation interne à partir de la comparison des scores au prétest et au post-test dans le groupe expérimental et le groupe temoin. Les principaux résultats obtenus à partir d'un test des épreuves de connaissances scolaires avec ancrage dans les nouveaux programmes d'enseignement de la géographie montrent que la démarche de problématisation des savoir favorise le développement des compétences géographiques chez les élèves de la classe de quatrième. En effet le Test de student : T = 9,056 avec une probabilité de 0.000 < 0.005 ; Test d'Anova f = 86,44 avec une probabilité de 0.000 < 0.005. Ces résultats montrent que les élèves développent mieux les compétences géographiques lorsqu'ils sont immergés dans des situations problèmes leur permettant de réaliser des tâches complexes. Ainsi, la mise en place de cette démarche nécessite la formation initiale et continue des enseignants à l'intégration de la démarche par problématisation des savoirs dans leurs pratiques pédagogiques.

Mots clés : Problématisation, savoirs, géographie, développement, compétences, situation problèmes

GENERAL INTRODUCTION

In most countries in the world, Geography faces difficulties that impact the didactic contents taught in school, the teaching methods and the didactic tools used in the classrooms. Amongst all these difficulties, the issue of Geography teaching methods is most important. Indeed, for years, Geography in Cameroon Schools has been taught theoretically with a predominance of lecture methods. These problems have led to the introduction of active methods in the teaching of Geography, the most recent of which is the skill-based approach. This new pedagogical approach is in force since 2014.Since then, it is this approach that guides teachers in their lessons. It provides skills that can be used directly in the world of employment. Thus, the introduction of the competency based approach (CBA) in the Cameroonian educational system and particularly in the teaching of Geography has led to a rewriting of the programs in the observation sub-cycle. (MINSEC, 2014) It is in this light that the DSCE of which education is at the centre of its primary objectives has called on educational institutions for professional training, based on modernized and considerably reinforced teaching strategies in order to be able to provide outgoing learners of basic and secondary education cycles a solid package of knowledge focused on mastering the skills required on the labour market and preparing beneficiaries for job creation (DSCE, 2009). UNESCO specifies to this effect that education, more especially secondary education, is recognized as being a crucial moment in the life of an individual since it is at this phase of his or her life that a youth develops skills and abilities to make adult life successful. For this reason, secondary education has an essential role to play in building young people's knowledge and developing of their full potentials. UNESCO emphasises that: "Secondary education has among other missions, that of bringing to the student appropriate knowledge and to develop skills which will make him/her capable of learning all through his life. It accompanies the young person in his training and in the choice of the different possibilities of studies and employments in order to promote their social integration and civic participation" (2003). The development of these skills in Geography requires the implementation of numerous didactic approaches amongst which the problematisation of knowledge is the most essential. This approach allows students to develop geographic skills by solving geographic problems meaningful to them. This is the reason why we decided to carry out a research on the theme "Teaching strategies on the problematisation of knowledge and the development of skills of students in form four of Government High School Ngoa -Ekelle: Case Study of a Lesson on Fishing".

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Our work consists to clarify the issues and perspectives of teaching strategies in the competency-based approach on the teaching of Geography in form four. Thus, in order to carry out our research, it is important to ask a central question that will guide and drive our study. We will attempt to answer the following question throughout our research: What is the relationship between teaching strategies and the development of skills of form 4 students in Geography in the secondary school? Thus, this study, which aims at showing the relationship between teaching strategies and the development of skills on form 4 Geography students in secondary school, would like to investigate : (i) the relationship between role-playing and the development of the skills of form four Geography students in secondary school, (ii) how practical work supports the development of the skills of form four Geography students in secondary school, (iii) the relationship between exercises in small groups and the development of skills of form 4 Geography students in secondary schools.

Initially, we hypothesized that there is a relationship between teaching strategies and skill development in form 4 Geography students in secondary school. In other words, conducting the lesson on fishing based on teaching strategies would promote the development of the skills of form four students in Geography. We have broken down the main hypothesis into three specific hypotheses (i) to show that there is a relationship between role-playing and skill development for form four Geography students in secondary school, (ii) to show that teaching a lesson on fishing from the practical work promotes the development of skills of form four students in Geography in secondary school, (iii) to show that there is a relationship between exercises in small groups and the development of skills of form four Geography students in secondary schools. To this end, however, in accordance with the drafting outline of the Faculty of Science of Education (FSE), this work is structured in five chapters:

➢The first chapter deals with the problem of the study which describes the context and the justification of the study, the research questions, interest and objectives of the study, and concludes with the delimitation of the study;

➢The second chapter focuses on the theoretical and conceptual framework of the study; the conceptual framework, the review of literature, formulation of the hypotheses, definition of the variables and ends with the presentation of a synoptic table;

➢The third chapter, dedicated to the methodology, not only specifies the spatial framework of the study, but presents the study population, the sample and sampling method, the tools and techniques for data collection.

➢The fourth chapter deals with the presentation and analysis of the results and the verification of the hypotheses;

➢The fifth and the last chapter is devoted to the interpretation of the results, demonstrates its theoretical and professional implications. We also present the difficulties encountered and we finally suggest possible solutions.

Conclusion

The general introduction was to introduce the contents of our dissertation, announcing our topic, the reason of the choice of topic, the central question that will guide our study, what we are going to investigate, specific hypotheses and finally the structure of our work in five chapters. We will then proceed to our first chapter in which we are going to investigate the subject of our work and how it is going to be frame scientifically. We focused on the context and problem of the study and define it in space and time.

CHAPTER 1:

PROBLEM OF THE STUDY

The problematisation of knowledge is a teaching strategy that is at the centre of the major research issues in didactics of Geography. Indeed, it allows students to become fully involved in learning, developing in them a sense of responsibility and research. Moreover, this strategy promotes the development of skills from the resolution of problem situations that are meaningful to the students. This research focuses on teaching strategies on the problematisation of knowledge and the development of geographic skills in the framework of the teaching of fishing to form four students. This chapter gives an overview of this research. It is a question for us presenting the problem of our research and some aspects which allow defining and understanding it well. Thus, we present in this chapter the context and justification of our study, the questions of the research, the research objectives, the research interests as well as the delimitation of the study.

1.1. CONTEXT AND JUSTIFICATION OF THE STUDY

The general background/context makes it possible to situate the subject in a very specific context. The justification makes it possible to highlight the scientific significance of our research topic. Hence, the background of the study, the justification of the choice of subject, the position and formulation of the problem are the different steps of this part.

1.1.1. Background of the study

Teaching Geography is about using different knowledge and techniques in order to transmit as much geographical knowledge as possible to learners. We can say that this remains insufficient because this vision of teaching makes no reference to the learner or to the role he or she must play in the quest for knowledge (Mérenne-Schoumaker, 1986). Under this logic, the teacher alone holds all the knowledge that he then transmits to the learner. This state of affairs relegates the learner to the rank of simple passive ingestion of everything that is given to him. This narrow perception of things and this inequitable distribution of roles has created a huge gap between life in school and life outside of school. The learner who has become accustomed to being passive throughout his training course will find it difficult to react effectively and actively to the situations and problems of everyday life.

Education must prepare students to learn in order to focus on fundamental acquisitions based on basic knowledge, know-how and interpersonal skills. Among these fundamental acquisitions, there is the ability to think about space or the ability to take into account spatial dimensions of a problem, at different scales and at different levels (Lacoste, 1986). The originality of Geography is in fact, to include any question or any problem to be elucidated in the territories concerned. The Geography course in secondary school must give these Geographical notions to all, which requires the acquisition of knowledge (the major mechanisms of the functioning of territories) and know-how (i.e. tools, methods, techniques, approaches to dealing with problems, in particular knowing how to read and/or create maps).

The aim of this Geographical education is first of all to prepare for action, not the exceptional action but the action in everyday life. Such as to move, travel and understand information from mass media on the one hand, and on the other hand, be a responsible citizen, concerned about his environment. Thus, we believe that understanding the facts in their Geographical dimension allows us to act more wisely and effectively (Fegepro, 1986). Its goal is still to be formed by Geography, because its approaches and acquisitions in Geography can often be used by transfer in other fields of knowledge and action. For example, knowing how to collect information, knowing how to relate phenomena, knowing how to imagine a solution, knowing how to measure an impact (Fegepro, 1976).

The purpose of the teaching of Geography involves a multitude of reflections on its effectiveness and on the role that it can, and must play to prepare the students to face the social reality and to insert in the working life. These reflections also focus on the learner and the role he must play in the quest for knowledge. The learner has a teaching/learning logic thanks to these, we have moved from logic of teaching which excludes any form of passive participation on the part of the learner, to the learner becoming at the same time, the starting point and the final destination of all reflection. In this light, many research works have been carried out focusing on the learner, many of which found that, the practical work was the best way to motivate the learner and make him adhere and also actively participate in the quest for knowledge.

In the very recent times, school curriculums were designed according to the principles inherent in objective-based pedagogy which consists in: "breaking down learning into operational objectives to be achieved by the student". (ROGIERS, 2006, p.16). In order to fill the gaps of the approach by skills (CBA) which makes it possible to implement logic of skills to be acquired

and invested by learners. This makes it possible to integrate a project-based pedagogy, which must in turn advocate an active know-how. Indeed, the revision of curriculum in the education system had become primordial due to a combination of internal (spatial framework of study, pedagogy used) and external factors (curriculum derived from inspectors). According to MINESEC, these constitute the "educational orientation" enshrined in the law of orientation of education, and the need for socio-professional insertion require the adoption of a pedagogical paradigm for the development of study programmes" MINESEC (2014)."Once devoted to the acquisition of knowledge that was often decontextualized, the teaching of Geography has been replaced throughout the world by practical teaching that equips learners to deal with the complex and diverse situations of real life.

In some countries however, the development process has been to move from content- or goal-oriented pedagogy to competence development. Several countries in the world have had to reform their educational systems to make learners autonomous and operational in the field. What is needed now is an integrated school that is concerned with sustainable development and that takes into account local cultures and knowledge, instead of a school that is cut off from society. Therefore, the reinforcement of strategies in the teaching of Geography has become a necessity for the professionalization of teaching in primary, secondary, high schools and colleges in Cameroon.

This is precisely why, over the last ten years, the educational world has seen the advent of an active approach based on the acquisition of skills by the learner. This is called the Competence Based Approach (CBA) and is used in several countries around the world. It is in this perspective that Cameroon has introduced it as a pedagogical approach, as recommended by international organisations such as IOF. This approach is centred on the child's learning, with an understanding of life situations. Consequently, classes from form one to upper sixth in Cameroon have a syllabus based on the CBA model, and the Geography course is not left out of the picture (MINSEC, 2014).

1.1.2. Justification of the choice of subject

Several reasons led us to choose this research topic. The first is situated in the effervescence of themes linked to active and practical methods in the teaching of Geography. Indeed, the choice of this subject was not fortuitous. What induced us in the first place is to note the force with which active methods, (CBA) and practical methods have intruded into various educational

systems and particularly in the teaching of Geography. It is not a trend but a subject of research in Geography which requires special attention. It should be noted that, the implementation of the CBA in the Cameroonian educational system and particularly in the teaching of Geography had for design the reinforcement of active methods which implies a shift from theoretical teaching to practical teaching. Geography taught in schools has moved from an encyclopaedic discipline to a discipline where the requirement of practical activities must be rigorous.

The second justification is based on the fact that Geography is a discipline which occupies a significant place in the lives of people in general and schools in particular, given that no one can do without Geography.To this effect, the improvement of teaching methods and the addition of certain tools in the teaching and learning process have transformed the world into a global village in simple terms. The choice of this topic is motivated by the fact that the teaching strategies outlined in the curriculum are often neglected or even ignored by some Geography teachers in Cameroon. With this in mind, we chose to conduct research on this topic in order to clarify the challenges of teaching strategies in the development of learners' skills in Geography.

1.2. POSITION AND STATEMENT OF THE PROBLEM

Secondary education in Cameroon faced many challenges at the beginning of the 21st Century. Within the context of the Growth and Employment Strategy Paper (GESP) which places education at the centre of its key objectives, this document was designed to promote the realization of a double-digit economic growth rate in Cameroon established over 10 years (2010-2020). In a context marked by a significant increase in primary school enrolment, the aim was to offer quality training to as many young Cameroonians as possible and prepare them, through teaching/learning, to fit into the world and to face an increasingly demanding   job market. For this to be achieved, first cycle secondary education admits young people from primary school aged between 10 and 14. Its general objectives are to equip them not only with the intellectual, civil and moral capacities, but also with the skills and fundamental knowledge enabling them either to continue their studies at the second cycle or to enter the labour market after a professional training to develop skills in young learners. This problem is specifically related to the development of skills in the teaching of fishing-related educational content.

1.2.1. The observations

In the teaching of Geography, the pedagogical strategies play an important role in the grasp and understanding of both the natural and human geographical phenomenon. Geography is a science

of the land and space. It aims to understand and explain the logics of space. Equally, it focuses on the interactions between natural and human phenomenon. As a result, the Geographer is a man of the field who observes analyses and interprets phenomena in space, based on observation recorded clues (Mérenne-Schoumaker,1993). It is in this light that the official programme which derives from the Ministerial Decree N°25/D/53/ MINEDUC/ESG/IGP/ SSHGEC of 11 June 1991 stipulates that the teaching of Geography is based on the following pedagogical methods: Field survey, practical work, tutorials, document analysis, group work, brainstorming, project based, outdoors activities etc. These pedagogical methods allow the teacher to construct a series of pedagogical strategies that should contribute to the development of skills. Trambley-Wragg (2018) highlights a variety of pedagogical strategies, ranging from lecture, pedagogy, workshops, and debates, role-playing and problem-solving. A teaching strategy therefore allows the teacher to apply pedagogical methods and techniques to achieve the teaching objectives and to develop Geographical knowledge and skills in students.

Teaching strategies have been and still are relevant topic in pedagogical research. Indeed, workshops (TP), exercises in small groups and field investigations are essential teaching tools and are the best frameworks for learning the investigative approach, in order to get students to experiment, research and to be more motivated (MINSEC, 2014).

In Cameroon, the official guidelines, textbooks, as well as the curriculum designers clearly state the importance of pedagogical strategies (Practical work, role playing and exercises in small groups) in the teaching of Geography. The state of Geography teaching in secondary schools in Cameroon is that of a school that is having difficulty getting rid of traditional methods, methods that are essentially based on memorization and scholarism. Indeed, the pedagogical approach to learning this discipline in the Cameroonian context is rather traditional and based on memorization despite the efforts made to improve the educational system and all the official documents encouraging a revolution in the pedagogical approach.

The existence of ministerial decrees that require the introduction of secondary and high school students to more active practical studies for the enhancement of learners' intellectual capacity, it is noted that they are not always taken into consideration by teachers in their teaching practices, nothing is actually done. Nevertheless, this implemented didactic logic is still a "nightmare" for Geography teachers, both unacknowledged and sometimes considered as a playful practice or a hindrance to completing the very extensive syllabuses.

Nonetheless, Decree N°, 419/14/IGE of 9 December 2014 defining the curriculum for form four and five of General Secondary Education, provide for a certain number of skills to be developed by learners at the end of the first cycle. In the human sciences (history-Geography and citizenship education), the aim is to acquire cultural references to better position oneself in time and space, in a democratic system and to become a responsible citizen. History, (to acquire a common culture, to become aware of our heritage and present world challenges). Geography, (developing curiosity and knowledge of the world; acquiring references to enable them to progress wisely) and finally Citizenship Education, (acquiring essential knowledge of rights and responsibilities in order to assert their citizenship).

Furthermore, today, the dissemination of geographical knowledge under the pressure of theoretical concerns deserves a reassessment that gives equal credibility to the passive teaching of Geography. That which will alternate between theorisation of what has been learned and active teaching based on practical learning through fieldwork. This leads us to question the teaching practices of this discipline in secondary school in general and in the first cycle of secondary school education in particular, since the latter is an important learning phase. Realizing the difficulties encountered by teachers and learners during the exercises, we therefore chose the theme: "what teaching/learning strategies to be adopted to strengthen the development of skills among students?"

1.2.2. Statement of the problem

According to Hertig (2016), the teaching and learning of Geography should be based on a socio-constructivist approach that focuses on solving problems arising from reel life situations, which are meaningful to learners. The introduction of CBA into Geography teaching has reinforced the idea, that, the development of geographical skills requires beforehand the formularion of problem situations that learners have to solve during a lesson. The problem this study poses is the low skill development of learners towards the end of the cycle. Indeed, the teaching of didactic contents related to fishing allows the development of practical and useful geographical skills for the students' socio-professional integration in Geography. Specifically, it is about the sustainable exploitation of fish and the protection of maritime environments. However, the use of traditional teaching methods based on lecturing, and the almost total absence of adequate didactic tools for the teaching of fishing-related content, limits the development of fishing-related skills in Geography. Knowledge about fishing is essentially limited to factual knowledge at the expense of the know-how and skills needed to solve problems in the learners' immediate

environment. To overcome this problem, this research focuses on the integration of teaching strategies based on the problematisation of knowledge for a sustainable development of skills related to the didactic content on fishing.

1.2.3. Research Questions

This involves addressing the general question, followed by the specific questions.

1.2.3.1. General research question

The general question of this research is "What is the contribution of teaching strategy based on the problematisation of knowledge on the development of geographical skills to students in form 4?

1.2.3.2. Specific research questions

The general research question of this study is divided into three (03) specific questions:

❖ What is the impact of considering initial representations in the teaching of fishing on the development of geographical skills to students in form 4?

❖ What is the impact of problem formulation and investigation in the teaching of fishing on the development of geographical skills to students in form 4?

❖ What is the importance of the resolution of problems in the teaching of fishing on the development of geographical skills to students in form 4?

1.2.4. Research objectives

We differentiate between general and specific objectives.

1.2.4.1. General objective

The general objective of the present research is, to show the relationship between teaching strategy and the development of geographical skills to students in form 4.

1.2.4.2. Specific objectives

These generally respond to specific questions. They include:

❖ To show the impact of considering the initial representations related to fishing on the development of geographical skills to students in form 4.

❖ To highlight the impact of the formulation and investigation of fishing-related problem on the development of geographical skills to students in form 4.

❖ To demonstrate the contribution of the resolution of problem by the student on the development of geographical skills to students in form 4.

1.2.5. Interest of the research

The significance of our research touches on several levels: academic, scientific, social and didactic.

1.2.5.1. Academic interest

The realization of this research is justified by its inclusion in the teaching and training programme whose validation is essential to obtain the Master II Degree in Didactics of Disciplines. In view of the scientific output, the writing of a dissertation is fundamental in the assessment of the learning and mastery of research skills and their implementation through the writing of a dissertation.

1.2.5.2. Scientific interest

The relevance of this work is scientific in the sense that the study is carried out on the basis of a methodological approach recognised by the scientific community of our institution of higher education. Indeed, our approach consists in formulating hypothesis that will be verified from field surveys in order to better show the influence of pedagogical devices in the development of skills in form 4 students in Geography.

1.2.5.3. Educational interest

The defence of this dissertation will show the value of teaching strategies in the development of Geography skills for form four students in the educational community, thus the need to teach with didactic materials on the syllabus, to make use of teaching methods. It also contributes to the improvement of students' skills in Geography.

1.2.5.4. Didactic interest

On the didactic level, this research is presented as a tool that will allow the consideration of pedagogical devices in the building of geographical skills of form 4 secondary school students. It will allow an optimum and didactic use of the full potential of pedagogical devices which is still under-used by teachers and learners. Thus, the results of this research are related to the teaching/learning process of Geography in Cameroon; hence, the improvement of this process cannot be achieved without the improvement of teacher training skills. This study will add value

to classroom practice in Geography as it will enable teachers to review their methods in order to contribute to the building of learners' Geographical knowledge.

1.2.5.5. Social interest

In most societies in the South in general and in Cameroon in particular, the educational system faces several problems, including the development of learners' skills after the end of secondary education. Indeed, Geography lessons do not always allow the development of geographical skills and knowledge in learners. Consequently, geographical knowledge cannot be used to solve the practical problems of the society.

In this way, the inclusion of strategies in the teaching of Geography will enable them to make use of geographical knowledge in resolving societal problems such as environmental control, as well as all other geographical phenomenon in their environment. This dissertation will enable the improvement of student's geographical skills through good pedagogical practice from teachers.

1.2.6. Delimitation of the study

Our study will be delimited on several levels: thematic, temporal, spatial and theoretical.

1.2.6.1. Thematic delimitation

Our study was carried out within the framework of didactics of disciplines in general and of didactics of Geography in particular. Our work addresses the main issues concerning didactic strategies and the development of Geography skills in form 4 students. Our aim is to show the relationship between didactic strategies and the development of students' skills in Geography. To achieve this, we do not study the didactic strategies as a whole, but just some aspects of it. This is due to the fact that, they are many and can be subject to superior research projects. These include role-playing, exercises in small groupS and finally the field survey (PW). The aim is to demonstrate step by step the influence of each teaching strategy on the development of Geography skills in form 4 students.

1.2.6.2. Physical delimitation

Our work was carried out in the Yaounde III sub Division in the Mfoundi Division. This division, which is located in the Centre Region, has as its capital Yaounde, Cameroon's political capital. It was founded by Presidential Decree N° 74/193 of 11 March 1974 on the reorganisation of the old Mefou division. According to the last population census of 2005, it

has approximately 209,171 inhabitants. Presidential Decree N° 87-1365 of 24 September 1987 on the creation of the Yaounde urban council creates and delimits four district municipalities in Mfoundi Division. This presidential decree will be completed by another, namely decree N° 93/321 of 25 November 1993, which increases the number of municipalities from 4 (four) to 7 (seven), in the Mfoundi Division.

It creates and delimits the four districts of the Mfoundi Division. According to Decree N° 87/1365 of 24 September 1987, the district of Yaounde III (Fig 1) has Efoulan as its headquarters. The Yaounde III municipality shares its boundaries to the North with the municipalities of Yaounde I, II and V; to the South with the Mefou and Akono Divisions; to the East with the Yaounde IV municipality; to the West with the Yaounde VII municipality. This district has several secondary schools, which include Lycée Général Leclerc, Lycée de Biyem-Assi, Lycée de Ngoa-Ekellé, Lycée Bilingue d'Application, Lycée Technique Industriel, etc. Given the impracticality of working with all of these schools, we chose one of these schools to conduct our research. It is the Government High School Ngoa-Ekellé, located in the north-eastern district in the heart of the Ngoa-Ekellé neighbourhood. The calm environment is a major asset for those involved in the teaching/learning process in these institutions.
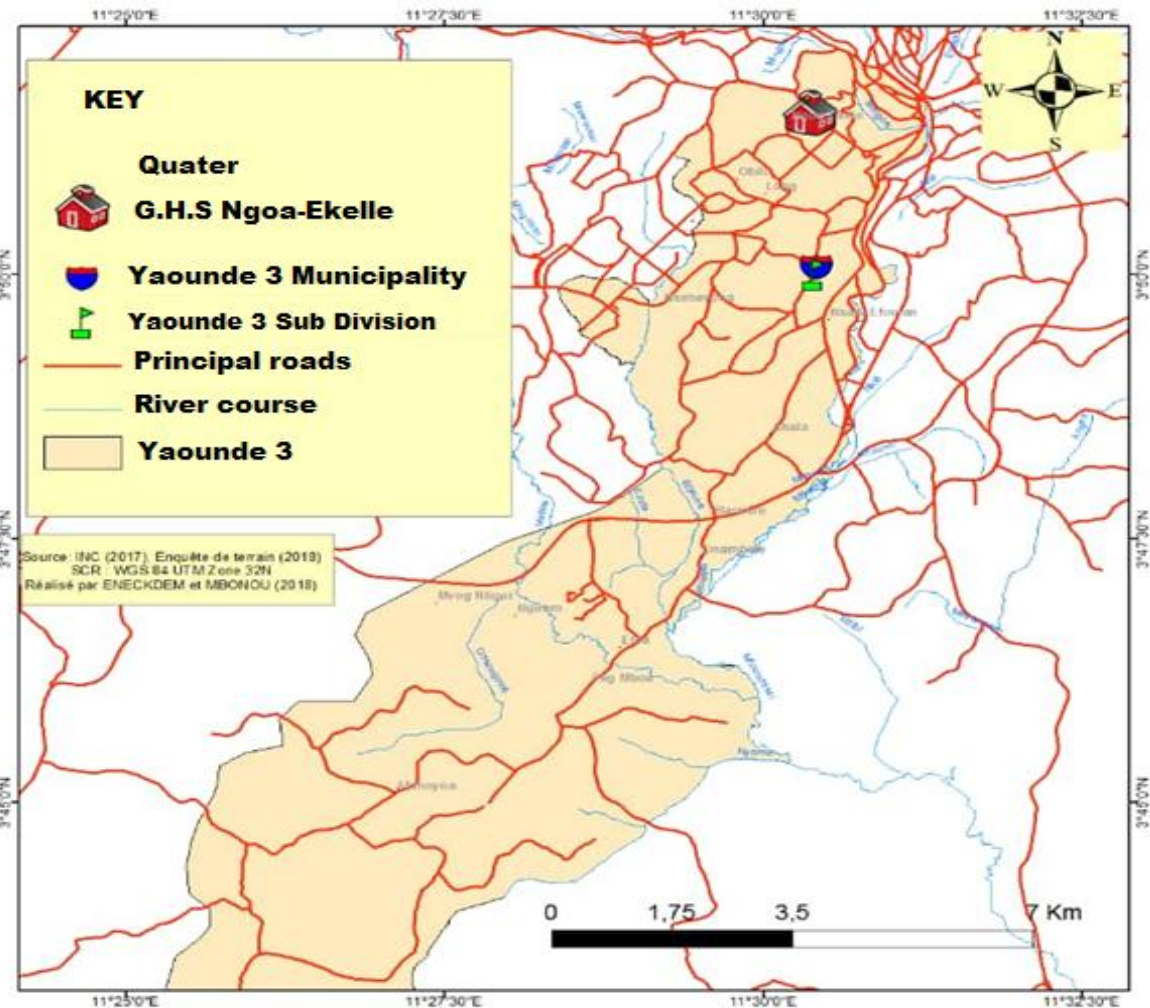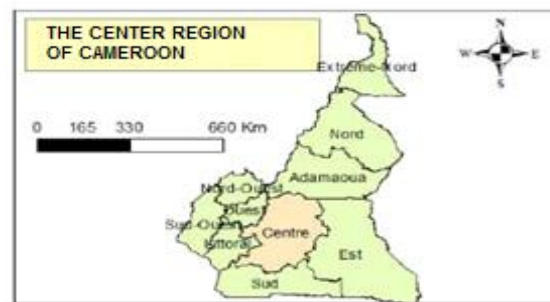
Source:*INC(2017)*

Figure 1: Location of the study area

1.2.6.3. Temporal delimitation

Our research covers one academic year: 2021-2022. But the information we have been working with is for the school year 2022, more precisely for the second and fourth sequences examination. This is because the pupils in the targeted schools in general and those in form 4 in particular had to write history in the first and third sequences.

1.2.6.4. Theoretical delimitation

Educational sciences draw their theoretical foundations from psychology, sociology, philosophy and cognitive sciences, among others. This variety of theoretical fields is the basis for different approaches to teaching and learning. It can sometimes be confusing in that some authors can be found within more than one school of thought (Kozanitis, 2005). Today, teaching and learning methods are grouped into four movements by theorists: the behaviourist movement, the cognitive movement, the constructivist movement and the socio-constructivist movement. We focused on Yves Lenoir educational intervention and Guy Rousseau's theory of didactic situations to further explain our topic.

CONCLUSION

Our aim was to set the basis for the context and the problem of our study, which is related to the evaluation of the contribution of teaching strategies based on the problematisation of knowledge on the development of skills related to fishing among form 4 students. We set out to highlight the different parts of the background/context of the study, the justification of the choice of topic, the research questions, the research objectives, the interest and the delimitation of the study. These parameters made it possible to define the problem of this study on the one hand, and to define it in space and time, on the other hand in order to facilitate the understanding of the concepts studied and, above all, to make the investigations more effective, trustworthy and reliable. For a better understanding of the terminologies used in our work chapter 2 will hence forth analyse the theoretical, conceptual and normative aspects of our topic.

CHAPTER 2:

CONCEPTUAL AND THEORETICAL FRAMEWORK AND REVIEW OF LITERATURE

This research focuses on teaching and learning through problem solving and developing skills among students. In order to better understand the problem posed the construction of a theoretical framework addressing the concepts and theory of the study is important. This is why we want to highlight the key concepts of our topic "Teaching strategy on the problematisation of knowledge and development of the skills of learners of form 4 at Government High School Ngoa-Ekelle: the Case of the Lesson on Fishing". This chapter will be structured around the following points: the definition of concepts, the review of literature, explanatory theories, the operationalization of variables and the formulation of hypothesis.

2.1. CONCEPTUAL FRAMEWORK OF THE STUDY

In this part, we will provide definitions to the major concepts of our study. Indeed, our work is based on a number of fundamental concepts whose recurrence throughout the writing reflects their importance. We have to name the most recurrent ones and define them in order to facilitate their comprehension and consequently the understanding of this research work. In this study the main concepts involved are geographical knowledge, problematisation of knowledge and development of skills.

2.1.1. The problems/problematisation

Generally, problematic and problematisation are two complementary concepts derived from the same word, problem. In this section, we will provide conceptual explanations of these two concepts in order to better understand our topic.

- **Problematics**

Problematics is a concept generally addressed in the context of research. It denotes a set of questions and hypothesis that form a dynamic, open and stimulating system the entirety of which is made coherent by explanation of an organize structure questions. Varcher, as cited by Ansart (1999), problematic evokes conceptualisation, hypothesis, the construction of the object and the objectives pursued in the process of investigation. The term problematic suggests procedures that tend to make the object a problem whose answers are not acquired and whose

relationships remain to be discovered. ". Baeth (1993) defines problematic as a concept consisting of a set of elements, namely:

- A constructed object transformed into a problem which Ansart does not qualify as an organising question, but as a set of unearned response and relationships to be discovered;

- a conceptualization to show how the object is located (in which context of knowledge is considered valid);

- **Problematisation**

Problematisation is a concept arising from Fabre and Musquer's work (2009) which refers to an investigative approach that links problem to learning: «It situates learning in a context of a process that brings together data and conditions to allow the exploration of possibilities that move towards solving a problem. »It is a starting point for the construction of knowledge based on the construction and reconstruction of problems by the learner which needs to be studied and work in the classroom" (Fabre and Musquer, 2009). Between the problem posed to the student and the problem solved, there is a whole process which challenges teachers and researcher and which consists a construction and reconstruction of the problem which is part of the problematisation.

In addition, Fabre and Orange (1997) show that this approach "transformed a perceived problem into a constructed problem, or more generally into an articulated set of constructed problems. It is a cognitive operation, consisting of posing a problem and makes coherent and clear relations between the actors and the actants: "Problematisation indeed requires the deployment and polarization of a cognitive space" Fabre, 2009, p.69). This cognitive space, Fabre suggests representing it by a diamond/lozenge see figure2.
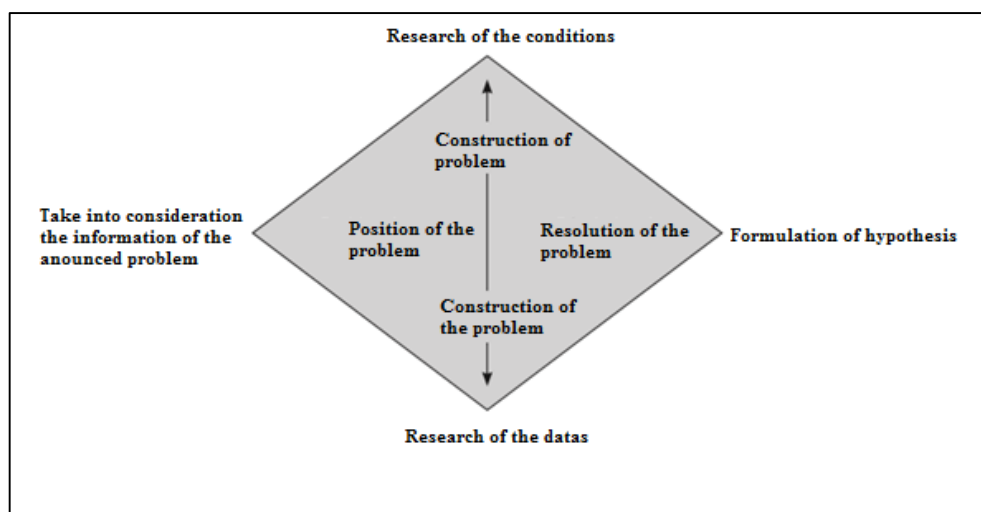
Figure 2 : Problematisation diagram according to Fabre (2009)

Figure2 shows the problemitasation diagram according to Fabre. Here, two points can be drawn from Fabre (2009) problematisation in Didactics of Geography.

- ✓ The first is a horizontal axis: problem resolution. However, the answers are not acquired and the relations remain to be discovered.

- ✓ The second is a vertical axis which distinguishes data and conditions (Fabre, 2011, p. 70). It is therefore a question of searching for information which seems related to the problem posed on one hand and assessing its relevance by taking into account the conditions of the problem on the other hand.

2.1.2. Problematisation approach to geographical knowledge

Problems concerning the conception of school knowledge are at the centre of research in didactics of Geography. To better understand them, it is necessary to know the definition of geographical knowledge. In the socio-constructivist concept, Geographical knowledge is considered as a complex and systematic whole, and in this context, the Geographical knowledge conveyed by the school is not reduced to declaratory knowledge. It is essential to consider them as a system (Fig. 3).
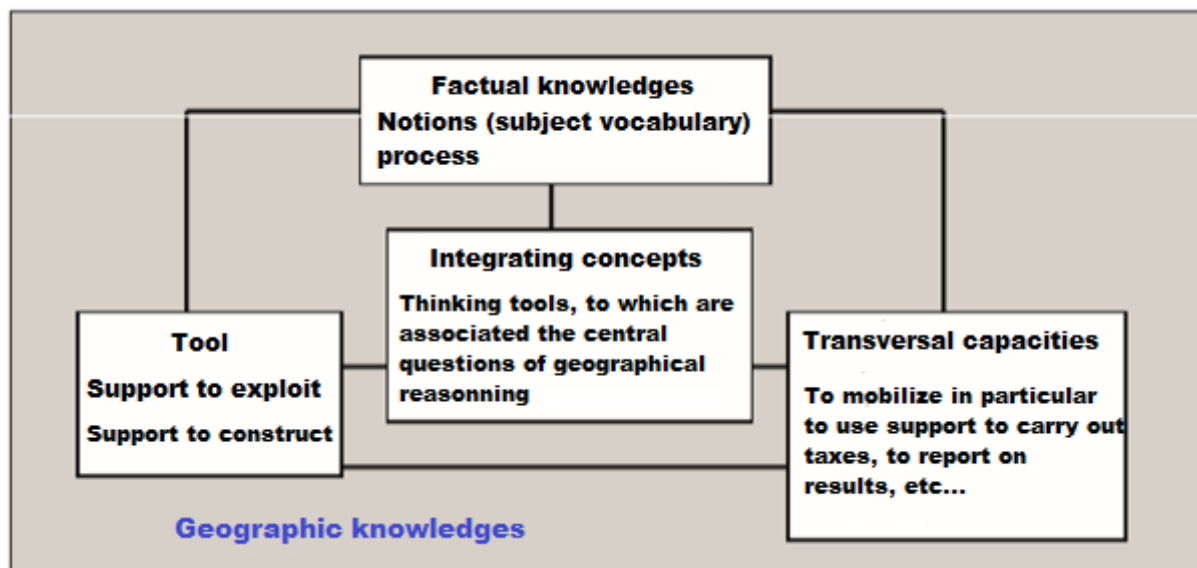
Figure 3: Conception of Geographical knowledge according to Varcher (1998, p. 22).

Figure 3 shows that, in this conception, Geographical knowledge dynamically combines elements of 'factual' knowledge (concepts, understanding of processes), mastery of the tools of the subject, whether specific or not (maps, images, statistical data, etc.) and transversal capacities, which, as their name indicates, are not disciplinary/subject-specific (e.g. comparing, classifying, analysing, synthesising, etc.). Notions, tools, and cross-cutting skills are articulated by integrating concepts, which are functional tools of thought specific to the discipline.

The problematisation approach to Geographical knowledge thus stems from the questions raised by the triggering element; the networking of Geographical knowledge by means of integrating concepts is ensured; finally, the sequence ends in a summary phase where knowledge institutionalisation and conceptualisation take place. It involves three main stages according to Hetier (2012).

- From trigger to problematisation

The triggering element stimulates the student's initial representations of the subject to be studied to the surface. It also prompts students to question themselves and allows themselves to state the questions they are asking about this or that aspects of the topic revealed by the trigger. The choice of the triggering element requires a work of anticipation which can be tricky. This element will allow a collective elaboration of the problem by the students based on their ability to build a problem (formulate questions in a clear way, avoiding redundancy, and limiting oneself to those aspects which are really related to the subject or the problem to be

studied). The first step involves sorting and reorganizing more or less complex questions that the students ask themselves when reacting to the trigger.

- Structuring the sequence into problem or learning units

Once a trigger has been chosen, the teacher who knows his students is able to anticipate the problems that may be defined, which also allows him to plan the structure of the teaching-learning sequence. The central problem constitutes the core of the sequence, and the partial questions which results from it (we can call them "sub-problem") play the same role on the scale of the different learning units. Each of the questions is organized around one of the sub-questions resulting from the main question if the teacher uses the proposed approach.

Organising a teaching-learning session into problem modules is thus based on the principle of devolution of problems in the classroom: if students are to solve problems it is important that these problems be assimilated, reflected upon and discussed by the students. "It is by entering into the problem that the learning can take shape, that the questions and issues will be shared" (Varcher, 2006, p. 7).

- Summary, institutionalisation and conceptualisation

The implementation of problem units within a teaching and learning sequence responds to logic of meaning and the desire to make students mastery of the Geography skills.

Any sequence of teaching-learning in Geography should thus include one or more instances of institutionalising knowledge. Institutionalisation is not limited to a simple enumeration of notions used or learned, but must also relate to procedural knowledge (mastery of tools) and the transversal capacities implemented, and above all, the tools of thoughts requested.

2.1.3. Skill development

For a better understanding of the concepts of skill development, it is necessary to define the notions of skill and development.

2.1.3.1. Skill

The term skill is polygenic and can take on different meanings depending on the different disciplines. Thus, the meaning given by linguists, psychologists and working science specialists to this concept are very different from that of educational sciences. Before taking reference to the different definitions put forward by the authors, it is important for us to clarify the notion

of skill according to the different specialists mentioned above. Linguists, for example, look at skill as the totality of a speaker's linguistic knowledge. It allows us to understand and generate an infinite number of sentences. They oppose skill to performance. To them, performance is the effective use of language. This is a social entity since it is the effective use of the language in a communicative setting.

(De Terssac, 1996) defines skill as everything that is involved in the action and allows us to account for the way the action is organised. Furthermore, an individual's skills are based necessarily on his or her ability, which the authors consider to be a prerequisite for action. Skills are then ways in which individuals manage their cognitive and social resources in a given situation. In this perspective there is no predictability of skill. It is as much dependent on the individual's potential on the situation and its context. They see skills as the result of a blend of performance/skill and not as different from qualifications. This is so because for a long time they have adopted the concept of qualification instead of skill.

Nonetheless, specialists in educational sciences dissociate themselves from the definitions proposed by other disciplines (linguists, psychologists, etc.). They define skill as a set of resources an individual use in a situation in order to carry out an action. This definition takes into account differences from previous views. In educational science, the notion of skill no longer refers solely to intellectual resources, but also to a series of other resources of varying origins; in this sense, the "natural" character concerns only a part of the resources used by skills. The skill is therefore part of a finalised and contextualised action. The term skill refers to what enables each person to perform a complex task correctly (Rogiers, 2006, p. 7). Not to be confused with performance, because to be performing is to compete with others and crush them. In other words, an individual is successful when he is best. Yet competence is not a threat to others, but rather can be the strength of a group and many others if they work together. Roegiers (2000, p. 65) defines competence as "the ability of an individual to mobilise an integrated set of resources in an internalised manner to resolve a range of problems.

On the other hand, Romainville *et al*. (1998, pp. 21-27) state that "competition is a complex know-how based on the mobilisation and effective combination of a variety of internal and external resources within a group of situations. » The notion of group of situations is crucial here in the sense that it represents an important parameter in the development of skills, that is, it is through regular confrontation with so-called similar situations that the learner acquires his

knowledge and develops his skills. Masciotra and Medzo (2009) see skill as a competent action that is understandable in and through situational action.

The Larousse (2017) defines skill as the ability of an authority to perform certain tasks. This first definition likens the concept of competence to a qualification. An authority will commit an act, an action, perform a task, because it has the required qualifications. By this second definition from the same source, this is also the ability of a court to examine and judge a case. This definition seems to be in line with the previous one, addressing this concept in the sense of qualification. A court will hear and judge a case because it is qualified to do so. Moreover, it is the capacity recognised in this or that field, due to the knowledge acquired, that gives the right to judge it. This definition is not so different from the previous definitions; if an individual has an advanced knowledge in a field, he or she is recognised as an expert, able to make judgements on matters related to that field.

All definitions seem to refer to skills as capacities to perform. This is a first idea, but not directly related to the school. Perhaps it is worthwhile to have the opinion of some experts in the field. Instead, Montmollin (1984, p. 122) adopts a cognitive approach when he defines skill as a "stable body of knowledge and know-how, standard behaviours, standard procedures and types of reasoning that can be implemented without new learning ". The author's reference to knowledge, and types of reasoning, seems to put more emphasis on the cognitive dimension of the concept of competence. In other words, an individual with a certain skill, a stable body of knowledge, a certain way of behaving, and a certain way of thinking.

Le Boterf (1995) argues that skill refers to: "The mobilisation or activation of several types of knowledge, in a given situation and context". The definition allows him to identify several types of skills: theoretical skills (knowing how to understand, knowing how to interpret), procedural skills (knowing how to proceed), procedural know-how (knowing how to proceed, knowing how to operate), experimental skills (knowing how to do it, knowing how to conduct oneself), social skills (knowing how to behave, knowing how to conduct oneself), and cognitive skills (knowing how to process information, knowing how to reason, naming what one is doing, knowing how to learn). Rey, Carette, Defrance and Kahn (2012, p. 33) define competence as "the ability to complete a task effectively, that is, an action with a goal."

For Meirieu (1989), competence is identified knowledge, involving one or more aptitudes in a given conceptual or disciplinary field. More accurately, skill can be defined as the ability to associate a precisely identified class of problems with a specific problem-solving program. As

Perrenoud (1999) puts it, a skill enables one to deal with a complex situation, to devise an appropriate response without relying on a pre-programmed list of responses. The French dictionary LAROUSSE defines competence as «the recognized ability in this or that subject due to the knowledge acquired and giving the right to judge it. To psychologists, skill is understood as: The term "skills" refers to an individual's ability to execute a function or task. Competence is defined by the European Parliament (2006) as: "A mixture of knowledge, skills (ability) and attributes relevant to a given situation. The Key Skills are those that are fundamental for personal fulfilment, social inclusion, active citizenship and employment".

Tardif (2006) defines a skill as a complex knowledge-action that is based on the mobilisation and effective combination of a variety of internal and external resources within a group of situations. According to DE Ketele (1998), skills are an integrated set of knowledge and abilities that enable the resolution of problem situations and the completion of projects. Rufin (2004) defines skill as a set of conceptualised know-how whose mastery requires the combined use of formal knowledge (scientific and technical knowledge), practical and behavioural knowledge and mental operations. Hadji defines skill as the mobilisation and combination of resources, in relation with the complexity and specificity of the given situation. The Ministry of Secondary Education in Cameroon defines competence as the ability to act effectively in a given situation; the ability to mobilise relevant resources to solve problems in a given situation.

From these proposals, a few strong points can be highlighted. A skill consists in the mobilisation of a set of diversified internal (knowledge, abilities, skills) and external (documents, tools, people) resources relating to the complexity of the task and to the global and cross-cutting/transversal nature of the skill. Skills are practiced in contextualised but diversified situations which imply a process of adaptation (and not reproduction of mechanisms) and transfer from one context to another. Competence consists in the mobilisation of a set of resources (knowledge, know-how and skills) that an individual will use properly in a specific situation to solve problems in a given situation.

Finally, although there are differences in the authors' definition of competence, there are nevertheless common features that constitute a kind of agreement on the concept (Carette, 2007; Delorme, 2008). Skills are therefore an ability to act in a situation that requires a set of resources (knowledge, know-how, interpersonal skills) integrated by the individual. These resources, once acquired and assimilated, need to be applied in situations. Bibana (2017)

2.1.3.2. Skill development

Kankyono (2009) states that skill development refers to learning activities that can enhance the current and future performance of learners, workers, by increasing their ability to perform tasks required of them, through the improvement of their knowledge, skills and abilities. Nevertheless, the document ("Competency Development", 2018) states that "Competency development management is based on activities that ensure the development, maintenance or enhancement of employees' knowledge, skills, attitudes and behaviours that are vital for the performance of their work and meet the requirements and objectives of the organisation. "This means that the development of skills begins with acquiring a set of knowledge, skills and behaviours, which are then refined, so that the individual with the skill can perform the task with ease.

Lastly, the document ("Understanding Skills Development Actions", 2015) states: " Actions aimed at developing skills are those where the expertise developed in training is not exclusively usable in an employee's job. Skills development actions aim at upgrading the employee in terms of hierarchical position or job. They focus on learning that is applicable to other work environments. «This definition is derived from the previous ones and is similar to them in that respect. Nevertheless, certain uniqueness emerges in that the individual will improve his or her skills not only to better perform the task, but also to be eligible for hierarchical promotion. Possible promotion because the individual now has skills that are beyond the current position. Skill development will eventually be about increasing the learner's ability to solve complex situations in diverse contexts.

2.1.4. Learner

The Larousse online defines a learner as someone who is undergoing some form of education. Gaté (2009, p.77) defines the term as any individual involved in a learning situation, whether it is aimed at acquiring knowledge, know-how or life skills, irrespective of the learner's age. Finally, according to "learner, n.d. "The learner is an individual in a learning situation, a social actor, an active participant, who constructs his/her own knowledge (cf. innatism, Chomsky, cognitivism). The learner will be regarded here as an individual who engages in an activity aimed at acquiring knowledge and skills.

2.1.5. Teaching content: fishing

According to law n°94/01 of 20 January 1994, fishing refers to the capture or collection of fish resources or any other activity that may lead to the capture or collection of these resources, including the management and exploitation of aquatic environments, with a view towards protecting animal species by fully controlling the potential of their biological cycle. Fishing is the practice of capturing aquatic animals (fish, but also seafood) in their natural habitat (oceans, seas, rivers, ponds, lakes, puddles). It is practiced by fishermen as a hobby or profession (Wikipedia, 2007). The dictionary (2007) describes a fisherman as someone who makes fishing a profession, or who enjoys and usually fishes. In this study, fishing will be considered as the art of catching water resources (rivers and streams) and will be considered a fisherman if he catches water resources for profit or not.

2.2. EXPLANATORY THEORIES OF THE TOPIC

Theories of didactic situations and of educational interventions are those that shed light on our study among all the theories related to education.

2.2.1. The theory of didactic situations by Guy Brousseau (1986)

The theory of didactic situations (TDS) is characterized by the circumstances in which it emerged. Guy Brousseau developed it in the 1980s; it does not fit exactly into Piagetian theory, but the characteristics of the exhibits are imprinted in this theory. Guy Brousseau created COREM (Centre for Observation and Research on the Teaching of Mathematics) associated with the Michelet School (Talence) where, with his wife Nadine and volunteer teachers; they design, develop and study situations for the teaching of mathematics in primary schools. TDS proposes a model of knowledge, teaching situations, the role of the teacher and students in the classroom.

❖ The teacher's job/The role of a teacher in class

The role of the teacher is not only to expose knowledge and problems whose solution uses this knowledge, otherwise the student might be unable to resolve any problem for which he has not seen the solution before. The teacher also suggests situations that require students asking questions and trying to answer them. The aim of these situations is to build school knowledge. The teacher then contextualises the knowledge. When a student rebuilds knowledge to solve the problem, geographical knowledge is de-personalised. Knowledge thus obtained in the

classroom will be decontextualized and de-personalised again to constitute the knowledge to be memorised. This knowledge will either find its place within the previous knowledge or will lead to its reconsideration or restructuring.

❖ Students' work/ The role of a student in class

Students should not only learn definitions, techniques, problems and the methods used to solve them. They must also be able to tackle a complex new problem, ask questions, discuss the quality of the questions, generate answers (approaches, formalisations, evidence), and discuss their relevance. This is why Brousseau will contrast the Socratic maieutic with the Piagetian psychogenetic process; because for him, the maieutic in Socrates is a teaching method that allows the teacher, through a set of good questions, to make the learner generate the targeted knowledge. He feels the responsibility for learning lies with the teacher. While Piaget believes that the child learns by adapting to an environment. Knowledge, built by the student as a result of adjustment, is manifested in new responses that are proof of learning. Here the responsibility for learning rests with the student. In conclusion, Brousseau suggests a teaching concept in which the teacher, through carefully chosen problems, stimulates in the student learning adjustments that generate the desired learning.

2.2.1.1. Didactic situation

In a learning situation, the teacher has to impart knowledge. Such knowledge is characterised by the set of problems it can solve. Brousseau presumes an existence of at least one problem, amongst the problems that characterise the intended knowledge that suffices to preserve the meaning of that knowledge. It further supposes that any of these problems can be solved by the student. That's the hypothesis of the basic situation.

Together with Guy Brousseau, we consider a situation in which: the teacher creates a problem like this; he or she suggests this problem to his or her students, who adopt it; they solve it and build the knowledge thought; then the information becomes knowledge.

2.2.1.2. Non didactic situation

Students interact with the environment in situations of action, articulation and validation. In such situations, the teacher doesn't intervene to offer knowledge: the students try to solve the problem although they don't have beforehand the necessary knowledge to resolve the problem most efficiently. These situations are not non-didactic because the students are aware that the

teacher has proposed the situations so they can learn. They are nevertheless peculiar because the teacher is not fully responsible for the transfer of knowledge.

2.2.1.3. Didactic Agreement/contract

The didactic contract describes the rights and obligations of students and the teacher regarding the subject and knowledge taught. A set of explicit, but mostly implicit, rules determines what each person is allowed to do or not to do with knowledge. G. Brousseau called the didactic agreement a set of rules that shares and limits the responsibilities of each person, students and teacher, with respect to the knowledge taught. In 1978 and 1980, he suggested this concept in order to justify the failure of primary school pupils *who succeeded in all the subjects taught except mathematics* (elective failure in mathematics): elective failures did not stem from an inability of students to learn, but from didactic contracts specific to this or that mathematical knowledge, which prevents certain students from engaging in a process of learning that knowledge.

During the process of teaching a subject, the rules of communication between students and the teacher concerning the items of learning are established, changed, broken and renewed as they are acquired, develop and the history generated. These rules do not have a single, fixed format, but are the result of continuous negotiation. On one hand, the interactions between teacher and student obey locally fixed rules and on the other hand, these rules are not unchangeable. These negotiations create a sort of game, in which the temporarily fixed rules allow the protagonists, and in particular the student, to decide with a certain degree of security, necessary to ensure the characteristic autonomy of ownership (Brousseau, 1986).

There are a number of paradoxes in this negotiation process. We shall examine only one here: the teacher cannot tell the student what he or she expects the student to do (otherwise the teacher has failed in his or her role as teacher) yet the teacher must ensure that the student provides the expected response (otherwise the teacher has failed in his or her job). Likewise, if the student accepts that the teacher teaches him the results, he does not establish them himself and thus does not learn at all. If, on the contrary, the student refuses any information from the teacher, then he breaks the didactic relationship. G. Brousseau has characterised different negotiation processes to obtain the expected response from the students (that he knows and the student does not know). The topaz effect is one such example: the teacher tries to ensure that the meaning of the response is as meaningful as possible. If it fails, it adds reductive material to the meaning,

to the point of accepting terms that trigger the student's response without the student being able to make any sense.

2.2.2. Yves Lenoir's educational approach (2009)

By educational intervention, we mean the set of actions that are finalised by mandated, motivated and legitimate persons (legitimisation at various levels: political, qualifying, cultural, ideological, etc.), in view of continuing in a specific institutionalised context. In this context, the school institution should consider the socially determined educational objectives, by creating the most suitable conditions for the students to carry out suitable learning processes. The educational approach seeks to bring about significant changes in the areas of teaching or teacher training, and in the context of this concept we will discuss concepts such as: mediation; cognitive mediation and pedagogic-didactic mediation.

2.2.2.1. Mediation

The notion of educational intervention, which explicitly corresponds to the paradigm of complexity, is in dissociable from that of mediation, because it implies a practical and regulatory interactivity between learning subjects, prescribed and prescriptive objects of knowledge (through the curriculum) and a socially mandated actor (the teacher), all set within a timelessly determined social context. However, the central idea behind using the concept of mediation is that the human being is essentially a praxis being, i.e. a social being capable of acting freely, independently, responsibly, critically and creatively, to fulfil himself or herself individually and collectively in the society to which he or she belongs and to engage in thought and deed with the world (natural, human and social) in which he or she lives. Mediation also implies another conception of the subject's relation to knowledge, the learning process is understood as object or objectification relationship. The relationship is established, in a defined context, between a person and an object (or between a set of persons and a set of objects). By the very fact of identifying a section of reality as an object to be examined, it creates a breach between the subject and this identified object, a breach that did not previously exist in the immediate social relationship to reality.

2.2.2.2. Cognitive mediation

Cognitive mediation highlights the subject's experience of reality within the cultural, spacial and temporal context This action involves taking the necessary diversion of an unbiased regulatory system, which itself is the subject of a process of construction. Knowing the subject

doesn't result in a genuine ownership of the object, in its "consumption" (which is tantamount to its destruction), but in a conceptual structure that functions as an identical mental representation of the object for the subject, which is already a human construct from the start. An object always remains an *objectum*, that is, it stands 'in front'.

The objectification process (understood here as a learning process) is inextricably a process of both the subject's constitution, which involves it in a social relationship, and the objectified reality it produces, that it structures and with which it recognises its belonging, from which it guarantees its recognition as a human being. Therefore, any process of cognitive objectification, from the perspective of the real dialectic, is achieved through the interaction between the following three basic components: Firstly, the human subject, the subject which generates knowledge of reality and is converted into the cognitive procedure it carries out; secondly, an object of knowledge which is built, defined and delimited as the desired object of study; thirdly, the cognitive relationship established between the subject and the object through a system of objective regulation (mediation), which is part of both, the subject being the active part of the relationship.

2.2.2.3. Educational mediation

Mediation can also be understood as a set of regulations in a broad sense, in that it acts both as a regulatory modality in the determining an external structure, other than himself, and as an action giving the object meaning, thus restoring its relevance to the subject. This second meaning of mediation is a social role because it shows the impact of the environment on learning and even on the action, and this stems from the extrinsic order. It stems from an external action and is a means (medium) of intervention, this second mediation is based on the objective regulatory system, that is, on the intrinsic mediation of the objectivation process. Nonetheless, this second mediation should not be considered as a mere external intervention, as is often expressed by linking it to negotiations. Moreover, the teacher's desire to know is (must be) conveyed.

Mediation is then pedagogic-didactic, as it basically calls upon both the psycho-pedagogical dimensions (the relationship to/with the students) and the didactic dimensions (the relationship with the knowledge/know-how /know-to be), so as to set the conditions judged most favourable to the student's activation of the process of cognitive mediation. The two mediations therefore interact with each other. The meaning of the subject's cognitive action is built in and through

this interaction. The teacher can then be perceived not as the established authority but as a guide to meaning.
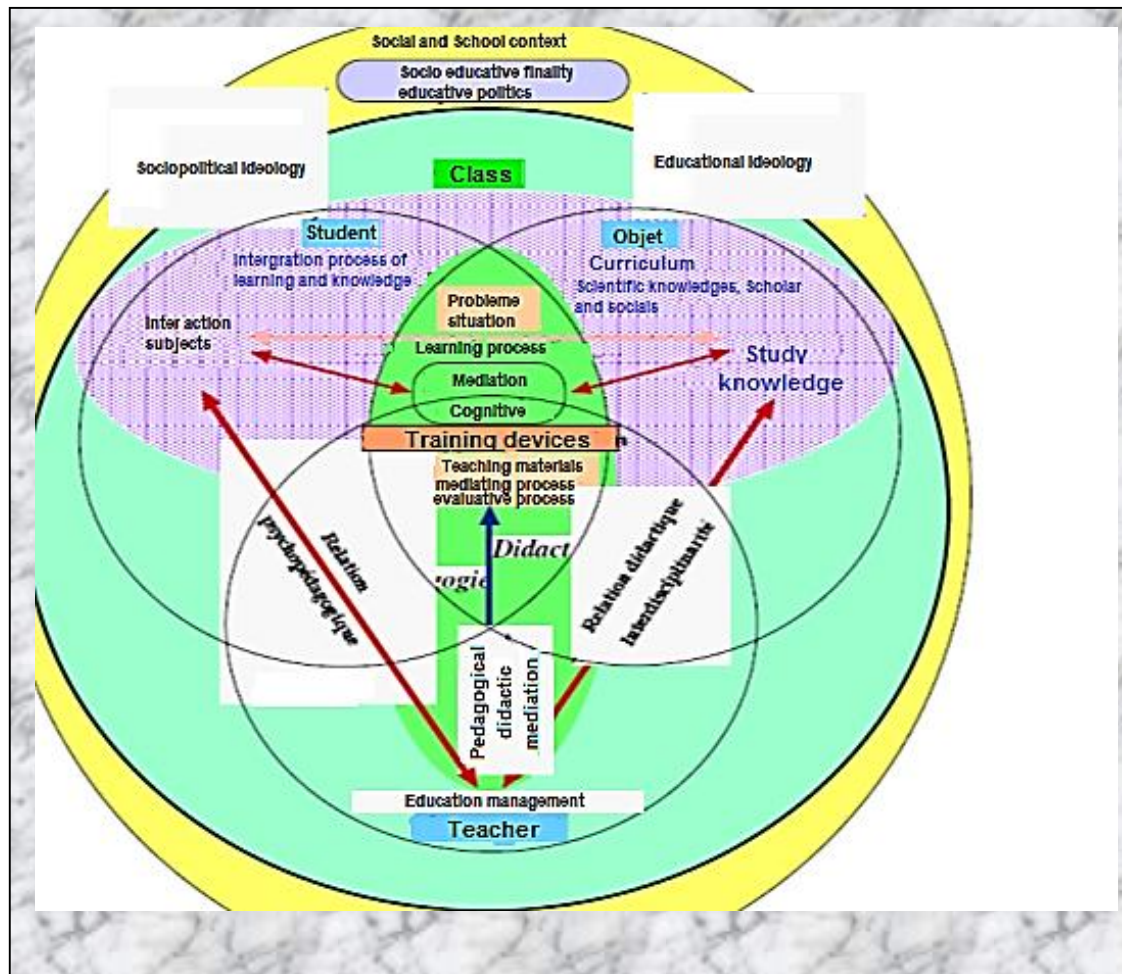
Source: Lenoir Yves 2009

Figure 4: Educational intervention and conceptual framework.

2.3. LITERATURE REVIEW

We read a number of authors in order to gain knowledge of what other researchers have written on this topic and better situate our research in order to find an authentic scientific orientation. Although it is true that we have not found any material that deals in its entirety with the pedagogic schemes and skill development of Form 4 Geography students. However, much work has been carried out on some concepts of our topic.

2.3.1. The Status of Fieldwork/Practical work in the Teaching of Geography in Cameroon

This approach presents the state of affairs on the role of fieldwork (PW) in the teaching of Geography. Through its Commission on Geographical Education of the International Geographical Union, UNESCO (1966) lists in detail the methods of teaching Geography. These

methods include fieldwork (PW). In teaching Geography, all the work a student carries out in the Geography classroom is practical work that involves several skills, namely observation, reflection, drawing maps, sketches and graphs. These practical sessions allow the student to move from theory to practice while developing skills that are essential for social integration.

Pour Chevalier Jean-Pierre (2003): practical activity must occupy an important place in the teaching of Geography insofar as this discipline must allow the student to apprehend practical knowledge. Practical work must therefore be embedded in Geography classroom practice.

This view of practical work in the teaching of Geography is supported by Fegepro (1976), who argues that Geography is a purely practical subject that should provide a practical Geography education. The aim of this Geographical education is first to prepare for action, not exceptional action but action in everyday life: to move around, to travel, to understand mass media information, to be responsible citizens, mindful of their environment. Indeed, we believe that understanding the Geographical dimension of the facts allows us to act wisely and more efficiently (Fegepro, 1986). To sum up, practical work in the teaching of Geography enables the development of approaches and skills that can be used in other areas of knowledge, for example, knowing how to collect information, knowing how to relate things, knowing how to imagine a solution, knowing how to measure an impact (Fegepro, 1976).

According to Mérenne-Schoumaker (1993), work follows a practical methodology that enables learning and gradually makes students independent. This is a practical method involving three stages, namely a stage of understanding and perception of facts, an analysis and study stage, a synthesis and application stage. Practical work therefore has an impact on the life of the student in that it prepares students for action and responsibility, in addition to its pedagogical qualities. The methodology also has scientific merits, as it integrates the scientific approach, particularly throughout the second stage.

Anibal Alexandre (2015) conducted research on ICT in the teaching of Geography in the 2nd cycle; it proposes practical work using ICT tools. According to the author, the practical work sessions on the software are complementary to the course given in the classroom and allow the students to be active in order to truly "do" Geography. This practical work enables the development of Geographical and computer skills.

2.3.2. The state of exercises in small group in the teaching of Geography in Cameroon

Galand (2004) also draws from the work of Thousand, Villa & Nevin, (1996) who found a link between a feeling of competence and group work. "Cooperative learning has also proved to be

a way of structuring teaching so as to strengthen the feeling of competence of all learners, including the weakest ones at the start, and to strive towards equal learning outcomes".

Callebaut (2013) investigated the effects of group work on the feeling of being self-efficient. The author, in an attempt to show the influence of group work on the feeling of self-efficiency, came to the conclusion that group work encourages students' learning, it promotes success. In his opinion, group work enables positive growth in the feeling of self- efficiency, but only in certain circumstances (organised, with a distribution of roles and precise instructions, regular, necessary) and cooperative. This writer, drawing from the work of some authors, has outlined the benefits of group work.

Barlow (1993, 62) has shown that "The value of group work in the building of intelligence is to allow confrontation with other people, the divergence of opinions, called socio-cognitive conflict". Vygotsky shows that in a socio-cognitive conflict there is also a shift in development. He thus developed the concept of proximal zone of development, which is a zone where the student completes tasks with others before he or she can complete them alone. He believes students should feel the need to work with others.

Garnier (2016), in his dissertation entitled "Group work: a pedagogical method for learning", seeks to answer the following question: what influence does group work have on the reinforcement and reinvestment of students' knowledge in more complex situations? He concluded that since group work is still a seldom used teaching method, students are not accustomed to this teaching situation. For this reason, despite the educational benefits it brings, it should be proposed regularly for it to be successful. It is necessary to diversify the types of activities proposed in this context, which implies a continuous reorganisation of groups.

2.3.3. Status of work on the problematisation of Geographical knowledge and the development of skills in the teaching of Geography in Cameroon

Studies on the problematisation of Geographical knowledge in school Geography are of great importance in research on didactics of Geography. Fabre and Musquer (2009) consider that the problematisation of knowledge must rely on points of reference considered to be true (at a given time, in a given context). Problematisation lies at the centre of a tension which links enquiry and uncertainty to momentarily stabilised social and disciplinary standards.

In a general way, Pinchemel (1988) stresses that, if the concept of space is "*in the heart of the Geographical reflection* ", it is however not "*all the Geography* ", it is for him "*one of the keys*

of geographical analysis» (, p.28).In our reflection on the relations between didactic of the Geography and the epistemological renewal of university Geography, we retain the concept of space as a key of the didactic analysis and we propose a whole of epistemological reference marks that is useful for the analysis of the space studied in class and designs of space conveyed or built in class. Raffestin (1987) specifies that for Dardel, Geographical knowledge is the fruit of a practice and that the knowledge of the terrestrial extent has significance only in reference to man:"*Out of this reference to a project or a lived experiment, these concepts of width, height, thickness or heat do not have a direction»* (Dardel, 1952/1990, p.10).Thus in the reflection of the author, a primacy of the practice takes shape on knowledge: "*lived is the practice without which there is no knowledge, not the known one»* (Raffestin, 1987, p.477).Into didactic of the Geography, the concept of geographicity results in considering that the subject (pupils or teacher) raises questions in connection with terrestrial space and operates one or many specialization, before being even put in relation to the instituted school Geography. A stake of the didactic analysis is then to question the relationship between the school Geography and the personal interrogations on the world of the individuals (pupils or teachers), between the school discipline and "*the universal problems which is posed on the human beings and the societies, the spatial conditions of their existence and their operation»* (Thémines, 2004, p.258).

Moreover, Thémines (2004 and 2006a) proposes to locate the designs of Geographical space and the space settings in order of the world between two "terminals": on one side, that of the "spontaneous Geography of the societies" and, the other, that of the "reasoned Geography of the Geographers" (Recut, 1996, p.33).ln the point of view of the development of a "reasoned Geography» at the school.

The "spontaneous Geography" is a practice, an experiment of terrestrial space founded on implicit and not very conscious procedures which make it possible to face the "*daily requirements of recognition, of mobility»* (Thémines, 200ã, p.23).It is "*miserly speech»* (*ibid.*, p.23), except when the situations impose an interpersonal communication, for example to be directed in an unknown city. Let us note that this "Geography" is not disciplinary, with the direction where it does not concern a field of instituted knowledge.

The "reasoned Geography» as for it, is "*an explicit intellectual company, conscious, and published in the form of an analytical writing»* (*ibid.*, p.23).This Geography is generally disciplinary, registered in a field of instituted knowledge, that of the school Geography (of the first and the second degree), Geography of higher education (field of transmission of a

university knowledge) or that of the scientific Geography (field of production of a university knowledge).Thémines (2006) stresses that there exists, between these two terminals, many "mixed forms", for example in the field of the economic decision. These mixed forms undoubtedly characterize largely, the applied Geography and the general public Geography (Knight, 1997).We consider that the Geographical speeches produced by the teachers of the primary school in situation of interaction with the pupils constitute one of these mixed forms.

Hertig (2012) suggests a method of teaching-learning sequence based on problematisation. The author believes that this didactic approach can be summed up in four intangible principles which are all guarantees of teaching and learning Geography in accordance with the school' s objectives: ensure always that the approach in progress is meaningful for the students; put into practice the necessary elements for learning problematisation and problem solving; provide, when necessary and relevant, moments during which the institutionalisation of knowledge and conceptualisation activities occur; rely on the inclusive concepts of Geography. If these principles are respected, then I believe that the conditions are right for Geographical knowledge built or rebuilt by the students to be used in the study of a new field of study, or even in an individual or collective position or action.

Philippot (2012) notes that problematisation in the teaching of Geography in primary schools seems to be taken for granted (p. 21) and remains a challenge for the teacher (p. 30). The previously cited Le Roux (2004) also identifies the frustration and destabilising aspect of this kind of learning. This will thus be an important factor to consider when collecting data in class: can students problematize and, especially, see meaning in it? However, Philippot (2012) also highlights a number of contributions, particularly related to the development of skills: «Problematisation allows the construction of knowledge, the development of intellectual capacities of analysis, connection, argumentation, in the context of reasoning « (p. 23).

At the end of this literature review, we can conclude that most research on didactics of Geography did not dwell on the implementation of didactic mechanisms associated with problematisation. Consequently, our research will focus on the implementation of a didactic mechanism for the teaching of fishing-related contents based on knowledge through the problematisation approach.

2.5. RESEARCH HYPOTHESES

In this study, we will make two types of hypothesis: General and specific hypothesis.

2.5.1. General hypotheses

The hypothesis derived from the research question is as follows: The problematisation of knowledge in Geography enhances the development of geographical skills to students in form4.

2.5.2. Specific Hypothesis

Three specific hypotheses are derived from the general hypothesis.

- ❖ Taking into consideration initial representations in the teaching of fishing facilitates on the development of Geographical skills to students in form 4.
- ❖ The formulation and investigation of problem areas fosters the development of Geographical skills to students in Form 4.
- ❖ Problem solving in fishing lesson promotes the development of Geographical skills to students in form 4.

2.6. DEFINITION OF VARIABLES

Our study has two variables: An independent variable and a dependent variable.

2.6.1. Independent variables

The independent variable goes as follows: «Problematisation of Geographical knowledge".

After the independent variable has been broken down, we identified also the dependent variable which we will also break down.

2.6.2. Dependent variables

The dependent variable in our study is: "development of student's skills"

TABLE 1 : SYNOPTIC TABLE OF THE RESEARCH

Topic: Teaching Strategy on the problematisation of knowledge and the development of skills of students in form four of Government High School, Ngoa-Ekelle Yaounde: Case study of a Lesson on Fishing.

Research questions	Research objectives	Research hypothesis	Study variable	Indicators
General research question What is the contribution of teaching strategy based on the problematisation of knowledge on the development of Geographical skills to students in form 4?	General research objectives To show the relationship between teachings strategies on the development of Geographical skills to students in form 4.	General research hypothesis The problematisation of knowledge in Geography enhances the development of Geographical skills to students in form 4.	Independent variable Problematisation of Geographical knowledge Dependent variable Development of student's skills	Considering initial representations Formulating and investigating problem areas Problem resolution Knowledge Know-how, Life skills
Specific question What is the impact of considering initial representations in the teaching of fishing contribute on the development of Geographical skills to students in form 4?	Specific objective 1 To show the impact of considering the initial representation related to fishing on the development of Geographical skills to students in form 4.	Specific hypothesis 1 Taking into Consideration the initial representations in the teaching of fishing facilitates the development of Geographical skills to students in form 4.	Independent variable Considering initial representation	Never Rarely Usually Always
Specific question 2 What is the impact of problem formulation and investigation in the teaching of fishing on the development of Geographical skills to students in form 4?	Specific objective 2 Highlighting the impact of the formulation and investigation of fishing-related problem on the development of Geographical skills to students in form 4.	Specific hypothesis 2 The formulation and investigation of problem fosters the development of Geographical skills to students in form 4.	Independent variable :Formulating and investigating problem areas	Never Rarely Usually Always
Specific question 3 What is the importance of the resolution of problem in the teaching of fishing on the development of Geographical skills to students in form 4?	Specific objective 3 Demonstrate the contribution of resolution of problem by the students on the development of Geographical skills to students in form 4 .	Specific hypothesis 3 Problem solving in a fishing lesson promotes the development of Geographical skills to students in form 4. ..	Independent variable: Problem Resolution	Never Rarely Usually Always

CONCLUSION

In a nutshell, this chapter sought to present the various explanatory theories of our subject, to define the key concepts of our subject, to conduct a literature review, to formulate the hypothesis and to determine the various variables of our study. The theories used to shed light on the subject are Brousseau's theory of didactic situations and Lenoir's educational intervention. Likewise, pedagogical mechanisms, skills, and Geography appear as key concepts in this study. However, several authors have conducted research on some key concepts in our study. We have not found any documents (articles, books, dissertations, theses, etc.) that covered our topic entirely. The hypothesis of our study is that pedagogical mechanisms promote the development of Geography skills of form 4 students in resolving problem areas. There are two variables; an independent variable (teaching mechanisms) and a dependent variable (development of students' skills).we therefore choose a research methodology that we will describe in the next chapter.

<p style="text-align:center">CHAPTER THREE:</p>

<p style="text-align:center">RESEARCH METHODOLOGY</p>

Our study focuses on the implementation of a teaching strategy based on the problematisation of knowledge in order to promote the development of skills of students in form four. Its main aim is to design and experiment with a didactic mechanism a teaching content related to fishing. In order to achieve this, we adopted a particular methodology based on didactic engineering. In this chapter, we specify the methodology that serves as support for this research. We first of all state the type of research. This is then followed by the presentation and justification of the choice of site, the research population, sampling, the approach to the choices and description of data collection tools. In the end, we represent the study through a synthetic diagram the two moments of collection and analysis of data.

3.1. RESEARCH DESIGN AND METHODOLOGICAL APPROACH

3.1.1. Type of research

This research is an experimental and collaborative type. It aims to design and experiment with a didactic device based on the development of skills. In general, the said research is based on a methodology of didactic engineering. This methodology consists in experimenting and validating a didactic mechanism starting from the analyses a priori and posteriori as well as the comparison of the mean between the control group and the experimental group during the pre-test and post-test.

Artigue states that didactic design involves four phases: preliminary analysis design and prior analysis of didactic situations, experimentation, and after analysis and evaluation.

- Preliminary analysis. This is the first phase of didactic engineering. All didactic engineering work begins with preliminary analysis, which includes an epistemological analysis of the content being taught, an analysis of current instruction and its effects, and an analysis of the student's perceptions and difficulties.

- The second phase is to analyse a number of variables with respect to the problem under study. These are control variables that relate to the overall organisation of the engineering and control variables that concern the local organisation of engineering (organisation of a session and a lesson). This stage allows us to identify the influence of the choices made on the control of student's behaviour and their meaning.

- Experimentation, post analysis and validation. After designing the mechanism, it is time to test it in a classroom situation. This is followed by post analysis that considers data collected during the experimentation (observation of teaching sessions and also student's output in and out of the classroom). To this data should be added other findings from questionnaires and interviews which allow the didactic system to be validated (internal validation of the didactic system).

3.1.2. A mixed methodological approach

In this study, we have adopted two complementary approaches: qualitative and quantitative. This choice is justified by our topic which deals with the teaching methods and development of geographical skills to students in form 4, as well as the hypothesis formulated. Indeed, mixed methodology actually allows a strategic marriage of qualitative and quantitative data in a coherent and harmonious way in order to enrich the results of the search. This approach makes it possible to borrow from various methodologies, qualitative or quantitative, depending on our research objectives. With Mixed approaches, there is a kind of methodological pluralism. In addition, the mixed research methodology facilitates triangulation of research findings. Johnson and Onwuegbuzie (2004) go in the same direction by pointing out that mixed methods often generate superior results than singular methods.

- The quantitative component

It is an approach that analyse quantifiable data. Baron (2007) has already stated that educational research has long been dominated by quantitative methods, measurements, variables and statistical verification of hypothesis. Thus, we conducted an experiment at the Government High School Ngoa-Ekelle with two form four classes. This allowed us to better measure the effect of pedagogical mechanisms on the development of geographical competences to students in form four. In this approach, we have retained the use of questionnaire as part of this study to collect data on the development of skills indices to students.

- The qualitative component

This approach unlike the quantitative analysis of data consists of words and texts and not numbers and measurements. This approach allowed us to analyse the opinions of teachers in Geography in order to determine the necessary tools needed for a better teaching of Geography. Its aim is to enable us understand the relationship that exist between the effective use of didactic materials in the teaching of Geography and the development of learners' skills. To collect qualitative data, we opted on the use of interview survey which enabled us to obtain the opinions on a limited number

of respondents. It also complements the questionnaire survey because the combination of its deferent data will allow us to make a relevant analysis that will lead us to reliable interpretations.

3.2. JUSTIICATION OF THE CHOICE AND PRESENTATION OF THE STUDY AREA

3.2.1. Justification of the choice of the Study Area

The choice of the target institution is explained by the following reasons: It is a large and old institution in the Yaounde III sud-division. We were called to observe and teach in the school which contributed significantly to our findings and above all enabled us to formulate our research problem. We can also mention the simplicity of the management of this institution in receiving us and the warm reception of our supervisors in their classrooms where we experienced and participated in the didactic intervention. From then on, we opted for the form 4 as our case study class because these classes are particularly challenging for us when we observed a teaching session on the topic of "volcanism and associated landforms", a purely simple course with no materials to ease teaching and promote understanding among students.

3.2.2. Presentation of the Study Area

The Government High School Ngoa-Ekelle is the site we chosen to carry out our investigation. It is a General Secondary Education Institution. It is located in the Yaounde III sub-division. It is bordered to the north by the gendarmerie post of Melen, to the west by a road, to the south by the National Institute of Youths and Sports (NIYS), and to the east by the annex campus of the University of Yaounde I. As we can see, the school is shared between two important sites. Site 1, which we refer here as campus 1, is the main building that has successively hosted the Higher Primary School of Yaounde (HPSY) and later on became the Government Secondary School (GSS) Ngoa-Ekellé. This part consists of an administrative block and classrooms, particularly those of form 4 which is the focus of our study. Site 2, which we called Campus 2, already existed. It once housed the library, the accountants, the bursar, the sports and physical education (SPE) and post and after school activities (PASA) coordinator's offices respectively. Finally we have the administrative staff's quarters. However, with the advent of the Government High School (GHS), several classrooms were built to house the form five, lower sixth and upper sixth classes. Administrative offices were also built for a better supervision of students see (Image 1).

Image 1: Aerial view of the area of study
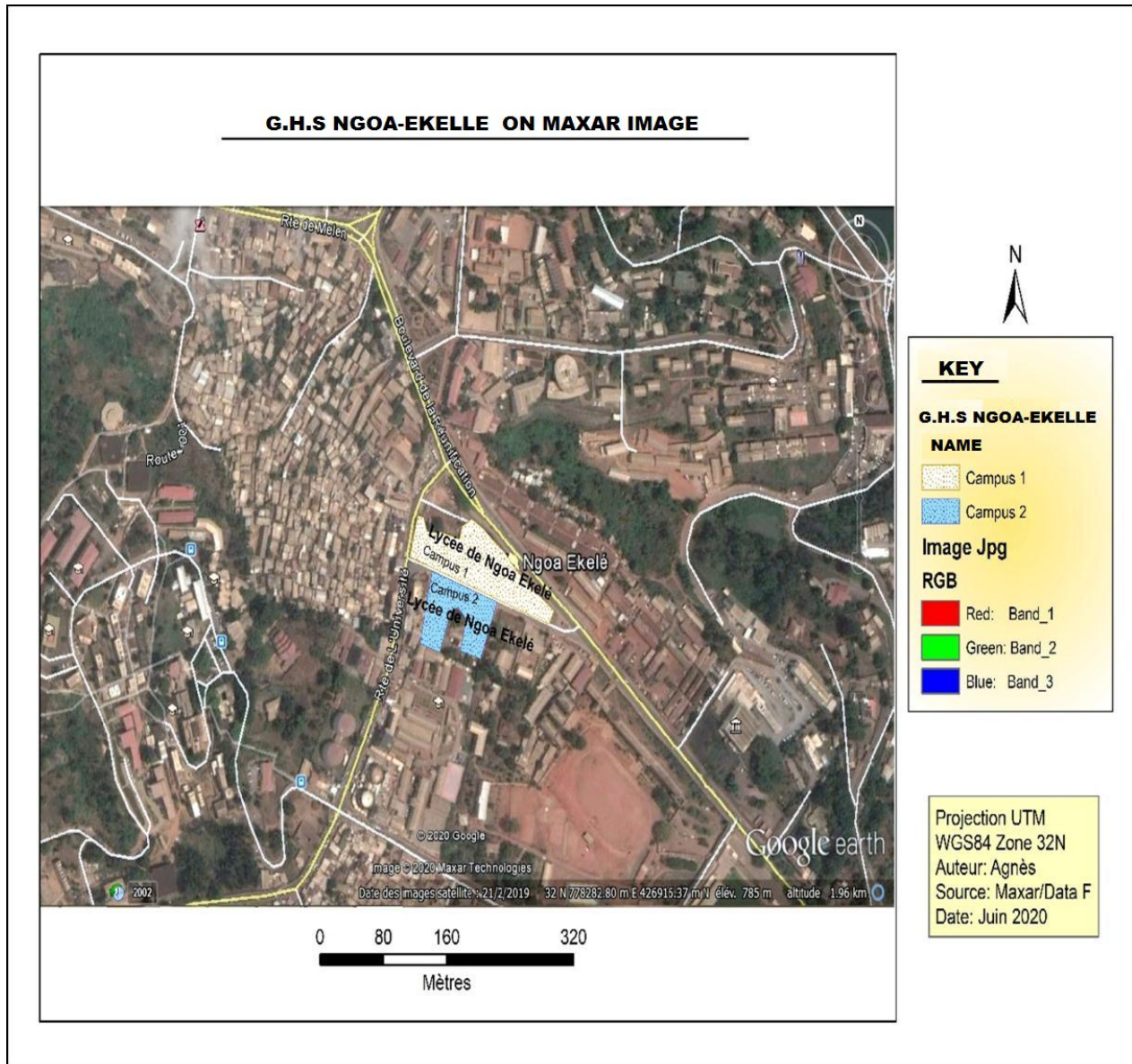
Image1: represents an aerial photograph of Government High School *Ngoa-Ekellé. On the later, we can clearly see its two campuses, campus 1 which dates from the creation of the institution and campus 2 built in the last decade.*

Historically, the buildings housing the Government High School Ngoa-Ekellé today are those of the Higher Primary School Yaounde built in 1939 by the French colonial administration. This school aimed at training young graduates from regional primary schools all over the national territory of Cameroon. Upon completion of their training, the recipients were made available to work in the colonial administration. Several major figures in Cameroon's history have attended this school, notably Amadou Ahidjo and Ernest Ouandié, just to name a few. In 1971, after colonisation, the Higher Primary School was transformed into GSS of Ngoa-Ekellé. In 2010, the GSS Ngoa-Ekellé become a Government High School. In the level of human resource, the Government High

School Ngoa-Ekellé is directed by Mr. Fouda Pascal, who is assisted by an administrative staff of 27 people and a teaching staff of 195 permanent teachers and 15 temporary teachers. The high school has about 4000 students. Image2 shows the site of the government High School Ngoa-Ekelle.

Image 2: Site of the Government High School of Ngoa-Ekelle.
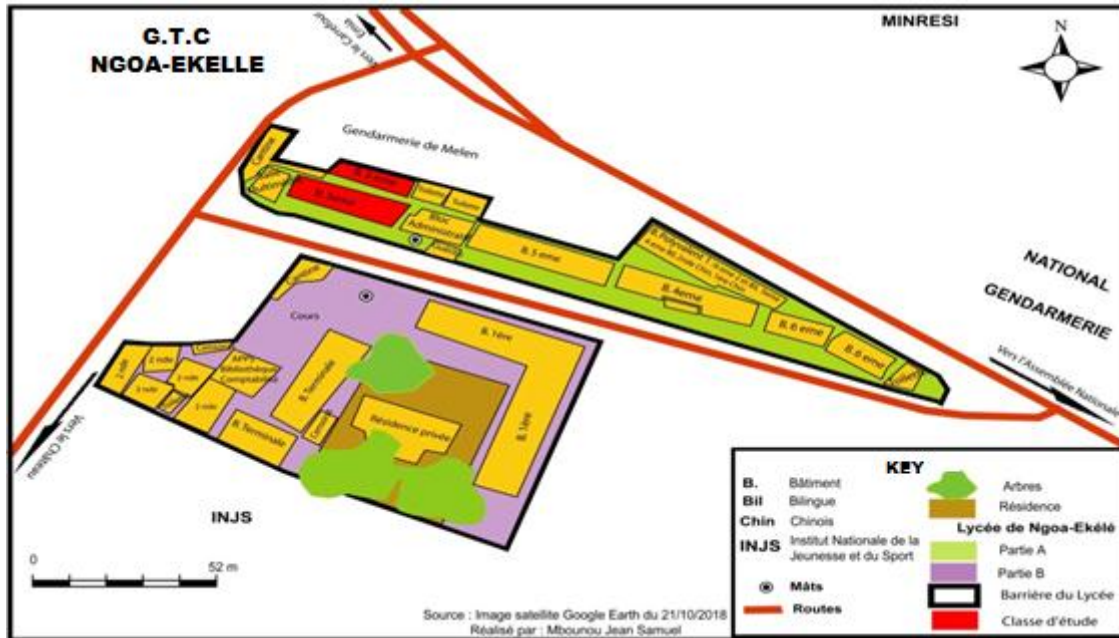
Image 2: describes the institution consisting of two campuses which inhabited classes of the first and second cycles. The first campus is the older while the second campus is recent construction.

Photo 1: The main entrance of the government high school Ngoa Ekelle

This photo shows the main entrance of Government High School Ngoa Ekelle as indicated on the plaque. Through this photo, we already have a glimpse of the provisorate which is just after the gate [entrance reserved for teachers].

Photo 2:   The different campuses of the Government High School Ngoa ekelle

1	2
A partial view of Administrative block	*A partial view of Form four classes*
3	4

A partial view of the library, bursar offices   *A partial view of SPE and PASA offices*

Photo 2 highlights the two campuses of the Government High School Ngoa Ekelle. Photo 1 and 2 represent campus 1 and photos 3 and 4 represent campus 2.

3.2.3. Why Ngoa Ekellé?

ln our study, we choose the Yaounde III sub division, located in Yaounde the political capital of Cameroun. To better situate our subject of study, we limited ourselves to this field of investigation, because of temporal factors, human and financial factors. The choice of Yaounde III sub-division is hardly a matter of chance. Indeed, on the level of the education, the Yaounde III sub-division is the municipality of Yaounde with a greater representation of high schools (table 2).

TABLE 2 : DISTRIBUTION OF SECONDARY SCHOOLS IN YAOUNDE

	Number of institutions
Yaoundé 1	21.62%
Yaoundé 2	8.11%
Yaoundé 3	29.73%
Yaoundé 4	18.92%
Yaoundé 5	5.41%
Yaoundé 6	8.11%
Yaoundé 7	8.11%

Source : School map Cameroon, 2022.

Table 2 shows the distribution of secondary schools and their percentages in the different sub-divisions of Yaounde.Yoaunde 3, our area of study stands the highest number of secondary schools with a percentage of 29.73 followed by Yaounde 4 and Yaounde 1 respectively. The sub-divisions with the least representation of secondary schools are Yaounde 2,5, 6,7 with percentages 8.11, 8.11, 8.11 and 5.41 respectively.

3.3. POPULATION AND SAMPLE

The aim of our research is to show the relationship between teaching strategies and the development of Geographical skills of students in form 4. Our aim is to demonstrate the effect of the role play, fieldwork (PW) and exercises in small groups on the development of Geographical skills to students in form 4. This requires a population from which we will conduct our investigations.

In fact, campus 1 contains all the first cycle classes, most of the administrative body including the principal's office and the staff's room. Campus number 2 host the second cycle classes (see table 3).

TABLE 3: DISTRIBUTION OF STUDY LEVELS ACCORDING TO THE TOTAL NUMBER OF CLASSROOMS.

Study level	The total number of classrooms
Form one(6ème)	6
Form two (5ème)	6
Form three (4ème)	7
Form four (3ème)	8
Form five (2nde)	7
Lower sixth (1ère)	10
Upper sixth (Tle)	8
Total	52

Source: field survey, (2020)

Table 3 shows the distribution of the study levels in relation to the number of classroom available in GHSNE. From the total number of 52 classrooms, lower sixth class is having the highest number of classrooms (10) followed by form 4 and upper sixth (8), then form 3, and 5 (7) and lastly form 1 and 2 (6) respectively.

3.3.1. Population of study

In this case, Tsafak (2004: P.7), defines population as: "a finite or infinite set of predefined elements on which observations are made". In the framework of our study, we can distinguish two types of populations: the target population and the reachable population.

The target population comprises all history and Geography teachers teaching at the Government High School Ngoa-Ekellé during the 2021-2022 academic years. This institution has about 210 teachers and 4000 students according to information given by the administration. The department has 25 teachers with 16 trained Geography teachers who are teaching in the high school from form 1 to Upper sixth. Our accessible population is made up of 04 Geography teachers and 290 learners from the GHS Ngoa Ekelle Form 4 Geography classes. However, only 203 GHS students were involved in the survey.

3.3.2. Samples

Our sample consisted of students and teachers in the form 4 Geography classes of the school. To arrive at our sample, we opted for the cluster sampling technique. Indeed, a careful analysis of the scores from the first sequence enabled us to determine all the classes with the same level. We divided them into small groups afterwards and then randomly selected those to be investigated. The grades of the students in these classes were almost identical (10.00/20 and 9.85/20), with almost the same standard deviation (2.30 and 2.45). At GHSNE, we therefore chose two classes taught by trained Geographers and two taught by historians. In addition, the choice of the sample is motivated by its advantages, namely the reduced cost of research, the reduced time and feasibility of the research. Its function is to provide information which in principle can be generalised to the whole parent population.

We gained a lot by interviewing all the Form 4 classes. However, given the inability to complete this work due to resource and time constraints, we chose a sample based on random sampling. This sample reduced the cost of the survey by reducing the number of questionnaires to be printed; it also saved time during the count of questionnaires. We can now generalise our result to the whole population of our study.

3.3.3. Sampling technique

It is the process that a researcher uses to better conduct his research. We opted for the cluster sampling technique (probabilistic method). This involved dividing the population into heterogeneous clusters and randomly selecting a number (see table 4).

TABLE 4 : PRESENTATION OF STUDY SAMPLE

Schools	Target classes	enrolment	Total	Interviewed teachers
	Form 4 German	58		
Government High School Ngoa-ekelle	Form 4 Spanish	60		
			118	03

Source: Field survey, 2019

Table 4 represents the case study area (GHSNE), the targets classes and their enrolments (form 4 German (58) and form 4 Spanish (60)) respectively, as well as the number of teachers interviewed (3).

3.4. SELECTION PROCESS AND DESCRIPTION OF DATA COLLECTION TOOLS

3.4.1. Approach of selecting data collection tools

There are four survey methods available in the social sciences, namely interview surveys, observation surveys, questionnaire surveys and surveys using existing data. Our aim is to show the relationship between pedagogical mechanisms and the development of Geographical skills to students in Form 4.As such, we opted for the questionnaire survey and the interview survey for data collection in order to benefit the most from their complementarily. This choice is justified by the type of research (mixed) because each data collection instrument corresponds to a type of research.

3.4.2. Description of data collection tools

3.4.2.1. Questionnaire

This tool enabled us to gather quantifiable data. Our questionnaire consists of four main sections: the first section (here the interviewer will introduce him/herself and give the purpose and reasons for their choice of site and classes), the second section is the identification of the interviewees (age, institution, status and series); the third section is based on the pedagogical mechanisms and lastly the section on skills development. The last three sections are a set of questions designed to provide specific information. We therefore opted for close-ended questions with binding answers. The latter has the advantage of facilitating the generation of statistical variables but also enables the assessment of attitude levels. Each item of the questionnaire found its meaning in relation to the specific evaluation, so that at the end, the results obtained and treated confirm or refute the interests of our research. Albarello (2003: p.95) on his part provides the following precautions: "For each question asked, regardless of the format adopted, it is essential to state precisely the exact mode of response expected". These guidelines guided us in the development of our questionnaire.

3.4.2.2. Interview

We used semi-structured interviews to gather teacher's opinions on our topic. Paul N'DA (2002), in his book Methodology from Problem to Discussion of Findings, states that semi-structured interviews are not entirely directed by a large number of specific questions; it is simply a matter of using a relatively open-ended interview guide that allows the researcher to obtain the necessary information. The researcher exercises flexibility to allow the interviewee to express him/herself. It is only necessary to focus the interview on the research objectives.

This tool will complement the information provided by the questionnaires. Our interview guide is structured around three main areas with questions to which the teachers selected for the survey will try to give us their opinion on the subject of research. Consequently, the first theme will deal with pedagogical mechanisms and the following items will be discussed: Didactic resources; the second will address skills and the third and last will be focused on suggestions.

3.4.3. Mode of administration of the data collection tools

3.4.3.1. The distribution of questionnaire

The social sciences have several ways of distributing questionnaires including: mailing, telephone, and internet and in-person administration. Given the disadvantages of the first three modes of distribution, that is, the low response rate, the lack of motivation from interviewees, the lack of appropriate equipment and the environment, we did chose the in-person mode of distribution for our study. It involves distributing the questionnaires in person to interviewees, and waiting for them to answer before collecting them.

This method of administering the questionnaire encourages the interviewee to take the work seriously. Indeed, we chose the questionnaire as a data collection instrument firstly because it is the specific tool for quantitative surveys, it is easy to prepare, easy to distribute and can be easily processed. The questions asked in our questionnaire seek to obtain information related to the objectives of the study in order to verify the hypothesis. Thus, our questionnaire aims at showing the effect of didactic materials on the development of Geographical skills to students in form four.

3.4.5. Observation of teaching practices

In order to better understand the teaching strategies used by teachers during didactic sessions, we considered it necessary to implement the tools linked to the observation of teaching practices. This tool makes it possible to collect data on the formulation of problem situations, the treatment of the problem situations, and the resolution of the problem situation. Thus, three teaching/ learning lessons were observed with three teachers on fishing in Africa. The observation grid covered the following elements:
- The formulation of the problem situation
- Handling the problem situation
- Teaching learning activities
- Educational resources

- Teaching techniques.

3.5. VALIDATION OF RESEARCH TOOLS

Indeed, we need to assess the clarity and precision of the terms, words and questions asked, the format of the question, the order, the efficiency of the layout in order to eliminate any ambiguous questions, to identify omissions and to evaluate the length of our questionnaire. In other words, the aim was to ensure that the participants would be able to answer the questions with ease.

Our pre-investigation took place on the 15 of January 2022 at the Government High School Ngoa-Ekellé. We selected a limited sample (190) of Form 4 students from the same school among whom we distributed the questionnaires for the test. By the end of this exercise, we realised that all of them had answered the questions with ease. Certainly, some of them still asked us questions concerning other questions. These interrogations made us realise that our tool had a problem of reliability. After this stage, we made modifications by addressing the difficulties of the students. After the changes, our data collection tool was resubmitted to the supervisor who validated it. We therefore considered it necessary to repeat these questionnaires for the survey phase itself after consultation with the thesis Supervisor.

3.6. DATA COLLECTION PROCESS

The survey itself consists of a field investigation to gather the necessary information to resolve the topic's problem. This stage requires that we distribute the questionnaires and interview to those concerned. So on the day we arrived in the school for proper data collection, we met the general discipline master. The latter immediately led us to the school Principal's office. We completed some formalities. Firstly, we presented our research certification issued by the University of Yaounde I, more precisely by the Dean of the Faculty of Education (FSE). We then explained the purpose of our presence in his institution and the reasons for choosing it.

After this stage, which lasted about ten minutes, the Principal, after validating our research certificate, handed us over to the general discipline master. With the permission of the principal, the general discipline master usher's us to the classes concerned. We also took five minutes once in the classroom to explain the necessity of the task to be undertaken by the students and the teacher, as well as the reasons for their choice. This was immediately followed by the distribution of the questionnaires to the students. The questionnaires were collected at the end

and when calculating the feedback rate (TR), we realised that the questionnaires distributed to students were all returned.

3.6.1. Type of data collected

In order to answer our research objective, to show the influence of pedagogical mechanisms on the development of geographical skill to students in form four, we collected two types of data. There are secondary and primary source data.

3.6.1.1. Secondary source data (documentary research)

Secondary source data is collected from documentation centres, books, reports, journals, dissertations or thesis and other documents. They complement the primary source data. Secondary source data research therefore involves documentary research, internet research. Our research began once the topic was validated by the thesis supervisor in September 2021. Our topic entitled "Teaching strategy based on the problemitisation of knowledge and the development of Geographical skills to students in Form 4: a study conducted at the Government High School Ngoa-Ekelle Yaounde (Cameroon). This involves running through libraries and some documentation centres for documents related to our research topic. The data collected in these sources enabled us to prepare a literature review of material related to the topic. We visited some of the city's libraries, these include the FSE library of the University of Yaounde I, the FALSH library (Faculty of Arts, Letters and Human Sciences) of the University of Yaounde I and that of the Government Higher Teachers Training College (ENS) of Yaounde.

The most interesting documents in these libraries and documentation centres were Masters Dissertations, thesis, scientific books, and articles from journals, periodicals and also reports from institutions related to our research topic. Finally, this work allowed us to identify the analysis of various authors on the subject to further consolidate our research. In addition, the research continued on the Internet using the Google server which gave us access to scientific documents such as thesis, books, journals, articles, abstracts...

3.6.1.2. Primary source data (fieldwork data)

We collected two types of data, namely qualitative and quantitative data. Quantitative data consists of the students' grades of the (second and fourth sequence), as well as data from the questionnaires. The opinions from different teachers recorded using a Dictaphone is subject to qualitative data.

3.7. METHODS OF DATA ANALYSIS

Presenting the method of analysis entails studying the process, the steps taken by the researcher to grasp the purpose of the study or subject. Professor Madeleine Grawitz argues that the method of analysis can be seen as "an essential intellectual step towards the truth, and proving that truth, if need be". This explains the process of establishing the result obtained. In the field of research, it is impossible, if not illogical to proceed with coherent and logical reasoning without an appropriate or suitable methodological approach. Our research seeks to show the relationship between pedagogical mechanisms and the development of Geographical skills to students in form 4. To attain our objective, we conducted a semi-experimental study. This involves us teaching two different classes: The first considered as the "experimental" group (EG), and the second as the "control" group (CG). In the first classroom (experimental group) we taught using the boards and different strategies for teaching Geography. Those in the control group were taught in the absence of the boards and methods prescribed. Throughout the experiment, we focused on the number of tasks (locating features on the map, making sketches, interpreting documents, the number of correct answers provided by both sides...) completed by the students as well as the number of diagrams drawn.

Note that the Form 4 curriculum is structured in five modules (Cameroon's Geographical environment, Cameroon's population, and economic activities in Cameroon, the fight against poverty and world trade). Four of these modules require the use of certain pedagogical mechanisms. However, we have taught all lessons about Cameroon, but it is the pedagogical sheet on the Southern plateau of Cameroon that is attached. In the end, the students were assessed cumulatively under the same conditions (same test, same time limit). The grades obtained by the various groups presented in Chapter 4 allowed us to verify the hypothesis that pedagogical mechanisms facilitate the development of students' skills.

Thus, we obtained two types of data, namely quantitative data through questionnaires and qualitative data through interviews. This is why we opted for the qualitative method (content analysis) and the quantitative method (statistical analysis), each involving particular techniques and demands.

3.7.1. Qualitative analysis
3.7.1.1. Analysis of observation data

The analysis of the teaching practices of this study made use of a particular tools for analysis.. It was a question of reconstructing the educational scenario of the lessons observed in order to

analyze it from a grid of analysis constructed for the purpose. In effect, the variables of this grid of analysis specifically correspond to items linked to the study in particular :–

- The problem situation is well formulated in the lesson
- The teachers allows the students to deal with the problem situation
- The students question the situation
- The educational resources are adapted to the problem situation
- The teacher uses appropriate teaching techniques.

3.7.2. Quantitative data analysis

The raw data collected in the field was checked first for its completeness. The aim was to ensure that all questionnaires had been submitted and that the interviewees had answered all the questions. Next, we proceeded to code all these data. The encoded data was entered into the computer using "Excel 2016" software. Questions suited for quantitative analysis were processed with SPSS-25.0 Windows. All responses were coded and recorded according to their assigned categories. In summary, these two software programs enabled us to analyse the data cross-referencing as well as the compilation of tables and figures.

To analyse the quantitative data collected after the survey, we used two statistical methods: statistical inferences (frequency, percentage, mean, and standard deviation) and several other analytical tools (analysis of variance, Student's t-test, and t-test) for the statistical processing of the data. We used exploratory and confirmatory analysis. Exploratory statistical analysis aimed at highlighting central tendencies of experimental and control groups.

Thus, it involved calculating the average and the standard deviation. In the confirmatory statistical analysis, we used Student's t-test to measure the difference in performance within each group. This allowed us to assess the progress made in each group during the test. We also used ANOVA (analysis of variance). The analysis of variance (ANOVA) is a statistical test that allows us to show the influence of one or more independent variables on a dependent variable being explained, and their interactions. It ensures the reliability of the experiment when the conditions under which it was conducted are difficult to standardize, with the test correcting for the difference between the two.

CONCLUSION

In conclusion, we presented the methodology used in this study. The analysis revealed that the "mixed" category was adopted for this research, and that our study population consisted of 497 individuals, that is, 493 students and 04 teachers. The questionnaire, the semi-structured interview guide and the experiment conducted during the internship are tools used for data collection. Nevertheless, we used SPSS - 25.0 Windows$^{®}$ and Excel 2016 for the statistical processing of data. Statistical analysis and content analysis are methods used for analysing data. We then pursuit to the presentation and analysis of the result of our research.

CHAPTER FOUR

PRESENTATION AND ANALYSIS OF RESULTS

The problem of knowledge in school Geography is a didactic approach that addresses didactic content from formulation to resolution of different problems. This approach enhances a formulation of a starting situation, the formulation of problems units, institutionalization and conceptualization. This chapter is the presentation of the results gotten from the analysis of the data collected. It will be necessary to analyze the teaching practices in a Geography class to design and experiment our didactic device. Our analysis of the activity realized by the teachers contribute firstly the understanding of the difficulties teachers faces when teaching Geography; secondly bringing to light possible transformation of their geographical discourses (in the context of the teaching units studied) and lastly the developmental dynamics that emerges in the situation. These analyzes will allow us design an innovative didactic device based on the problematisation approach in order to promote the development of geographical skills in students.

4.1. ANALYSIS OF THE DIDACTIC ACTIVITY OF THE THREE SESSIONS OBSERVED

The didactic activity of teaching is designing and implementing didactic devices aimed at enabling students acquire disciplinary knowledge. Each didactic device constitutes a configuration of elements such as; working modalities, didactic materials and contents taught. These devices as they may be grasped from our observation grids, are the expression of choices, the necessary decisions to their design and the implementation made by teachers in their daily working life.

4.1.1. Analysis of the problem situation in the three sessions

These didactics sessions observed is taking from a Geography lesson entitled "Livestock and modern fishing in Africa". It is a lesson of form four Geography programs which rotates around the regional Geography of Africa. The elements comprises the presentation of this lesson are presented in table 5.

TABLE 5: STRUCTURING OF THE LESSON IN THE PROGRAM

Family situation	The exploitation of resources
Category of action	Sustainable Resource Management / fight against poverty
Module	The modern economy of Africa
Chapter	Agro pastoral activities and modern fish farming of Africa
Lesson	Livestock and modern fishing in Africa

Table 5 presents the structure of a typical Geography lesson in the official program in form 4. We noticed chronologically, the Family situation, category of action, then the Chapter of study and finally the Lesson itself.

According to the requirements from CBA in the teaching of Geography, Geography lessons are still starting with the presentation of a problem-situation in relation to the didactic content taught in the classroom. In could be noted that, the three teachers have presented the problems-situation in relation to the over exploitation of resources and poverty in the rural areas (see table 6).

TABLE 6: EXAMPLE OF PROBLEM-SITUATION PROPOSED BY THE TEACHERS

Problem Situation	Example of the teacher's situation
Over exploitation of animal resources	E1: "Intensive fishing and disappearance of certain Fish species"
	E2: "Disappearance of fish species in the rivers"
Poverty and famines	E3: "Scarcity of fish in the market and increase in market price of chicken"

Table 6 shows an example of a problem situation proposed by the teacher in class. The first problem situation was over exploitation of animal resources and the second was poverty and famine. And three examples of activities proposed to guide the students process of resolving the problem.

After the presentation of problems-situation, the students were then involved in the activities related to structuring and solving of the problem-situation. This table presents the status of certain elements of the problem situation in the three didactic sessions observed (see table7)

TABLE 7: TREATMENT OF THE PROBLEM SITUATION IN THE LESSONS OBSERVED

Investigative elements	Scale of appreciation		
	E1	E2	E3
Announces the lesson by a triggering situation			
Formulation of the problem by the students			
Treatment of the situation problem by students			
Presentation and analysis of the results by the students			
Actions to be taken			
Justification of the lesson			

Source: field surveys, 2022

From table 7, we notice that, the majority of teachers do not comply with the stages of conducting a lesson in their teaching practices. Although the three teachers have formulated the problem situation, the resolution of this situation was not made according to the prescribed standards. Teaching 1 has anyway respect all the steps related to the entry into problem-situation such as, the presentation of the situation to the students, the resolution of the situation, the presentation of actions by the students and the justification of the lesson. On the other hand, these activities were absent in the teaching sessions of teachers2 and 3.

4.1.2. Activities of teaching/learning and evaluation

The second variable of our observation and analysis of teaching practices focuses on teaching activities and learning. It is a phase where the teacher sets up teaching devices to facilitate the acquisition of knowledge by students. This is precisely to analyze the structuring of the teaching sequences, the teaching / learning devices and also devices of remediation and evaluation. This table presents a summary of the analysis of the teaching sessions according to the teaching devices, learning and evaluation (see table 8)

TABLE 8: ANALYSIS OF THE TEACHING/LEARNING DEVICE AND EVALUATION

Investigative elements	E1	E2	E3
Establishment of the didactic units in relation to the problem			
Establishment of intellectual activities in learners by the teacher			
access to speech by students			
The teacher gives precise work to the students			
The teaching session is paced (rhythmic)			
Adaptation of the didactic intervention to the reaction of the students			
Institutionnalisation and conceptualisation			
The teacher plans the time for remediation			
The teacher plans intermediate evaluation			

Source: field surveys, 2022

Generally in table 8, all the observed sessions are marked by the presence of learning units, access to speech by the students, the activities of institutionalization and conceptualization. On the other hand, the teaching sessions of teachers 2 and 3 (E2 and E3)are marked by absence of certain pedagogic task inherent in the CBA such as the institution of learning activities; formative valuation and remediation activities, In the Didactics session 1, Teacher 1 has made an effort of introduction and realization of these tasks.

4.1.2.1. Analysis of Pedagogical techniques

The teaching techniques are a set of activities proposed by the teacher to animate the didactic sequence. According to the educational requirements arising from the program in force, the teaching of Geography can be done from several educational techniques such as brainstorming, analysis and reading of documents, work in small group, simulation games and other. The analysis of teaching sessions allows a clearer view on the use of these educational techniques (see table 9)

TABLE 9: DIDACTIC RESOURCES USED IN THE THREE DIDACTIC SESSIONS

	E1	E2	E3
Reading and analysis of documents	■	■	
Brainstorming / Game and Question-Answers	■	■	■
Debate and discussion			■
work in small groups			
Simulation games	■		
investigations and out of field			
Others			

Table 9 clearly shows that, the main educational techniques used by teachers are brainstorming, reading, and analysis of documents and work in small groups. All the teachers have used the brainstorming as a pedagogical technique, the teacher E1 was distinguished by the use of debate and simulation games, furthermore the teacher E3 use in addition to brainstorming, group work. From the above, we can conclude that the three sessions observed are marked by teaching practices that are not based on a real problem –situation approach and do not facilitate the construction of geographical knowledge. It will be a question of presenting the didactic device experienced from the problematisation method.

4.2. Learning Geography based on the problematisation of knowledge

After reviewing the reference elements on which the didactic approach is based on, that permit to give a sense to school Geography as well as usual teaching, it is question of presenting the didactic device that has been experienced in the classroom. This didactic approach is characterized by the use of a trigger element to problematize the object of knowledge, then by the devolution of the problem (s) in the class; the teaching/learning sequence is structured in units of problem, whose problem arises from the questioning raised by the trigger, we then networking the geographical knowledge by means of integrating concepts; Finally, the sequence leads to a phase of synthesis where the institutionalization and the conceptualization of knowledge takes place.

4.2.1. Based on the students conceptions of fishing in their near or distant environment

The proposed didactic engineering focuses on virtual output for the study of fishing in form four. In order to carry out this sequence, it was important to take into account the conceptions of learners in the Practice of Fishing and Sustainable Management of Food Resources.

- **The definition of fishing by students in a few words**

It is questionable in this part to present the different definition of fishing giving by the students. Thus, this one has been grouped into three modalities such as, the exploitation of resources, economic activity and a cause of the overexploitation of the resources.(See figure5)
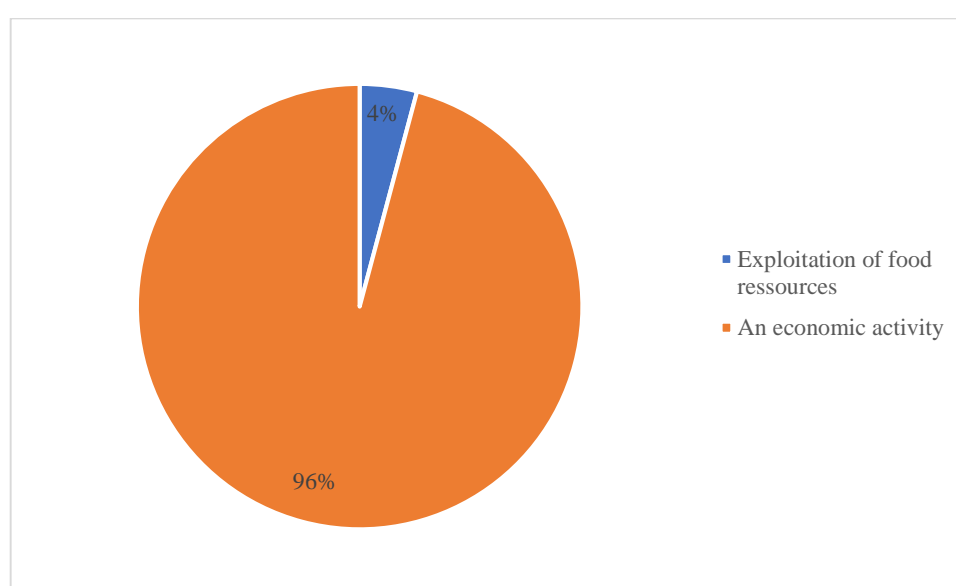
Figure 5: Definition of fishing by students

According to figure 5, the majority of students consider fishing as an activity mainly aimed at the exploitation of natural resources and particularly the fishing resources is 81.25%. On the other hand 18.75% considers it an economic activity.

- **Practice of fishing in its near or distant environment**

This second modality analyzes the conception of students on participation in fishing activities. It allows us to see if the students already participate in fishing activities in their near or distant environment. Figure 6 presents the views of the students on this modality.
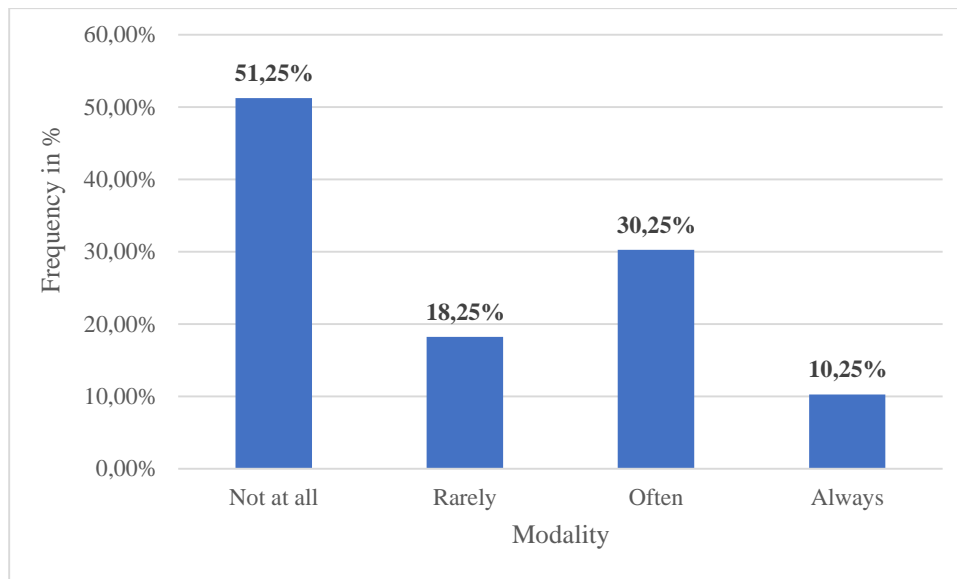
Figure 6: Participation in fishing activities

Figure 6 presents the views of students on participation in fishing activities in their nearby environment. The majority of students that is 51.25% believe that they have never participated in fishing activities. A low proportion that is 10, 25 estimate that they participate in fishing activities.
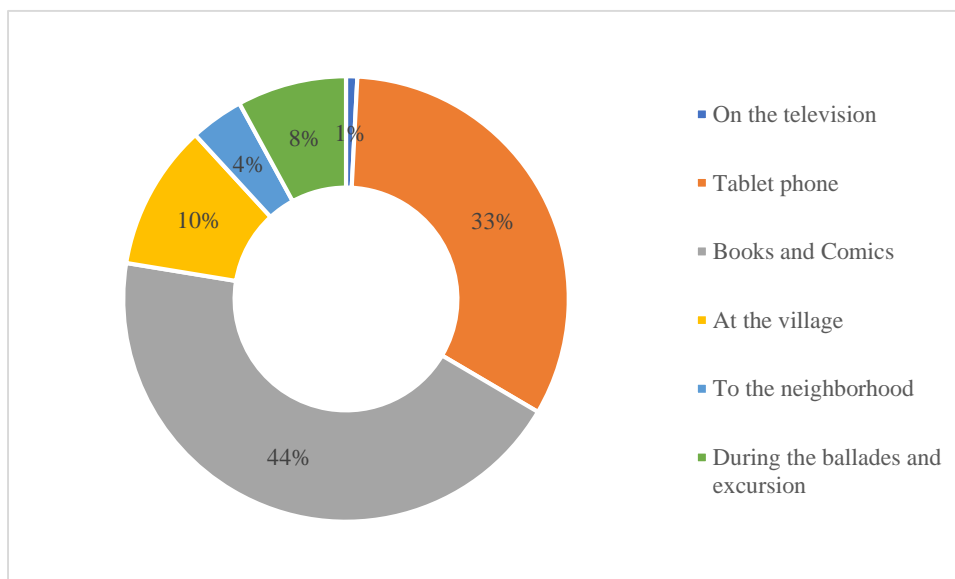
Figure 7: Observation places or media / fishing practice

Table 7 present the observation places or media of the practice of fishing activities. The majority of students that is 44 percents observed fishing practice on the television. The lowest proportion that is 1percent on ballade and escursions. The purpose of fishing could be noticed in table 8.
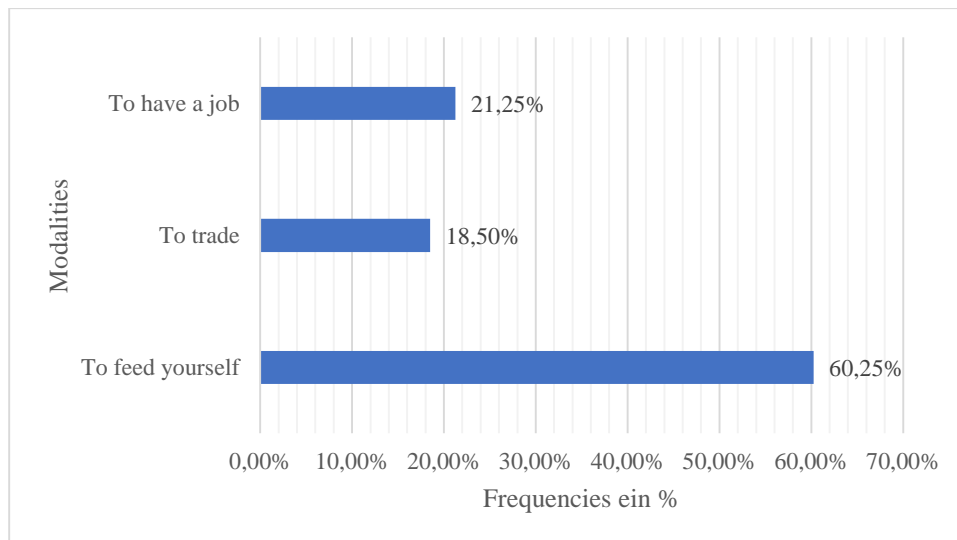
Figure 8 : The purpose of fishing

According to figure 8, we observed that the majority of students believe that fishing that is 60 percents permits one to feed, also this activity allows one to have an employment (21.25%) or to trade (18.50%).

4.2.2. Didactic teaching of fishing as from the problem of knowledge

The proposed didactic device is based on a problem of problem-making. It consists of building knowledge from a trigger element that will be solved by students.

- *Formulation of the trigger element on the overexploitation of natural resources.*

The first step of this approach is based on the formulation of a trigger element. This is a problem - situation which will allow students to understand the importance of the lesson taught. The appeal to a trigger element thus leads to the definition of geographical issues, which constitute the elements "engines" from the entire didactic edifice. This situation is based on the disappearance of certain fish species in the rivers and of the overexploitation of resources see table 10.

Table 10 : Formulation of the trigger element on the overexploitation of natural resources

Formulation of the trigger element	Example of student response
For more than a decade, fish are increasingly rare in rivers and streams as well as the fishermen complain.	*The scarcity of fish in the rivers*
	Fishing is increasingly difficult
	Fish disappear in rivers
What is the problem that occurs in this situation?	*Fish is disappeared*

- **Collective Development of a problem on the overexploitation of fish resources**

The second step reports a collective construction of the problematic linked in the subject. This is a step where students present a series of question clearly on the proposed problem. Indeed, building a problem involves making questions in a clear way, avoiding redundancies, also avoiding that the statement of a question already contains an answer, and by limiting them to those who are really in connection with the subject or the problem to be studied. This initially goes through sorting and reorganization of the more or less complex questions as students pitched by reacting to the trigger element. The different questions asked by the students focus on the scarcity of fish resources in some rivers and streams. These questions will constitute the pivots of the learning units (or problem units) constituting the teaching-learning sequence. Thus the main question and secondary issues asked are presented in the following table see table11.

TABLE 11: OVERVIEW OF THE PROBLEM

Trigger elements: Scarcity of fish in most rivers and the river of your environment.	
Problem	**Questions**
Overexploitation and scarcity of fish resources	What is the origin of the disappearance or scarcity of fish in the watercourses**?**
	What are the most affected**?**
	What are the consequences of the scarcity of its species in streams and rivers**?**
	What do you need to do to fight against this scarcity**?**
	The problems of fishing**?**

- **Transformation of problems and learning units**

From the questions asked by the students on the problem, the lesson was structure in unit of problems that will become later as lessons. This lesson will permit to solve the problem that has been built collectively. Thus this topic has four lessons units arising from questions posed on the problem.

TABLE 12: PRESENTATION OF THE LESSON UNITS

Lesson units	Didactic resources	Teaching techniques/ learning
Definition of fishing. Conditions for the development of fishing in Africa.	Prerequisites Text extracted from the manual	Brainstorming to define fishing Reading and analysis of text to bring out conditions for the development of fishing in Africa.
Location of fishing zones in Africa.	Locate in map of fishing zones.	Reading and analysis of map of fishing area.
The problems and solution of fishing.	Prerequisite	Debate and discussion on the advantages and disadvantage of modern fishing.

- **Synthesis, Institutionnalisation and Conceptualisation**

In this phase the teacher shows students the link between the answers constructed by students and the disciplinary culture in order to demonstrate their relevance and the need to master them. This activity was done in each lesson unit from partial synthesis. At the end of the experimentation a learning test was proposed to learners to better assess the contribution of the process to the construction of knowledge.

4.3. Balance sheet of experimentation and verification of hypotheses

In order to better assess the contribution of our approach in the consolidation of knowledge in relation to fishing, a Pre-test and posttest have been proposed to students in the control group and the experimental group. The scores obtained by the students have been analyzed from specific statistical tests.

4.3.1. Descriptive analysis of the test scores in the control group

The control group is the one undergoing normal education. Thus, students have undergone a pre-test and a post-test. The results are presented in the following tables (table 13).

- **Analysis of scores and pre-test in the control group**

TABLE 13: DISTRIBUTION OF THE GROUP OF STUDENTS ON THE MARKS OBTAINED IN THE PRE-TEST.

Scores / 20	Effective	Percentage
4	1	3,3
5	2	6,7
6	4	13,3
7	8	26,7
8	2	6,7
9	6	20,0
10	5	16,7
11	2	6,7
Total	**30**	**100,0**

Source; field survey, 2022

According to table 13, we notice that, the majority of students have marks ranging from 7 to 10. The highest Proportion is found in the range of 7 that is 26.7% and 9 that is 20%.This low marks are explained to the fact that students had not yet been undergoing teaching.

- **Scores and post-test analysis in the control group**

TABLE 14: DISTRIBUTION OF THE CONTROL GROUP ACCORDING TO THE MARKS OBTAINED AT THE POST-TEST

Scores / 20	Effective	Percentage
5	1	3,3
6	5	16,7
7	5	16,7
8	7	23,3
9	4	13,3
10	5	16,7
11	2	6,7
12	1	3,3
Total	30	100,0

Source; Field Survey, 2022

Table 14 shows that, at Post test we notice a slight evolution of the scores ,the majority of the students are between 8 and 10 with a high proportion of students having 23.3%and 10 that is16.7%.The lowest percentages was noted also with the students having the marks of 11 (6.7%) and 12 (3.3%).

Descriptive analysis of the test scores in the experimental group

- **Analysis of scores and pre-test in the experimental group**

The experimental group is the one where the didactic device proposes has been experienced. The marks obtained in the pre-test and posttest is presented in table 15.

TABLE 15: DISTRIBUTION OF STUDENTS OF EXPERIMENTAL GROUP 1 ACCORDING TO THE MARKS OBTAINED IN THE PRE-TEST

Scores / 20	Effective	Percentage
4	2	6,7
5	3	10,0
6	2	6,7
7	2	6,7
8	5	16,7
9	8	26,7
10	6	20,0
11	2	6,7
Total	**30**	**100,0**

Source; Field Survey, 2022

In table 15, there are high proportion of the marks variations between 8 and 10 with a very high proportion of 9 that is 26.7% and 10 with 20%.This low proportion of highest marks 10 is explained by the fact that students are not undergoing teaching.

- **Analysis of Scores and post-test in the experimental group**

TABLE 16 : DISTRIBUTION OF STUDENTS OF EXPERIMENTAL GROUP 1 ACCORDING TO THE MARKS OBTAINED AT POST-TEST

Scores / 20	Effective	Percentage
8	1	3,3
9	2	6,7
10	6	20,0
11	3	10,0
12	2	6,7
13	8	26,7
14	5	16,7
15	3	10,0

Source; Field Survey, 2022

Table 16, we noticed an evolution of the marks after the experimentation of the mechanism. The majority of the marks vary between 10 and 14 with a highest proportion of students having 13 that is 26.7% And 14 with 16.7%. We notice here that, the approach proposed has improved students marks between the pre-test and the posttest.

4.3.2. Verification of hypothesis

This research is about the contribution of the problematisation of knowledge on the development of skills in the teaching of Geography. The main hypothesis of this research is as follows: Integration of the problematisation in the teaching of fishing promotes the development of geographical skills to students in form 4. Three specific assumptions arise from the general hypothesis.

- ❖ The taking into account of initial representations in the teaching of fishing promotes the development of geographical skills to students in form 4.
- ❖ The formulation and exploration of problem units favor the development of geographical skills to students in form 4.
- ❖ Resolution of problems units in fishing promotes the development of geographical skills to students in form 4.

The checking of the hypothesis is based on an internal validation paradigm from the comparison of the pretest and post-test scores in the experimental group and the control group. We have chosen the student tests and the test of student to check the main hypothesis as this is a composite device.

- **Recall of the hypothesis**

Our specific hypothesis 1 is as follows:

The problematisation of knowledge in Geography fosters the development of geographical skill to students in form 4. In order to check this hypothesis, we have applied the test of T Student whose results are presented in table 17.

TABLE 17: TOTAL TEST RESULT OF STUDENT

Passage time	Group	Number of students	Degree of freedom	value of T	Mean of the threshold of 0.05.
Post-test	**Experimental**	**30**		**9,056**	**0,000** **Significant Difference**
	Control	**30**	29	**0, 867**	0, 393 **Difference not significant**

In the control group, the T =9,056 with a probability of 0,393 largely above the threshold of 0.005, consequently the (h1) hypothesis that, there is an average difference between the pretest and the post-test is rejected while the h0 hypothesis of an equality between the averages pretest and the post test is accepted. On the other hand, the distribution of Student in the experimental group 1 shows a significant difference in student performance level through a value T =**9,056** and a probability 0,000 which is well below the mechanism threshold 0.05, demonstrating a significant difference. Thus the null hypothesis is rejected while the h1 Hypothesis is accepted as it exist a significant difference between the averages in the control group and the experimental group. The problematisation of knowledge in Geography fosters the development of skills to students in form 4.

In order to assess the influence of the problem of knowledge of Geography on the development of skills to students in form 4, we applied a variation test to the results of the pretest and the post-test in the experimental group. The results of this test are presented in the following table (see table 18).

TABLE 18: FISHER TEST RESULT FOR THE EXPERIENCE

	Sum square	DDL	Average square	F	Meaning
Inter-groups	260,417	1	260,417	**71,056**	**0,000**
Intra-groups	212,567	58	3,665		
Total	472,983	59			

The covariance analysis for the experimental group supports the results of the test hypothesis, by a value of f =**71,056** with a probability of 0,000<0.005. The null hypothesis being clearly rejected, the hypothesis according to the problematisation of knowledge in Geography fosters the development of skills to students in form 4 is confirmed.

 The table 19 shows the different tests that allowed us to check the main hypothesis.

TABLE 19: TOTAL TEST RESULT OF MAIN HYPOTHESIS

Hypothesis	T- student	P	F	P	Decision
General Hypothesis **The problematisation of knowledge in Geography fosters the development of skills to students in form 4.**	**Experimental** 9,056 **Control** 0,867	0,000 significant Difference 0,184 Difference not significant	86,44	0,000	Hypothesis accepted

CONCLUSION

This chapter based on the Presentation and analysis of the results. The main objectives were to present the research based on each of the tools used during data collection. Thus, the corpus of data obtained has been analyzed through the qualitative and quantitative methods. We first analyzing teaching practices in school Geography in order to be able to highlight the different problems related to the teaching of contents. Afterwards, we present the conception of students linked to the content basing on fishing. This element allowed us to design and experiment with a didactic approach based on the problematisation of knowledge. Finally, we further analyzed the proposed hypothesis from a series of statistical tests. It is clear that the teaching of fishing based on the approach of problematisation of knowledge foster the construction of knowledge by the students from a learning based on problems units. We are going to explain the results obtained in our study and discuss its implication in the domain of didactics of Geography in particular and didactics of discipline as a whole. After presenting and analyzing the data collected in the previous chapter, the task now consists of considering the interpretation of the results obtained which is likely to give rise to theoretical and didactic prospects.

CHAPITER FIVE

DICUSSIONS OF THE RESULTS AND PERSPECTIVES

With the keystone of the problems-situation, the model applied in the pedagogy currently in place rises from two intertwined conceptions: «the constructivist" and "the socio constructivist». These conceptions of learning are opposed to the innate or common representation of learning which tends to represent the spirit of the students as one empty box that needs to be filling with knowledge. The teacher appears here as the vector of transport of this new information towards the students, which therefore only presents a passive position of learning. Learning is not confined to fill the students mind with information originally unknown to him. It is a question here of reorganizing preexisting knowledge and representations of the students, by making him an actor of the process. This constructivist conception has various origins which for the most part relate to the current education associated with many pedagogues such as John Dewey, Maria Montessori, Ovide Decroly and many others. It is in this theoretical framework that we have designed and tested our didactic device on the approach based on the problematisation of knowledge in the teaching of Geography. After presenting and analyzing the data collected in the previous chapter, the task in this chapter consists of considering the interpretation of the results obtained which is likely to give rise to theoretical and didactic prospects. This chapter focuses on the following principal articulations: the recall of the analysis of the empirical and theoretical data, the interpretation of the results in relation to the theoretical framework invoked.

5.1. RECALL OF THE EMPIRICAL AND THEORETICAL DATA

5.1.1. Recall of the empirical data

With regards to the analysis of the collected data, it is necessary to redefine the salient facts around two (02) essentials points. The collection of data in the field is a series of tests of learning with students on didactic contents related to fishing. From a statistical analysis of the results of the pretest and posttest in the control group and the experimental group, we had convincing results. In the experimental group, the statistics present at the pretest percentages of 26, 7% of scores of the experimental group 1 ranging between 10 and 20/20 which corresponds to a frequency of 10 students having a score of 10/20. On the other hand, in the posttest; we have a percentage of 80% of scores ranging between 10 and 20/20. With regards to the test of students,

the performances obtained by the students in the posttest present the following statistics: T test of student remained non-significant for the control group with a T = **0, 867** and a probability of 0,393.As for the experimental group, the probability was significant with T = **9,056** with a probability of 0,000<0, 05.

In order to confirm the results provided by the student test, an analysis of variance test also called anova was applied. The variance of the experimental group revealed that F = **71,056** with a probability of 0,000 which is below the significance threshold. These results made it possible to establish a link between the process of problematizing of knowledge and the construction of competences of students in Geography. In other words, the process of problematizing of knowledge influences the construction of competences among students in form 4.

5.1.2. Recall of the theoretical data

The theoretical framework of this study is based on the teaching of Geography according to the approach of problematisation of knowledge. This approach is based on the integration of the socio-constructivist conception into Geography taught in school. The socioconstructivist approach leads indeed to consider learning as a process that involves a cognitive dimension, an affective dimension and an interactional dimension. Learning involves processing information through more or less complex mental operations - by investing interest (desire, according to certain authors) in the object of knowledge, and interaction with peers and mediators (in school milieu, the mediators are in general the teachers). The knowledge that a subject has «is a construction that he operates with the help of his symbolic systems of thought" (le Roux, 2003, p. 208). The teacher must imperatively integrate a phase through which the students can give stock of concepts discussed, the process envisaged, the skills exercised, in other words organize their knowledge. The structuring element which will allow this operation of organization and reorganization of knowledge is the concept designed as an operational tool of thought. Thus Ouarghi (2018) proposes a typology of pedagogical steps in teaching. They are as follows:

> The experimental step, beyond simple observation, contributes
> to a scientific representation of the world;
> The investigative step, already practiced at the primary and
> Secondary schools, takes its direction particularly in high schools
> and is based as often as possible on student's work in the laboratory;
> The historical approach to a scientific question can be an original
> manner of constructing an investigative approach;
>
> To practice a scientific approach (to observing, questioning,
> formulating a hypothesis, experimenting, reasoning rigorously,
> modeling). For the author, the approach of the process of

problematizing of knowledge comprises a problem -situation
and complex tasks as illustrates in the table below (see table 20).

TABLE 20: RELATIONS AMONG TRIGGERING SITUATIONS, PROBLEM-SITUATIONS AND COMPLEX TASKS ACCORDING TO THE COMMON LINK OF A CENTRE OF TEACHING INTEREST

Centre of interest	A triggering situation		
	General problems		
	Problem-situation 1	problem-situation 2	problem-situation 3
	Sequence 1	Sequence 2	Sequence 3
	Complex task 1	complex task 2	Complex task 3
	Solution 1	Solution 2	Solution 3
	knowledge synthesis		

In Table 20, Fabre asserts that problematisation is a "multidimensional process involving position, construction and resolution of problems" (2009, p.28). Each dimension has its own characteristics. We present the characteristics of each one of these dimensions.

Position of the problem

In a learning situation, a geographical area only constitute a problem for students if in their explanations, the linking of element of knowledge is not self-evident. It seems contradictory or paradoxical. A problem is posed for students only when they perceive it and that they explicitly deal with it. Among the techniques allowing this perception one can think of making a controversies within the classroom; Controversies resulting from confrontations between the different ideas and proposals of the students.

Construction of the problem

According to our theoretical framework, building a problem amounts to articulating elements of the empirical register (constraints) and elements of the model register (required) in an explanatory register. Note that, the two dimensions of the problematisation are articulated. For

the problem to be constructed, it must necessary be posed and in the construction necessities, it is possible to reconsider the problem to settle it.

Resolution of the problem

Through the problem construction process, students come up with possible solutions to the learning situation. The resolution of the problem consists in putting them to the test. This testing can be done through different ways: experiments, information retrievals, simulation… etc.

5.2. DISCUSSION OF THE RESULTS

It is important to recall that the general objective of our research was to show the impact of the mediated teaching methods   on the construction of competences around abstract concepts in Geography. We therefore considered the influence that the teaching methods mediatized promote the construction of competences in Geography. This work aimed to evaluate the contribution of the problematisation of knowledge on the development of competences to students in form 4. Our goal is to identify the difficulties that these teachers encounter in the classroom. At the end of the theoretical and methodological development, and the results of our research work, it is a question of discussing and comparing the three cases studied with the recommendations of the official texts and with what the didactic and pedagogical research says. We structure our discussion around the following two points:

- The integration of the problematisation of knowledge in the teaching of Geography;

- The contribution of the problematisation of knowledge in the development of skills to students in Geography.

5.2.1. Integration of the Problematisation of Knowledge in the Teaching of Geography

The theoretical frameworks in which we are located give a privileged place to the construction of scientific knowledge by the students. The teaching of Geography aims to create a didactic environment allowing students to acquire a problematized knowledge. However, in our theoretical development, we have indicated that constructivist teaching is not easy. Teachers encounter difficulties in their attempts to implement activities involving problematisation. It is the professional character of knowledge that takes the lead in their practices. Jean-Pierre Astolfi (1992) acknowledges that school knowledge does not refer to problems. They are presented in the form of more or less independent proposals.

We have showed previously that teachers do not create a problem-situation as defined in the theoretical framework mobilized in our research work. The teachers set up a problem-situation but in reality they do not create a problem-situation in the sense of research. They do but an ordinary dialogued course. Their effective conceptions of the problem-situation do not allow them to construct a problem-situation as it is provided in the pedagogical and didactic texts. What they do is nothing other than an ordinary dialogued course where they strongly guide the students towards the knowledge that is needed. The role of the problem is eradicated and the idea to confronting the student with an obstacle is almost absent. The analysis of what the teachers say about the commitment of their students in the problem-situation has made it possible to highlight a difficulty.

The teacher finds himself in a situation of discomfort when he is confronted with acting the way with which the teacher takes into account the conceptions of the students; our analyses have made it possible to highlight two difficulties. Firstly, the problem relates to the management of allotted time. The second is the situation of embarrassment to which he is subjected. Either he follows the logic of the students in their discussions and their proposals or he introduces them to the new learning. The results on the assistances that the teachers deploy for the benefit of their students as well as their intentions show that they are focused on the solution on the problem at the detriment of a real construction of the problem by the students. The difficulties raised here could be explained initially, by establishing the link with the assertoric conceptions of the teachers on scientific knowledge and leanings.

For we believe that the teacher's knowledge of the nature of scientific knowledge and learning is a determinant of its action. To make a problem-situation such as it is developed in didactic and pedagogical researches, is a condition on the one hand to help the students to change conceptions and in an even more advanced way of allowing them to build a reasoned knowledge which gives them a certain critical spirit. However, the practices of the teachers participating in this study reflect major difficulties in setting up a problem-situation. Thinking about developing reasoning skills in the students' means first and foremost developing teachers to conceive and implement a teaching approach that highlights the crucial role of the problem in the acquisition of scientific knowledge and in overcoming epistemological obstacles. The highlighting of such difficulties could help to review the nature and the contents of the training of teachers on the problem-situation with a view to constructivist teaching.

All of the work carried out was structured around the three theoretical axes previously defined and subject to a common hypothesis. The results obtained made it possible to bring out a

significant new amount of information, against the backdrop of the assessment of the impact of the triggering situation and its possible supports on the role of actor of the student in his learning. It is appropriate to return to these results obtained, in order to be able to conclude as to the general problems posed and the related working hypotheses (which will be made in the conclusion to follow), but also in order to highlight the various elements raising various interrogations and that open to discussion.

5.2.2. Contribution of the Problematisation in the Development of Geographical Competences

The results of this research show that, the teaching of Geography according to an approach based on the problematisation of knowledge promotes the development of Geography skills from the resolution of problems situations during teaching-learning activities. These results are in line with work proposed by Hertig (2012) which proposes a model of sequence of teaching learning sequence based on problematisation. For the author, problematisation facilitates a better acquisition of geographic knowledge from the problems solving; activities of institutionalization of knowledge and conceptualization. This approach is based on the triggering element which is the base of the problématisation. Philippot (2012) notices that problematisation in the teaching of Geography at the primary school does not seem to go without saying (p. 21) and remains a challenge for the teacher (p. 30).Le Roux (2004), quoted previously, identifies the annoyance and the destabilizing of this type of learning ."Problematize would make it possible to build knowledge, to develop intellectual capacities of the order of analysis, connection, increase within the framework of reasoning" (p. 23). In the same vein, Janzi (2017) propose an approach to problematizing of knowledge for education in sustainable development.

He considers that the beginning is likely to lead to a broad and balanced reflection allowing access an understanding of the migratory processes in their complexity. This reflection is anchored in the observation of the learner's world and is based on the study of empirical data. Building the problem from a beginning should lead the pupils to a process of reflection on the migration as a transformative element, companies as well as, source of potential wealth.The taking into account of the positive aspects of the phenomenon of migration, absent in the media treatment centered on the problems, should make it possible according to our hypothesis to stereotypes questions, of deconstruct the preliminary representations by factual elements, to better understand the complexity of the political play around the set of themes of migrations.

Moreover the result obtained clearly shows that problematisation is a step of investigation that promotes the development of Geographical reasoning. At best descriptive and explanatory logic of the stake of the construction of a geographical reasoning at the school is to leave Geography of inventory, as well as possible description, and to reach the explanatory logic of Geography. Christian Grataloup specifies that for the students, "to learn, it is to pass from the facts to problems, that is, to seek to connect them by explanations" (Grataloup, n.r, quoted by Roumégous, 2002, p.150). However, in the first as in the second degree, a major obstacle to this approach is due to the weak mastery of the disciplinary problems by the teacher:" teachers cannot teach Geography if they do not know geographical reasoning". The Geography didacticians therefore, had to take up the challenge allowing teachers to appropriate "Geographical reasoning".   Thus, Marbeau (1986) defines what the mastery of Geographical reasoning by associating the Trans disciplinary character of scientific reasoning can be, taking into account of specificities of a Geographical approach:

To master the geographical reasoning, it is not only to adapt competences which are to be implemented in the other scientific disciplines but also to deal with specific aspects. They concern on the one hand, the necessary combination of a systemic approach of the components of a situation concerned with a great diversity of knowledge (biological sciences, field sciences , social sciences) and, on the other hand, the taking into account the different degrees of scale of the phenomena.(Marbeau,1987,p.19-20).   This approach integrates a multitude of approaches, therefore the systemic approach which aims to understand nature-society interactions, and the multi-scalar approach are for the author a transposition of the renewals of university Geography.

The skills common to different scientific disciplines mentioned in this definition (questioning, formulation, hypotheses, documentary research etc) also form the basis of the Geographical reasoning framework proposed by Considere (2000): To go beyond the mere "statement of facts" in Geography at elementary school requires bringing pupils "to integrate documents(and their essential description) into   more global approach which seeks to build questions and hypotheses in order to gradually arrive at the understanding" (,p.182).These general approaches to Geographical reasoning have a double interest for versatile teachers:that of being part of the transdisciplinarity of scientific reasoning,and that of highlighting the specificities of Geographical reasoning in particular "the game"reasoned on the scale"(marechal,1995,p.114) that only this school discipline allows to develop at school.Finally,Roumegous(2002)specifies what is school Geographical questioning constructed by research teams from the 1970s:

Future more, didacticians then think that teaching pupils to ask themselves why is this there and not elsewhere, there more than elsewhere?" can constitute, for the school Geography as well, a good program, capable of answering common sense questions and practices as long as they are reformulated on the basis of rigorous tools for analyzing the functioning of school relations at school space.(Roumégous, 2002, p.68-39)

5.3. THEORETICAL AND DIDACTIC PERSPECTIVES

Throughout this study, we have tried to provide an explanation of the importance of the problematisation of knowledge in the teaching of the Geography. Perspectives that materialize in our study in theoretical perspectives and didactic perspectives.

5.3.1. Theoretical perspectives.

The present study was guided by highlighting three main theories. These theories provide a more plausible explanation to certain phenomena observed in our didactic situations. This study therefore confirms the theory of interactive socioconstructivism invoked in this work (Jonnaert & Borght, 1999). It has been demonstrated that the theory of the interactive socioconstructivism as presented by its author, is a theory whose emphasis is mainly placed on three dimensions of learning. First of all the Social dimension of the process of training. This dimension is interested in the interactions between learning and its social background, its learning environment. In the light of the results obtained at the end of this study, it was corroborated that the problematisation of knowledge through the installation of problem- situations and the complex spots have an influence on the construction of competences of the pupils in Geography.

In addition, to learn how to build a problem is a training which should highly be developed and exerted at school, where one will more learns to the pupils how to answer questions that they are not posed, to formulate questions with an anthropological depth. To consider the Co-construction of knowledge with our pupils by borrowing the way of problematisation involves a risk, because the places and the roles of each one are not in advance given. The categorical imperative is to be oneself. It is not a question any more of transmitting predetermined contents, but of making it possible well to the pupil to learn how to think in an autonomous way while resting on presupposed. Problematisation within the framework of the school Geography should be a help with the comprehension of the interactions between actors within a system (relations between the men and their environment), a tool to represent and conceive complex units made up of organizational interrelationships between complex elements, actions or other units. It makes it possible to represent reality for its most significant aspects. It is a compromise between

exhaustiveness and relevance. Problematisation "is a functional schematization of the reality which gives up all embracing and to reproduce reality, but rather aims at building tools to think and act" (Fabre, 2011, p.71).

Lastly, the results of this research are corroborated by the theory of the educational intervention notably the model of the educational intervention 4.Work of Not (1979), taken again by Lenoir (1991), distinguishes various models from educational intervention *the MIE4* (the cognitive interstructuration) conceives an interaction balanced between the pupil, the teacher and competence to be developed or the contents to be built. Lenoir describes it like an interactive pedagogy of research (Lenoir, 1991b, p. 64).76)

On the basis of a phase of spontaneous investigation, during which the development of a research project is done starting from knowledge of the pupil. The bonds are obvious with the situation-problem and the principle of the cognitive or sociocognitif conflict as highly explained: "the relevance of the situation-problem comes owing to the fact that the mediation first will be the different one, other-raises it, the par" (Dalongeville & Huber, 2000, p. 55).

We can add as the teacher can play this role of the other. Consequently, to leave the pupil, by the discussion, contradiction, the conceptual mediation, is then essential to then pass to a phase of structured investigation where research and the data is implemented. This process ends in a phase of controlled structure, which is the stage of treatment and interpretation of the students. This clearly establishes the importance of all the elements associated with the exercise and the historical method: to question, plan, seek, analyze, interpret, organize and synthesize. He has as a characteristic to reach the pupil the historical method and allows autonomy, as well as the interpretative construction of the knowledge.

5.3.2. Didactic Prospects

The teaching of Geography must takes into account the strategies based on the problematisation of knowledge. Henceforth, we can notice four contributions in the research on the teaching of Geography and the education for sustainable development.

Concerning the first contribution, orange Christian and orange Denise ravachol question the level of epistemology, that is, the evolution of scientific teaching from the point of view of scientific learning and their role in the development of students thinking over the past two decades based on the current example: The evolution of the climate. Again the authors, is asking the question of the relationship between scientific learning and education for sustainable

development (ESD), questioning the study of the links between problems concerning the sustainable development and the problematisation in the earth and living sciences. The authors thus highlight two major types of explanatory problems: Functionalist problems, concerning the functioning of living systems and that of the earth and secondly, the historical problems which is interested in the constitution of the history of living beings and the earth. These authors identify three possible complementary aspects to answer these issues: Firstly, the overcoming of a sequential functionalist problematisation, secondly, the entry into an epistemological history of problematisation depending on topical questions and lastly, the functioning historical complex systems approach.

As to what concerns the second contribution, the action-research in didactic of Geography of the University of Geneva (IUFE) in which Anne Sgard, Philippe Jenni, Marco Solari and Pierre Varcher are part, proposes question and characterize the approach of problematisation with the students to several of their past works presenting them in an ESD approach that is placing the construction of student citizenship as a major issue. These researchers takes the questions posed by the teaching-learning of problematisation, postulating that it builds a fundamental stake of Geography taught in schools from the youngest age, and not a complexes technical operation to be implemented at the end of the course. Fundamental issue in the perspective of a discipline that aims to develop the autonomy of students, to allow them to build a capacity to think for themselves and to develop their critical spirit. In this regard, these authors set themselves objectives characterizing through an action research to process what constitutes a teaching-learning of problematisation.

The third contribution proposed by hyade Janzi is a continuation of the previous contributions. This author presents a summary of the work of the   action-group research of the University of Geneva (IUFE) by questioning the processes of problematisation in Geography classes of secondary I and II. The ability to pose the problem to the students from a Geographical point of view is one of the main challenges of current didactics, more particularly in an education that is part of the perspective of sustainable development (ESD). Geography as a science of society builds its objects of study in connection with the facts of society by refusing to impose opinions and behaviors without having first subjected them to criticism and debate. If the specific role of the trigger in the establishment of the general problems is important in a first phase of problematisation, this author analysis more specifically the second phase of problematisation which involves a reformulation or a new organization of the students proposals (questions, remarks, contradictions…), distinguishing the different stages of the process. The author raises

the importance of the process of problematisation by determining not only phases of this process, but also tools for the teacher (e.g. conceptual chart, typical questions, grid, etc).To conclude, the author point out that problematisation in the context of Geography taught in schools should be an aid to the understanding of the interactions between actors within a system in order to represent and conceive complex units made up of organizational interrelations between other complex units.

In the fouth contribution, Alain Pache and Philippe Hertig show what conditions a situation of problematisation treated within the framework of a focus group to makes it possible to develop competences in ESD. This study is part of a larger research that aims to investigate the links between the ESD and disciplines taught in schools as well as the tools that built students at the last stages of the compulsory schooling ages (13-15 years old). For the authors, the situation of problematisation is defined as "a social situation in schools that allows students to question, and then organizes their responses on the basis of a survey ".The focus group system is fully in line with the survey process as soon as the debate allows a confrontation and validation of the arguments put forward by the students. But this implies that, the teacher synthesizes and institutionalizes the main learning identified at the end of this phase.

The results of the analyses carried out by the author's show that the pupils mobilize in situation, cognitive, ethical and social skills that contribute to education for sustainable development and citizenship education. At the end of the text, the authors suggest broadening the discussion to teacher training by suggesting thinking of collections of family's situations that would allow students to develop their competences. Tools that allow them to identify the student representations, the obstacles they encounter or the blind spots from which a new teaching-learning sequence could be built. Finally, the authors insist on training on the different ways of institutionalizing knowledge. For them, this is a crucial point to enter into a real learning. Thus, these contributions make it possible to better articulate the problematisation in the teaching and learning systems of Geography taught in schools. This integration as teaching and learning strategies is based on a series of questions, namely:

What are the determinants that make it possible to judge quality of a "good" problematic or of a good approach to scientific investigation in the context of ESD?

What are the main didactic phases or moments of effective problematisation and scientific step of investigation in which teaching integrative approaches (approach by project,

interdisciplinary, debate, etc.) being able to contribute to the processes of problematisation and investigation?

Which trainings formation device can be put in place to develop the practices of teaching of the ESD in the future teachers and those teachers present in the classroom.

5.3.3. Openings and Perspectives

Several points of this work could be deepened. First of all, develop the choices of triggering situations and their supports. A multitude of supports more or less different from those used in this study exists. Then, the conditions of a proper test of the study could be improved. They could be adapted to a more rigorous study in terms of possible and observed ways: distribution of students, size of matched samples or not, criteria chosen in connection to the problems etc. Finally, when setting up the final part of this study, it had been envisaged and planned to conclude it with a questionnaire offered to the students. This questionnaire would simply identify the opinions and preferences of the pupils with regard to the different triggering situations and associated supports for all sessions throughout the year. Unfortunately, lack of time, linked incompatibilities of time table at the end of the year was not set up on time.

Furthermore, the anticipation of future audiences, starting by offering them a questionnaire based on this research would be possible. Finally, we retain in this study the importance of a motivational approach, that is, arousing curiosity, interest and questioning in the process of acquiring and transforming knowledge according to constructivist and socioconstructivist approaches. Creativity and the aspect of triggering situations seem to appeal to the first tool of learning to the human being from an early age: the discovery of his environment through play.

It is left to the teacher to nourish his or her own creativity and his or her pleasure in discovering the world to transmit to learners the anxiety to construct their proper knowledge through the available tools proposed to them. The teachers should be conscious in their services to students in all levels of learning and develop in them autonomous thinking, to create, innovate, develop ideas and competences enabling teachers to help the students becoming useful actors in the society and the world at large. Conclusively, it is important to continuously questioning the conditions of teaching that promotes a real dialogue between learners and teachers and that allows students to navigate in knowledge by being equipped not only with a map and a compass, but with different conceptual tools suitable to the discipline, allowing questioning and reasoning, whatever the given situation he or she found him or her selves. The ability to problematize lies on the intellectual and cognitive development of an individual. This means

that, this ability allows him to exercise his intellectual freedom by questioning the world, leading the student to a dynamic of disciplinary process of problematisation, that allows him to build the idea that a discipline taught in schools is characterized first by the questions it addresses to the world to forge answers: knowledge.

CONCLUSION

At the beginning of our discussion of the results, we stated that the principal objective of this research was to evaluate the contribution of the problematisation of knowledge in Geography to the development of geographical skills to students in form 4. We consider that the results presented in chapter four make it possible to achieve this objective. This is why this fifth chapter establishes links between the different data sources. It is true that our three instruments have addressed several distinct elements, sometimes distant, but we believe that, from the point of view of a descriptive and triangulated analysis, these data are relevant and valid. In fact, several data support general findings while others allow us to qualify our analysis and feed the discussion of the results. Thus, making a problem-situation such as it is developed in the didactic and pedagogical research, is a condition on the one hand to help the pupils to change conceptions and in an even more advanced way to allow them to build a reasoned knowledge which give them a certain critical thinking.

GENERAL CONCLUSION

The objective of this work was to study the contribution of the problematisation of knowledge in school Geography on the development of competences. We have focused our methodology on the placement of each teacher in several successive situations: designing a course preparation, didactic observation of the lessons, conception of a lesson preparation, observation of didactic sessions, conception and experimentation in class of a didactic device based on the problematisation of knowledge. What are the steps in a process of problematisation of knowledge in school Geography? What is the contribution of this approach to the development of skills in a Geography class? We attempt answering to these questions here in a systematic way.

The Methodology that we adopted made it possible in this research work, to detect a considerable gap. Initially between what didactic and pedagogical research says about the problem-situation and what the teachers actually do in their classes about the teaching of Geography. We thus realized that the proposed devices do not always allow an efficient development of skills in Geography. Consequently we adopted a didactic engineering approach aimed at proposing and experimenting with a didactic device based on the problematisation of knowledge. To answer this main research question, we formulated the following hypothesis: The problematisation of the knowledge in Geography improves development of competences in students of form 5. The operationalization of the variables of this hypothesis made it possible to state three assumptions of the research which are:

Hypothesis 1: taking into account initial representations in the teaching of fishing promotes the development of geographical skills in form 4 students.

Hypothesis 2: the taking into account of the initial representations in teaching of fishing supports the geographical development of competences in form 4 students.

Hypothesis 3: The resolution of problem units in the teaching of fishing promotes the development of geographical skills in form 4 students. .

To test these hypotheses, the research adopted an experimental approach with a control group experimental - experimental group design and targeting form 4 students.

The main results obtained from a test of school knowledge with anchoring in the new Geography teaching programmes are as follows: the approach of problematizing knowledge

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promotes the development of geographical skills among   form 4 students. Indeed the student Test = 9,056 with a probability of 0.000 < 0.005;Test of anova F = 86,44 with a probability of 0.000 < 0.005. These results show that students develop geographical skills better when they are immersed in problem situations that allow them to perform complex tasks.

The reflection started in this work needs to be extended and continued with further research in the fields of Geography teaching. Several avenues are available to us:

- How is the initial and continues training of teachers about problematisation carried out in the training places?

 - What are the conditions of a training that can act on the implicit epistemology of teachers, whose empiricist character we have seen?

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APPENDICES

REPUBLIC OF CAMEROON

Peace – Work - Fatherland

MINISTRY OF SECONDARY EDUCATION
MINISTERE DES ENSEIGNEMENTS SECONDAIRES

INSPECTORATE GENERAL OF EDUCATION
INSPECTION GENERALE DES ENSEIGNEMENTS

MINISTRY OF SECONDARY EDUCATION
MINISTERE DES ENSEIGNEMENTS SECONDAIRES

INSPECTORATE GENERAL OF EDUCATION
INSPECTION GENERALE DES ENSEIGNEMENTS

SUBJECT SYLLABUS: GEOGRAPHY SYLLABUS
SECONDARY GENERAL EDUCATION: FORM 4 CLASS
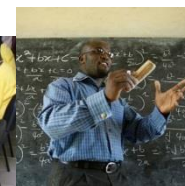
Observing the environment in order to make informed choices on training options for a successful future
INSPECTORATE OF PEDAGOGY FOR THE SOCIAL SCIENCES
INSPECTION DE PEDAGOGIE CHARGEE DE L'ENSEIGNEMENT DES SCIENCES HUMAINES

December 2014

FORM FOUR CLASS

MODULE I

TITLE OF MODULE (UNIT): Understanding Ecological Systems and Preservation of its engrained resources

NUMBER OF INSTRUCTIONAL (Teaching/ Learning) PERIODS: 45

PRESENTATION OF THE MODULE: This module exposes how the various components of the environment function as a system, their importance to life on earth. It also presents how man exploits its resources and the problems caused by this man-nature interaction and actions that can solve them and ensure a healthy co-existence between the two. There is also initiation to skills of map analysis. **CONTRIBUTION OF THE MODULE TO THE AIMS AND GOALS OF THE CURRICULUM:** This module enhances in the learners curiosity about and sense of observation of the world around them and development of the love for nature.

CONTRIBUTION OF THE MODULE TO THE PROGRAM OF STUDY AND TO THE AREAS-OF-LIVING: This module exposes the learners to the world of ecological systems and their resources. Furthermore, it enables the learners to adopt actions that can improve on their livelihoods through resource exploitation and also preserve the health of the environment.

DIAGNOSTIC EVALUATION: Evaluation of knowledge acquired in previous class												2 Periods
Contextual Framework		Competent Acting		Essential Knowledge				Skills (Aptitude)	Values & Attitudes	Other Resources	Methods & Techniques	
Family of situations	Examples of Life Situations	Category of Actions	Examples of Actions	Topic	Sub-topics	Lessons	Notions/ concepts					
Environment and management of natural resources	-Soil erosion - Loss of soil fertility **-** Deforestation	**Sustainable management natural resources**	-Plant trees - Practice Organic farming	**Conserve world's Biomes and resources**		**1-Concept of the Soil**	-Soil -Soil	- Define - Identify -Classify - Draw/Sketch - Read soil and vegetation maps	- Respect and Love for nature - Curiosity - Sense of observation	- Other disciplines (biology, environmental science) - Map - School environment - Climatic data	- Excursions Observations -Brainstorming - Simulation -Analysis of audio-visual Instructional materials - Enquiry	
						2-Soil characteristics • Meaning • Major properti						xiii

FORM FOUR CLASS

Contextual Framework		Competent Acting		R								Duration of Lesson (Periods)
					Essential Knowledge			Skills	Values & Attitudes	Oth	Methods&	
Family of	Examples of Life	Category of	Examples	Topic	Sub-topics	Lessons	Notions/				Technique	
Environment and management of natural resources	-Deforestation -Overexploitation of resources -Soil erosion -Extinction of species -Extreme heat -Erratic precession of seasons -Capricious weather -Floods -Scarcity of water -Desertification	**Sustainable management natural resources** **-Adaptation to various biogeographical zones**	-Plant trees -Practice Organic farming -Use resources rationally - Irrigate -Build terraces, drains -Plant trees -Create terraces	**Conserve world's Biomes and resources**	The Soil	**3-Soil formation** • Stages in soil development	-Soil formatio	- Define - Identify -Classify -Draw/Sketch - Read soil and vegetation maps	-Consciousness of environmental problems - Respect and Love for nature - Curiosity - Sense of observation	- Other disciplines (biology, environmental science) - Map - School environment - Climatic data - Meteorological Stations (Globe Centre and others)	-Observations - Excursions -Brainstorming - Simulation -Analysis of Instructional materials - Enquiry (investigation) - Exploitation of audio-	**1**
						4-Soil Erosion • Meaning & types	Soil Erosion					**1**
						5-Soil Conservation	Soil					**1**
					The ecosystem	**6-The Ecosystem** • Definition • Components of ecosystems	Ecosystem					**1**
						7-Functioning of ecosystems: • Energy flow (food chains &	- Energy -Trophic					**1**
						8-Material cycling • Meaning of nutrients & nutrient cycles • Classification of ecosystem nutrients	Nutrient Cycle					**2**

FORM FOUR CLASS

Contextual Framework		Competent Acting		Res								Duration
				Essential				Skills (Aptitud	Values & Attitudes	Other Resourc	Methods& Techniques	
Family of situations	Examples of Life	Category of	Examples of	Topic	Sub-topics	Lessons	Notions/ concepts					
Environment and management of natural resources	-Deforestation -Overexploitation of resources -Soil erosion -Extinction of species -Extreme heat -Erratic precession of seasons -Capricious weather -Floods -Scarcity of water -Desertification and droughts	**Sustainable management natural resources** **-Adaptation to various biogeographical zones**	-Plant trees - Practice Organic farming -Use resources rationally - Irrigate -Build terraces, drains -Plant trees - Create terraces -Use water rationally -Respect	**Conserve world's Biomes and resources**	Tropical biomes and their significance	**9-Tropical Rainforest (Selvas) Biome**	**Tropical**	- Define - Identify -Classify - Draw/ Sketch - Read soil and vegetation maps	-Consciousness of environmental problems - Respect and Love for nature - Curiosity - Sense of observation	- Other disciplines (biology, environmental science) - Map - School environment - Climatic data - Meteorological Stations (Globe Centre and others)	Observations - Excursions - Brainstorming - Simulation -Analysis of Instructional materials - Enquiry (investigation) - Exploitation of audio-visual supports, slides, geology kit, Laboratory	2
						10-Tropical Wet and dry (Savannah) Biome ● Location; Characteristics (climate, vegetation, soils, animal life)	**Savannah**					2
						11-Tropical Monsoon Biome	Monsoon					2
						12-Tropical dry (Hot deserts) Biome	Hot deserts					2
					Temperate biomes and their significance	**13-Mediterranean Biome** ● Location.	Mediterranean Bio					2
						14-Steppe Biome	Steppe Biome					1
						15-Boreal (Taiga) Biome	Boreal Biome					1
												1

xv

FORM FOUR CLASS

Contextual Framework		Competent Acting		Reso								Duration of Lesson
					Essential Knowledge			Skills	Values & Attitud	Other	Methods & Techniqu	
Family of	Examples of Life	Category of	Examples of	Topic	Sub-topics	Lessons	Notions/					
Environment and management of natural resources	-Deforestation -Overexploitation of resources -Soil erosion -Extinction of species -Extreme heat -Erratic precession of seasons -Capricious weather -Floods -Scarcity of water -	**Sustainable management natural resources** **- Adaptation to**	-Plant trees - Practice Organic farming -Use resources rationally - Irrigate -Build terraces, drains -Plant trees - Create terraces	**The Physical Geography of Cameroon**	Background of Cameroon	**16-Situation of Cameroon**	Cameroon	- Define - Identify -Classify - Draw/ Sketch - Read soil and vegetation maps	- Consciousness of environmental problems - Respect and Love for nature - Curiosity - Sense of observation	- Other disciplines (biology, environmental science) - Map - School environment - Climatic data - Meteorological Stations	- Observations - Excursions - Brainstorming - Simulation -Analysis of Instructional materials - Enquiry (investigation) -	1
						17- Administrative Setup **+** Region of Cameroon **+** The divisions	-Regions -Divisions - Subdivisions					1
				The biogeographic zones of Cameroon	**18-Relief** • Locate main relief units	Relief					1
					19-Drainage • Principal Watersheds • Main	Drainage					1
				Practical Work 1: Relief and drainage maps of Cameroon **Theoretical basis:** Revision of relief and drainage of Cameroon **Practical Exercise:** With the aid of a base map, sketch and label the following: ▪ Main relief units of Cameroon							1

FORM FOUR CLASS

Contextual Framework		Competent Acting		R				Skills (Antitud	Values & Attitudes	Other Resour	Methods & Technique	Duration of
				Essential Knowledge								
Family of	Examples of	Category of	Examples	Topic	Sub-topics	Lessons	Notions/					
						20-Climate • Identification & location of main types	Climate					1
						21-Vegetation • Identification	Vegetation					1
	-Deforestation -Overexploitation of resources -Soil erosion -Extinction of species	**Sustainable manage**	-Plant trees -Practice Organic farming -Use resources rationa			**22-Soil** • Identification & location of	Soil	- Define - Identify -Classify - Draw/	- Conscious ness of environme	- Other disciplines (biology,	- Observations - Excursions	
						Practical Work 2: Climate, Vegetation and Soil Maps of Cameroon + Sketching of simple distribution maps						1
Environme						**Further Study 1: The biogeographic Regions of Cameroon** + Description of main characteristics						1

FORM FOUR CLASS

Contextual Framework		Competent Acting		R								Duration of Lesson (Period
				Topic	Essential Knowledge			Skills (Aptitude	Values & Attitudes	Other Resourc	Methods& Techniques	
Family of	Examples of	Category of	Examples of	Topic	Sub-topics	Lessons	Notions/					
Environment and management of natural resources	-Deforestation -Overexploitatio n of resources -Soil erosion -Extinction of species -Extreme heat -Erratic precession of seasons -Capricious weather -Floods -Scarcity of water -Desertification	**Sustainable manageme nt natural resources** **-Adaptation to various biogeographi ca l zones**	-Plant trees -Practice Organic farming -Use resourc es rational ly - Irrigate -Build terrac es, drains -Plant trees -Create terraces -Use water rationally -Respect			**Practical Work 3:** Basic Principles of map analysis • **Definition of a Map & Map Reading & Interpretation**						1
						Practical Work 4: Conventional signs & symbols • **Meaning**						1
						Practical Work 5: Gridlines and locational references • **Meaning& presentation of gridlines (Eastings& northings)** • **Locational References**						1
						Practical Work 6: Directions on maps						1
						Practical Work 7: Scales and Map Measurements • **Meaning of scale** • **Ways of expressing the scale**(ratio, representative fraction, linear & statement) • **Linear Measurements** + Straight line distances						2
					M ap	**Practical Work 8:** Map copying, reduction and enlargement						2
						Practical Work 9: Interpreting Relief forms from maps + **Ways of representation of relief on map**						1
						Practical Work 10: Calculation of gradient& cross section drawing from maps						2
						Practical Work 11: Description of relief and sketching of relief areas from maps						1
						Practical Work 12: Description of Drainage on maps						1

FORM FOUR CLASS

MODULE II

TITLE OF MODULE (UNIT): Fight against poverty and underdevelopment
NUMBER OF INSTRUCTIONAL (Teaching/ Learning) PERIODS: 63

PRESENTATION OF THE MODULE: This module highlights the process off development, the various challenges to development, the root causes of underdevelopment and poverty, and the various strategies to fight underdevelopment and poverty through sustainable exploitation of primary resources and management of energy resources and manufacturing industries with specific focus on the economic development potentials of Cameroon. There is also initiation to map analysis. **CONTRIBUTION OF THE MODULE TO THE AIMS AND GOALS OF THE CURRICULUM:** This module enables learners to be aware of the inequalities in the world around them and arms them with the appropriate actions that should be taken in order to come out of the vicious circle of underdevelopment and the poverty trap and reduce these socioeconomic inequalities.

CONTRIBUTION OF THE MODULE TO THE PROGRAM OF STUDY AND TO THE AREAS-OF-LIVING: This module exposes that in the man-environment interactions numerous inequalities arise. There is therefore need to consider others in our decisions if these contrasts in development must be narrowed and the environment and its resources preserved.

Contextual Framework		Competent Acting		R				Skills (Aptitudes	Values & Attitudes	Other Resource	Methods& Techniques	Duration of Lesson
					Essential							
Family of situations	Examples of Life	Category of	Examples of	Topic	Sub-topics	Lessons	Notions/					
	-Water stress	- **Good governance**	-Denounce ills of corruption and embezzlement			**23-Development**	Development			- Other disciplines (biology, environmental science)	- Observations	
	- Malnourishment		-Create and use dumpsites			• Definition of development, underdevelopment, poverty& Sustainable	-under-		Consciousness of environmental problems		- Excursions	
	-Pirate Urbanisation	- **Improvement in living standards**	-Participate in human investment	**The process of**	The Concept of Developme	**24-Indicators of development and underdevelopment**	Indicators of	- Define	- Respect and Love for	-Map	-Brainstorming	xix
	-Urban problems					• Traditional		- Identify		- School	- Simulation	1
											-Analysis of Instructional materials	

FORM FOUR CLASS

Contextual Framework		Competent Acting		R								Duration of Lesson
					Essential			Skills	Values & Attitudes	Other	Methods& Techniques	
Family of	Examples of Life	Category of	Examples of	Topic	Sub-topics	Lessons	Notions/					
						25-Classification of nations in terms of development levels • Low income countries or Least Industrialised Countries (LICs) or LEDCs • Oil Rich						
	-Water stress - Malnourishment -Pirate Urbanisation -Urban problems -unemployment	**- Good governance** **- Improvement in living standards**	-Denounce ills of corruption and embezzlement -Create and use dumpsites -Participate in human investment	**The process of**	Challenges of Development and Fight of under-	**26-Rostow's Model of Economic growth** **27-Challenges of Development** • Causes of poverty & Underdevelopment	Economic growth - Under-development	- Define - Identify	- Consciousness of environmental problems -Respect	- Other disciplines (biology, environmental science) -Map - School environment	- Observations ; - Excursions ; - Brainstorming ; - Simulation ; -Analysis of Instructional materials	1 1

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FORM FOUR CLASS

Contextual Framework		Competent Acting		R				Skills	Values & Attributes	Other	Methods& Techniques	Duratio
				Essential								
Family of	Examples of Life	Category of	Examples of	Topic	Sub-topics	Lessons	Notions/					
The Havoc of under-development	-Water stress - Malnourishment -Pirate Urbanisation -Urban problems -unemployment and under-employment Corruption and poor governance -Epidemics -Backwardness	**Good governance** **- Improvement in living standards** **- Proper Regional Planning& development** **- Sustainable development**	-Denounce ills of corruption and embezzlement -Create and use dumpsites -Participate in human investment campaigns -Send all children to schools -Vaccinate	**The process of development**	Challenges of Development and Fight of under-development	**28-Global Solution to poverty and Under-development** (The Millennium Development **29-Success Story of solving under-development**: The Economic Miracle of NICs e.gs. Thailand, Brazil, Malaysia, China, Mexico, South Africa etc.	NICs	- Define - Identify -Classify - Read maps and graphs on aspects of development	- Consciousness of environmental problems - Respect and Love for nature - Curiosity - Sense of observation - Empathy - Tolerance	- Other disciplines (biology, environmental science) -Map - School environment - Data - Resource Persons	- Observations ; - Excursions ; - Brainstorming ; - Simulation ; -Analysis of Instructional materials - Enquiry (investigation) - Exploitation of	1 1

FORM FOUR CLASS

Contextual Framework		Competent Acting		R							Duratio -
				Essential			Skills	Values & Attitudes	Other	Methods& Techniques	
Family of	Examples of Life	Category of	Examples of	Topics	Sub-topics	Lessons	Notions/				
Exploitation and sustainable use of natural resources	-Low farm output -Low animal production -Famine -Post harvest losses -Artisanal mineral extraction - Low involvement of Cameroonians in fishing industry -Deforestation -Overfishing - Fuel wood		-Creation of plantations - create food reserves - Use traditional and modern crop conservation techniques -Practice irrigation, organic farming, mixed farming, terracing etc. -Denounce illegal fishing,	**Managing resources for development through economic activities**	Notion of Economic Activity	30-**Economic Activities** • Meaning •Classification of economic activities	Economic Activity	- Define - Identify -Classify - Read maps and graphs on aspects of economic activities	- Consciousness of environmental problems - Respect and Love for nature - Curiosity - Sense of observation - Empathy - Tolerance	- Other disciplines (biology, environmental science) -Map - School environment - Data - Resource Persons	- Observations ; - Excursions ; - Brainstorming ; - Simulation ; -Analysis of Instructional materials - Enquiry (investigation) - Exploitation of audio-visual supports, Slides, geology kit - Laboratory work.	**1**
					Agriculture as an economic activity of the primary sector	31-**Agriculture** • Meaning	Agriculture					**1**
						32-**Intensive Agriculture** **(Arable Farming)** • Meaning • Types	-Intensive Agriculture - Arable farming					**2**
						33-**Intensive Agriculture** **(Pastoral Farming)** • Meaning	-Intensive Agriculture - Pastoral farming					**2**

FORM FOUR CLASS

| Contextual Framework | | Competent Acting | | R | | | | | | | | Duration of Lesson |
| | | | | Essential | | | | Skills | Values & Attitudes | Other | Methods& Techniques | |
Family of	Examples of Life	Category of	Examples of	Topic	Sub-topics	Lessons	Notions/					
Exploitation and sustainable use of natural resources	-Low farm output -Low animal production - Famine -Post harvest losses - Artisanal mineral extraction - Low involvement of Cameroonians in fishing	**Sustainable management of natural resources**	-Creation of plantations - create food reserves - Use traditional and modern crop conservation techniques -Practice irrigation, organic farming, mixed farming, terracing etc. -Denounce illegal fishing, forest exploitation and	**Managing resources for development through economic activities**	Agriculture as an economic activity of the primary sector	**34-Extensive Agriculture (Arable Farming)** ● Meaning ● Types	- Extensive Agriculture -Arable	Define - Identify -Classify - Read maps and graphs on aspects of economic activities	-Consciousness of environmental problems - Respect and Love for nature - Curiosity - Sense of observation - Empathy - Tolerance	- Other disciplines (biology, environmental science) -Map - School environment - Data - Resource Persons	- Observations ; - Excursions ; - Brainstorming; - Simulation ; -Analysis of Instructional materials - Enquiry (investigation) - Exploitation of audio-visual supports, Slides, geology kit - Laboratory work.	2
						35-Extensive Agriculture (Pastoral ● Meaning	- Extensive Agriculture -Pastoral farming					2
						36-Impact of Agriculture	Economy					1
						37-The Green Revolution	Green Revolution					1
						38-Impact of Agriculture on the Environment	Environment					1

FORM FOUR CLASS

Contextual Framework		Competent Acting		R								Duratio
				Essential				Skills	Values &	Other	Methods&	
Family of	Examples of Life	Category of	Examples of	Topic	Sub-topics	Lessons	Notions/		Attitudes		Techniques	
Exploitation and sustainable use of natural resources	Low farm output -Low animal production -Famine -Post harvest losses -Artisanal mineral extraction - Low involvement of Cameroonians in fishing industry -Deforestation	**Sustainable management of natural resources**	-Creation of plantations - create food reserves -Use traditional and modern crop conservation techniques -Practice irrigation, organic farming, mixed farming, terracing etc. -Denounce illegal fishing, forest exploitation and fishing -	**Managing resources for development through economic activities**	Agriculture as an economic activity of the primary sector	Further Study 2: Problems of tropical agriculture • Physical Problem and solutions		- Define - Identify -Classify - Read maps and graphs on aspects of economic activities	- Consciousness of environmental problems - Respect and Love for nature - Curiosity - Sense of observation - Empathy - Tolerance	- Other disciplines (biology, environmental science) -Map - School environment - Data - Resource Persons	- Observations ; - Excursions ; - Simulation ; -Analysis of Instructional materials - Enquiry (investigation) - Exploitation of audio-visual supports, Slides, geology kit - Laboratory work.	**2**
						39-Spatial Patterns of agriculture: Von Thünen's Model of Agricultural land use • Aim • Principle (locational rent)	- Land use pattern -Locational Rent					**2**
					The economic development potentials of Cameroon in the primary sector I: Agriculture	**40-Arable Agriculture in**	Arable Farming					**2**
						41-Pastoral Agriculture in Cameroo	Pastoral Farming					**2**
						42-Impact of agriculture on the	Economy					**1**

FORM FOUR CLASS

Contextual Framework		Competent Acting		Essential				R Skills	Values & Attitudes	Other	Methods& Techniques	Duratio n
Family of	Examples of	Category of	Examples of	Topic	Sub-topics	Lessons	Notions/	Skills	Values & Attitudes	Other	Methods& Techniques	
	-Low farm output	Sustainable manageme nt of natural resources	-Creation of plantations	**Managing resources for developme nt through economic activities**	Agriculture as an economic activity of the primary sect or	**Further Study 3: Problems of Tropical Agriculture**						**2**
Exploitation and sustainable use of natural resources	-Low animal production		- create food reserves			• Physical Problem and solutions						
						43-Spatial Patterns of agriculture : Von Thünen's Model of Agricultural land use	- Land use pattern -Locational Rent	- Define - Identify - Classif y - Read maps and graphs on aspects of economi c activities	- Consciousnes s of environmenta l problems - Respect and Love for nature - Curiosity - Sense of observation - Empathy - Tolerance	- Other disciplines (biology, environment al science) -Map - School environment - Data - Resource Persons	Observations; - Excursions ; - Brainstorming; - Simulation ; -Analysis of Instruction al materials - Enquiry (investigation) - Exploitation of audio-visual supports, Slides, geology kit - Laboratory	**2**
	-Famine -Post harvest losses		- Use traditional and modern crop conservation techniques			• Aim						
	-Artisanal mineral extracti on		-Practice irrigation, organic farming, mixed farming, terracing etc.		**The economic developme nt potentials of Cameroon in the primary sector I: Agriculture**	**44-Arable Agriculture in Cameroon:**	Arable Farming					**2**
	- Low involvement of Cameroonians in fishing		-Denounce illegal fishing			**45-Pastoral Agriculture in Cameroon:**	Pastoral Farming					**2**
						46-Impact of agriculture on						**1**

FORM FOUR CLASS

Contextual Framework		Competent Acting		Essential				R Skills	Values & Attitudes	Other	Methods& Techniques	Duration of Lesson
Family of	Examples of	Category of	Examples of	Topic	Sub-topics	Lessons	Notions/					
Exploitation and sustainable use of natural resources	-Low farm output -Low animal production -Famine -Post harvest losses - Artisanal mineral extraction -	**Sustainable management of natural resources**	-Creation of plantations - create food reserves - Use traditional and modern crop conservation techniques -Practice irrigation, organic farming, mixed farming, terracing etc.	**Managing resources for development through economic activities**	**Forestry, fishing, and mining as economic activities of the primary sector**	**47-Forest Resources &management** • Meaning •Global stock &Distribution • Major Producers • Methods of Exploitation	-Forest Resources -Conservation	- Define - Identify - Classify - Read maps and graphs on aspects of economic activities	- Consciousness of environmental problems - Respect and Love for nature - Curiosity - Sense of observation - Empathy - Tolerance	- Other disciplines (biology, environmental science) -Map - School environment - Data - Resource Persons	- Observations; - Excursions ; - Brainstorming; - Simulation ; -Analysis of Instructional materials - Enquiry (investigation) - Exploitation of audio-visual supports, Slides, geology kit - Laboratory work.	**3**
						48-Fish Resources & management • Meaning • Global stock &Distribution • Major Producers • Methods of	-Fish Resources - Conservation					**3**

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FORM FOUR CLASS

Contextual Framework		Competent Acting		Resources				Skills	Values & Attitudes	Other	Methods & Techniques	Duration
				Essential								
Family of	Examples of Life	Category of	Examples of	Topic	Sub-topics	Lessons	Notions/					
	-Low farm output -Low animal production -Famine -Post harvest losses -Artisanal		-Creation of plantations - create food reserves - Use traditional and modern crop conservation techniques -Practice irrigation, organic farming, mixed farming, terracing etc.	Managing resources for development through economic	Forestry, fishing, and mining as economic activities of the The economic development potentials of Cameroon	**49-Mineral Resources & management** • Meaning • Global stock & Distribution • Major Producers **50- Management of Forest resources in Cameroon** •Distribution •Methods	-Forest Resource	- Define - Identify - Classify - Read maps and graphs on aspects of economic activities	- Consciousness of environmental problems - Respect and	- Other disciplines (biology, environmental science) -Map - School	- Observations ; - Excursions ; - Brainstorming ; - Simulation ; -Analysis of	2
Exploitation and		Sustainable manageme				**Further Study 4: Deforestation in Cameroon and Consequences** ▪ **Causes, Manifestations**						1

FORM FOUR CLASS

Contextual Framework		Competent Acting		Essential				R				Duration of Lesson
								Skills	Values & Attitudes	Other	Methods& Techniques	
Family of	Examples of Life	Category of	Examples of	Topic	Sub-topics	Lessons	Notions/					
			-Creation of plantations - create food reserves -Use traditional and modern crop conservation techniques -Practice irrigation, organic farming, mixed farming, terracing etc.			**51- Management of Fish resources in Cameroon** • Distribution • Methods of exploitation	-Fish Resource					2
	-Low farm output -Low animal production -Famine -Post harvest loss es			**Managing resources for development through economic activities**	Forestry, fishing, and mining as economic activities of the primary sector The economic development potentials of Cameroon	**52- Management of Minerals Resources in Cameroon** -Types -Distribution -Effort to develop	-Fish Resource	- Define - Identify - Classify	- Consciousness of environmental problems - Respect and Love for nature - Curiosity - Sense of	- Other disciplines (biology, environmental science) -Map - School environme	- Observations ; - Excursions ; - Brainstorming ; - Simulation ; -Analysis of Instructional materials	2
						Guided or Directed Work 1: Non-Agricultural Resources of the Region of the school • Inventory of the resources of vegetation, rivers and sub soil in their region						1
Exploitation and sustainable		**Sustainable management of natural**	-Denounce illegal fishing, forest	**Initiation to Map Analysis**	**Map Interpretation**	**Practical Work 13: Description of Vegetation on maps** • Identification of types						1

FORM FOUR CLASS

Contextual Framework		Competent Acting		R				Skills (Attitudes	Values & Attitudes	Other Resource	Methods& Techniques	Duration
				Essential								
Family of situation	Examples of Life	Category of Action	Examples of	Topic	Sub-topics	Lessons	Notions/					
			-Create of plantations - create food reserves - Use traditional and modern crop conservation techniques -Practice irrigation, organic farming, mixed farming, terracing etc.	Major Sources of Power		**53-Energy and Power Resources** • Meaning of Energy •Sources of energy (traditional & Modern sources)	–Energy Resources -Conservation					
Exploitation and sustainable use of	-Low farm output -Low animal production -Famine -Post harvest losses -Artisanal	**- Conservation of natural resources**		**Managing resources for developmen**	**Economic developme nt potentials**	**54-Energy Resources of Cameroon:** • Sources& Distributio n	- Energy Resources Conservation	- Define - Identify - Classify - Read maps and graphs	- Consciousness of environmental problems - Respect and Love for nature - Curiosity - Sense of observation	- Other disciplines (biology, environment al science) -Map - School environme nt kit	- Observations ; - Excursions ; - Brainstorming; - Simulation ; -Analysis of Instruction al materials - Enquiry (investigation)	**2**

Test

Group:	Test:	# 1
Competence: Sustainable management of natural resources and preservation of the environment		
Duration: 30min	**Note / 10**	

Situation : Rivers in your area are facing seriouse ecological crises caused by intensive fishing. In effect, the villagers are complaining on the fact that the rivers are being poluted by fishemen and fish are becoming more and more scarce.You are sollicitated in other to mobilise the fishermen on durable fishing.

Doc1: Fishing off shore Kribi	**Doc2: A fisherman on its prigure**
Doc 3:Economic and social importance of fishing	**Doc 4: Impacts of Fishing on the Environment**
Fishing plays a very important role in a country from the point of view of employment, nutrition and return of foreign currencies. The per capita consumption varies with localities; it is 28 kg / year in coastal areas and 8 kg / year within the continent. We estimate more than 100,000 families who depend directly or indirectly on fishing, or more than 5% of the country's population. In coastal regions, almost everyone who depends on fishing activities. Source: FAO / Cameroon	Intensive fishing has an impact on the environment. In effect, it leads to the pollution of waters and the Marine surface. Wastes from fishing activity are at the origin of pollution of the marine environment. In addition, this activity turns to lower water resources and the disappearance of certain species because of their overexploitation.

Solve the following task from the document below

1. Present the situation problem (3PTS)

2. Presents the socio-economic and environmental impacts of fishing (3PTS)

3. What advices you can propose to fishermen in your location to limit the impacts of their activities on the rivers (4pts)

xxx

Questionnaires to take into consideration of the Initial conceptions of students on fishing

Hello dear students, l am a student at the Faculty of Sciences of Education at the University of Yaounde 1, and l am conducting research on the teaching of Geography based on problem situations. l hope you will take part in this quick test on fishing in Africa. Your answers will be used primarily for research.	

	SECTION 1. Information on the Students	
S1Q1	**Sex** **1. Male.** **2. Female**	
	Age **1**. Less than 12 years **2**. 12-14 years old **3**. 14-16 years **4**. 4-year-old	
	You are **1**. New in class **2**. repeater	
	SECTION 2.Practice of fishing	
S2Q1	**Do you practice fishing?** **1**. Yes **2**.Non	
S2Q2	**If yes on which occasion?** **1**.At the neighborhood after classes **2**.At neighborhood during the holidays. **3**. During outing / walk / excursion 4. In the village during holidays	
S2Q3	**If not why ?**	
	Section 3.Knowledge on fishing	
S3Q1	**Can you give five words concerning fishing?** **1** **2** **3** **4** **5**	
S3Q2	**According to you fishing is ?** **1**. It's an activity that gives money **2**.It is an activity for the exploitation of food resources. **3**. Both	
S3Q3	**This activity destroys the environment** **1**.Not at all **2**.Rearly **3**.Some times **4**.Always	
S3Q4	**Or do you observe the practice of fishing?** **1**. In the Village **2**.At the neighbors **3**.AT the TV **4**. Through the media.**5**. During walks and traveling.	
S3Q5	**Where do we practice this activity?** **1**. At the Lake and Dams **2**.At the streams **3**. At the River **4**.At the Sea and Ocean.	

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